SAE World Congress & Exhibition

Technical Session Schedule

As of 04/22/2007 07:40 pm

Monday, April 16

Is the Light Duty Diesel Ready for Prime Time?

Session Code: ***CONG70***

Room FEV Powertrain Innovation Forum ***Session Time:*** ***10:30 a.m.***

Beginning last year at the SAE World Congress, a large focus was given to diesel technology. Topics varied from where we are, how it can be implemented cost effectively, alternatives to aftertreatment, production capacity to economic relevance, just to name a few. One year later we're back to revisit light duty diesel technology and look at the successes and roadblocks readying the technology for commercialization. Will the market be ready for the estimated share increase predicted by many by the year 2015? Will the fuel infrastructure, the repair sector and the regulatory agencies be prepared for the large increase in usage? These and other challenges will be discussed by the panel of experts.

Moderators - *Walter S. McManus, Director-AA Division, OSAT, UMTRI*

Panelists - *James J. Eberhardt, Chief Scientist, Office of FreedomCAR & Veh Tech, US DOE; Christopher Grundler, Deputy Dir, Off of Transp & Air Qty, US EPA; Robert Lee, VP, PowerTrain Product Engineering, DaimlerChrysler Corp.; Tony Molla, VP, Communications, National Inst. for Auto Serv Excellence; James E. Williams, Sr. Downstream Manager, American Petroleum Institute*

Monday, April 16

A Status Report From North America's Powertrain (NAIPC) Leadership

Session Code: ***CONG71***

Room FEV Powertrain Innovation Forum ***Session Time:*** ***1:30 p.m.***

NAIPC is an invitation-only event where today's North American powertrain leaders come together and discuss relative topics that impact the automotive industry today and in the future. Be part of a session that highlights some of those topics and shares with SAE attendees the driving forces of today's industry. Representatives of each of the four tracks from the 2006 NAIPC will report on the major results of the conference. A question and answer period will follow.

Organizers - *Gary W. Rogers, President & CEO, FEV Engine Technology, Inc.*

Moderators - *J. Gary Smyth, Director, Powertrain System Research, General Motors Corp.*

Panelists - *Insight Panel: Robert Lee, VP, PowerTrain Product Engineering, DaimlerChrysler Corp.; Energy Track: Gary W. Rogers, President & CEO, FEV Engine Technology Inc.; Regulatory Track: Jeremy W. Holt, President, Ricardo, Inc.; Technology Track: Ray Corbin, President, AVL Powertrain Engineering, Inc.; Consumer Track: Robert Fascetti, Director, V-Engine Engineering, Ford Motor Company*

Monday, April 16

Total Vehicle Integration

Session Code: ***CONG60***

Room AVL Technology Theater (open to all ***Session Time:*** ***10:30 a.m.***

In order to survive in the global economy of an ever increasing number of vehicle manufacturers, OEMs must take systems engineering to the next level. Successful manufacturers will integrate customer needs, internal and supplier capabilities, and regulation driven systems into designs that are valuable to the consumer, timely to market, and efficient to assemble. The panel will discuss how this will be accomplished.

Moderators - *Andrew Brown, Executive Director & Chief Technologist, Delphi Corp.*

Panelists - *Mark Chernoby, Vice President - Advance Vehicle Engrg, DaimlerChrysler; Won Suk Cho, President, Hyundai-Kia America Technical Center; Paul Mascarenas, Vice President, Engineering, Ford Motor Co.; Mark Reuss, Exec Dir, Glob Integration, Sfty & Virtual Veh Dev, GM; Carsten Saager, General Manager, Metals, Coatings, Specific Matls, BMW Group*

Keynote Speakers - *Yasuhiko Ichihashi, Managing Off, Toyota Motor Corp & Pres, Toyota Tech Center*

Monday, April 16

Electronics Open Architectures

Session Code: ***CONG61***

Room AVL Technology Theater (open to all ***Session Time:*** ***2:30 p.m.***

The panel of electronics system suppliers, each representing a specific sub-system, will discuss the performance requirements an open architecture needs to function effectively in the automotive environment. The experts will outline how open architecture impacts each sub-system and the challenges that are created.

Moderators - *Jeffrey J. Owens, President, Delphi Electronics & Safety*

Panelists - *Richard Burns, Chief Engineer, R&D, Yazaki North America; Helmut Fennel, VP, Competence Ctr Control Sys Software, Continental; Frank Homann, VP, Cockpit Modules, Siemens AG; Martin Thomas, Director, Gas Sys, Elec Control Units, Robert Bosch GmbH*

Monday, April 16

In-Cylinder Diesel Particulate and NOx Control (Part 1 of 2)

Session Code: ***PFL18***

Room D2-08 ***Session Time:*** ***9:00 a.m.***

Methods for reducing NOx and Particulate In-cylinder are investigated including low temperature combustion, spray targeting, fuel characteristics and water emulsions.

Organizers - *Cathy Y. Choi, Caterpillar Inc.; Rod Radovanovic, Diesel Engine Consulting; Todd A. Sheridan, Cummins Inc.; Stefan Simescu, Southwest Research Institute; Dale R. Tree, Brigham Young Univ.*

Chairpersons - *Rod Radovanovic, Diesel Engine Consulting*

Assistant Chairpersons - *Stefan Simescu, Southwest Research Institute*

Time	Paper No.	Title
9:00 a.m.	***2007-01-0120***	***Comparative Evaluation of EGR, Intake Water Injection and Fuel-Water Emulsion as NOx Reduction Techniques for Heavy Duty Diesel Engines*** *Dimitrios Theofanis Hountalas, George Mavropoulos, Theodoros Zannis, National Technical Univ. of Athens*
9:30 a.m.	***ORAL ONLY***	***Numerical Analysis of Water and Water-Diesel Emulsion to Reduce Direct Injection Diesel Engine Emissions*** *Peter Eckert, Amin Velji, Ulrich Spicher, Universitaet Karlsruhe (TH)*
10:00 a.m.	***2007-01-0125***	***Simultaneous Reduction of NOX and Soot in a Heavy-Duty Diesel Engine by Instantaneous Mixing of Fuel and Water*** *Taisuke Murotani, Kazutaka Hattori, Etsuro Sato, Komatsu, Ltd.; Christos Chryssakis, National Technical Univ. of Athens; Aristotelis Babajimopoulos, Dennis Assanis, Univ. of Michigan*
10:30 a.m.	***2007-01-0123***	***SOF Component of Lubricant Oil on Diesel PM in a High Boosted and Cooled EGR Engine*** *Hideaki Osada, Yuzo Aoyagi, Kazuaki Shimada, New Ace Inst. Co., Ltd.; Yuichi Goto, Hisakazu Suzuki, National Traffic Safety & Enviro Lab.*
11:00 a.m.	***2007-01-0129***	***Fuel Property Impacts on Diesel Particulate Morphology, Nanostructures, and NOx Emissions*** *Juhun Song, Kyeong Lee, Argonne National Laboratory*

The papers in this session are available in a single publication, SP-2082, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Monday, April 16

In-Cylinder Diesel Particulate and NOx Control (Part 2 of 2)

Session Code: ***PFL18***

Room D2-08 ***Session Time:*** ***1:30 p.m.***

Methods for reducing NOx and Particulate In-cylinder are investigated including low temperature combustion, spray targeting, fuel characteristics and water emulsions.

Organizers - *Cathy Y. Choi, Caterpillar Inc.; Rod Radovanovic, Diesel Engine Consulting; Todd A. Sheridan, Cummins Inc.; Stefan Simescu, Southwest Research Institute; Dale R. Tree, Brigham Young Univ.*

Chairpersons - *Cathy Y. Choi, Caterpillar Inc.*

Assistant Chairpersons - *Susannah Danby, Caterpillar Inc.*

Time	Paper No.	Title
1:30 p.m.	***2007-01-0122***	***Spray Angle and Rail Pressure Study for Low NOx Diesel Combustion*** *Robert M. Siewert, GM R&D Center*
2:00 p.m.	***2007-01-0119***	***A Computational Investigation into the Effects of Spray Targeting, Bowl Geometry and Swirl Ratio for Low-Temperature Combustion in a Heavy-Duty Diesel Engine*** *Caroline L. Genzale, University of Wisconsin - Madison; David D. Wickman, Wisconsin Engine Research Consultants; Rolf D. Reitz, University of Wisconsin - Madison*
2:30 p.m.	***2007-01-0126***	***Characterization of Low Temperature Diesel Combustion with Various Dilution Gases*** *T. Li, H. Izumi, T. Shudo, H. Ogawa, Y. Okabe, Hokkaido Univ.*
3:00 p.m.	***2007-01-0121***	***Effects of Engine Operating Parameters on near Stoichiometric Diesel Combustion Characteristics*** *Sangsuk Lee, Wisconsin Univ.; Manuel A. Gonzalez D., Rolf Reitz, Univ. of Wisconsin*
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-0128***	***Analysis of Different Internal EGR Solutions for Small Diesel Engines*** *F. Millo, F. Mallamo, Politecnico di Torino; L. Arnone, M. Bonanni, D. Franceschini, Lombardini*
4:15 p.m.	***2007-01-0127***	***Assessment of Diesel Engine Size-Scaling Relationships*** *Laine Stager*

The papers in this session are available in a single publication, SP-2082, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Monday, April 16

Fundamental Advances in Thermal and Fluid Sciences

Session Code: ***PFL29***

Room D2-09/10 ***Session Time:*** ***1:30 p.m.***

This session is comprised of presentations touching on a variety of technical topics relative to turbocharged diesels, friction development, characteristics of diesel fuel spray, assessment of turbulent kinetic energy, optical diagnostics and numerical modeling.

Organizers - *Daniel C. Haworth, Pennsylvania State Univ.; Raj P. Ranganathan, General Motors Corp.*

Chairpersons - *Daniel C. Haworth, Pennsylvania State Univ.; Raj P. Ranganathan, GM Powertrain*

Time	Paper No.	Title
1:30 p.m.	***2007-01-0131***	***Autoignition and Emission Characteristics of Gaseous Fuel Direct Injection Compression Ignition Combustion*** *Ning Wu; Martin Davy, W. Kendal Bushe, Univ. of British Columbia*
2:00 p.m.	***2007-01-0130***	***Experimental and Theoretical Investigation of Non-Quasi-Homogeneity of Flame Propagation in Stratified Media*** *Taekyu Kang, University of Illinois*
2:30 p.m.	***2007-01-0135***	***Radical Ignition Combustion Studies with Hydrogen in a Two-Stroke DI-HCRI Diesel Engine*** *David A. Blank, HCRI Technologies Intl.*
3:00 p.m.	***2007-01-0136***	***Evaluation Of Various Dynamic Issues During Transient Operation Of Turbocharged Diesel Engine With Special Reference To Friction Development*** *Evangelos Giakoumis, Constantine Rakopoulos, Athanasios Dimaratos, National Technical Univ. of Athens*
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-0134***	***A Review of Fundamental Studies Relevant to Flame Lift-off in Diesel Jets*** *Rishikesh Venugopal, John Abraham, Purdue Univ-West Lafayette*
4:15 p.m.	***ORAL ONLY***	***Advanced Gasoline Engine Development Using Optical Diagnostics and Numerical Modeling*** *Michael C. Drake, GM Research Labs; Daniel C. Haworth, Pennsylvania State Univ.*

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Monday, April 16

Military Vehicle: Vehicle Modeling and Simulation (Part 2 of 2)

Session Code: ***MV4***

Room D2-11/12 ***Session Time:*** ***1:30 p.m.***

This session will discuss vehicle modeling and simulation with military vehicle applications.

Organizers - *Kris Argeropoulos, Mark J. Brudnak, Christopher B. Mushenski, US Army TACOM*

Time	Paper No.	Title
1:30 p.m.	***2007-01-0139***	***Experimental Validation of a Time-Accurate Finite Element Model for Coupled Multibody Dynamics and Liquid Sloshing*** *Tamer M. Wasfy, Advanced Science & Automation Corp.; James O'Kins, Scott Smith, US Army Tank Automotive Res. Development & Engineering Ctr.*

2:00 p.m.	***2007-01-0137***	***Designing Composite Vehicles Against Blast Attack***
		Dahsin Liu, G. Li, Q. Li, Michigan State Univ.; B. B. Raju, D. Templeton, U.S. Army RDECOM/TARDEC
2:30 p.m.	***2007-01-0483***	***Innovative Composite Structure Design for Blast Protection***
		Dongying Jiang, Yuanyuan Liu, MKP Structural Design Associates Inc.; Chang Qi, Zheng-Dong Ma, Univ. of Michigan; Basavaraju Raju, Walter Bryzik, US Army TARDEC
3:00 p.m.	***2007-01-0141***	***Finite Element Modeling and Analysis of Hydro Gas Suspension System for Temperature Rise Behavior***
		H. Rabibunnisa, P. Akilandeswari, C V R D E

The papers in this session are available in a single publication, SP-2110, and also individually.

Planned by Military Vehicle Committee / Commercial Vehicle Activity

Monday, April 16

Casting Design Seminar

Session Code: ***M25***

Room D2-11/12 ***Session Time:*** ***3:45 p.m.***

This session will provide details on how to do design castings for automotive components.

Organizers - *Steve Robison, American Foundry Society Inc.*

Panelists - *Michael Gwyn, Advanced Technology Institute; Alfred T. Spada, American Foundry Society Inc.*

Planned by Non-Ferrous Committee / Materials Engineering Activity

Monday, April 16

Multi-Dimensional Engine Modeling (Part 1 of 3)

Session Code: ***PFL38***

Room D2-13/14 ***Session Time:*** ***9:00 a.m.***

This session is comprised of presentations touching on a variety of technical topics relative to in-cylinder flow, heat transfer calculation, effects on mixing gaseous fuel, improvement of predictive behavior, validation, experimental and theoretical studies, HCCI, and turbulent combustion modeling.

Organizers - *Hardo Barths, General Motors Corp.; A. David Gosman, Imperial College London; Carl-Anders Hergart, Caterpillar Inc.*

Time	***Paper No.***	***Title***
9:00 a.m.	***2007-01-0165***	***Modeling Knock in Spark-Ignition Engines Using a G-equation Combustion Model Incorporating Detailed Chemical Kinetics***
		Long Liang
9:30 a.m.	***2007-01-0148***	***Development of an Ignition Model for S.I. Engines Simulation***
		Stefania Falfari, Gian Marco Bianchi, Univ. of Bologna
10:00 a.m.	***2007-01-0171***	***Development of a Hybrid, Auto-Ignition/Flame-Propagation Model and Validation Against Engine Experiments and Flame Liftoff***
		Satbir Singh
10:30 a.m.	***2007-01-0153***	***Simulation of Fuel-Air Interaction in a Four Stroke Four Valve Direct Injected Spark Ignition (DISI) Engine***
		V. Ganesan, Indian Institute of Technology

11:00 a.m.	***2007-01-0151***	***Multi-Cycle LES Simulations of Flow and Combustion in a PFI SI 4-Valve Production Engine***
		Olivier Vermorel, Stéphane Richard, Olivier Colin, Christian Angelberger, Adlène Benkenida, IFP; Denis Veynante, EM2C
11:30 a.m.	***2007-01-0163***	***Combustion Modeling of Diesel Combustion with Partially Premixed Conditions***
		Bing Hu; Rahul Jhavar

The papers in this session are available in a single publication, SP-2125, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Monday, April 16

Multi-Dimensional Engine Modeling (Part 2 of 3)

Session Code: ***PFL38***

Room D2-13/14 ***Session Time:*** ***1:30 p.m.***

This session is comprised of presentations touching on a variety of technical topics relative to in-cylinder flow, heat transfer calculation, effects on mixing gaseous fuel, improvement of predictive behavior, validation, experimental and theoretical studies, HCCI, and turbulent combustion modeling.

Organizers - *Hardo Barths, General Motors Corp.; A. David Gosman, Imperial College London; Carl Hergart, Caterpillar Inc.*

Chairpersons - *Carl Hergart, Caterpillar Inc.*

Time	***Paper No.***	***Title***
1:30 p.m.	***2007-01-0146***	***Turbulence and Residual Gas Effects on Mixing, Combustion, and Emissions in Split Injection of Gaseous Fuel***
		Jonathan W. Anders; John Abraham, Purdue Univ.
2:00 p.m.	***2007-01-0162***	***Modeling Coupled Processes of CO and Soot Formation and Oxidation for Conventional and HCCI Diesel Combustion***
		Stephane Jay, Philippe Beard, Antonio Pires Da Cruz, IFP Powertrain Engineering
2:30 p.m.	***2007-01-0161***	***Multidimensional Cycle Analysis on a Novel 2-Stroke HSDI Diesel Engine***
		Enrico Mattarelli, Universita degli Studi di Modena
3:00 p.m.	***2007-01-0169***	***The Influence of Crevice Flows and Blow-By on the Charge Motion and Temperature Profiles within a Rapid Compression Expansion Machine used for Chemical Kinetic (HCCI) Studies***
		S. Scott Goldsborough, Christopher J. Potokar, Marquette University
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-0168***	***Computational Optimization of a Split Injection System with EGR and Boost Pressure/Compression Ratio Variations in a Diesel Engine***
		Seshasai Srinivasan, University of Wisconsin-Madison; Franz Tanner, Michigan Technological Univ.; Jan Macek, Milos Polasek, Czech Technical Univ.
4:15 p.m.	***2007-01-0167***	***Applying Representative Interactive Flamelets (RIF) with Special Emphasis on Pollutant Formation to Simulate a DI Diesel Engine with Roof-Shaped Combustion Chamber and Tumble Charge Motion***
		Christian Felsch

4:45 p.m.	***2007-01-0164***	***A CFD Study to Optimize the Injection Strategy for Diesel Particulate Filter Regeneration*** *Lahjaily Hamid, Renault SAS*

The papers in this session are available in a single publication, SP-2125, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Monday, April 16

Homogeneous Charge Compression Ignition (HCCI) (Part 1 of 8) Fuel Effects

Session Code: ***PFL11***

Room D2-15 ***Session Time:*** ***9:00 a.m.***

Which fuels are suitable for HCCI combustion? The normal octane and cetane numbers are not very well suited to describe the HCCI characteristics of a fuel. How can we characterize a fuel for HCCI combustion. These are subjects that are approached in this session.

Organizers - *Kevin P. Duffy, Caterpillar Inc.; Bengt Johansson, Lund University; David M. Milam, Caterpillar Inc.; Nebojsa Milovanovic, Delphi Diesel Systems; Per Tunestal, Lund University; Hongming Xu, Univ. of Birmingham*

Chairpersons - *Nebojsa Milovanovic, Delphi Diesel Systems*

Time	***Paper No.***	***Title***
9:00 a.m.	***2007-01-0191***	***Effects of Fuel Property Changes on Heavy-Duty HCCI Combustion*** *Paul W. Bessonette, Charles H. Schleyer, ExxonMobil Research & Engineering Co.; Kevin P. Duffy, William L. Hardy, Michael P. Liechty, Caterpillar Inc.*
9:30 a.m.	***2007-01-0220***	***Auto-Ignition Characteristics of Hydrocarbons and Development of HCCI Fuel Index*** *Gen Shibata, Nippon Oil Corp.; Tomonori Urushihara, Nissan Motor Co., Ltd.*
10:00 a.m.	***2007-01-0208***	***Effect of Reformer Gas on HCCI Combustion - Part I: High Octane Fuels*** *Vahid Hosseini, M. David Checkel, Univ. of Alberta*
10:30 a.m.	***2007-01-0206***	***Effect of Reformer Gas on HCCI Combustion - Part II: Low Octane Fuels*** *Vahid Hosseini, M. David Checkel, Univ. of Alberta*

The papers in this session are available in a single publication, SP-2100, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Monday, April 16

Homogeneous Charge Compression Ignition (HCCI) (Part 2 of 8) HCCI Control

Session Code: ***PFL11***

Room D2-15 ***Session Time:*** ***1:30 p.m.***

How do we get HCCI combustion to occur at the right time? How can we seamlessly switch between HCCI combustion and conventional combustion modes in order to extend the operating range of the engine. Can we build models of HCCI combustion suitable for real-time control applications? These subjects are approached in the HCCI Control session.

Organizers - *Kevin P. Duffy, Caterpillar Inc.; Bengt Johansson, Lund University; David M. Milam, Caterpillar Inc.; Nebojsa Milovanovic, Delphi Diesel Systems; Per Tunestal, Lund University; Hongming Xu, Univ. of Birmingham*

Chairpersons - *Per Tunestal, Lund University*

Time	***Paper No.***	***Title***

1:30 p.m.	***2007-01-0214***	***Multi-Mode Combustion Strategies with CAI for a GDI Engine***
		Andre Kulzer, Jean-Pierre Hathout, Christina Sauer, Roland Karrelmeyer, Wolfgang Fischer, Ansgar Christ, Robert Bosch GmbH
2:00 p.m.	***2007-01-0187***	***The Effects of Two-Stage Cam Profile Switching and External EGR on SI-CAI Combustion Transitions***
		Alasdair Cairns, Hugh Blaxill, Mahle Powertrain, Ltd.
2:30 p.m.	***2007-01-0222***	***Predicting HCCI Auto-Ignition Timing by Extending a Modified Knock-Integral Method***
		Mahdi Shahbakhti, Robert Lupul, Charles R. Koch, Univ. of Alberta
3:00 p.m.	***2007-01-0210***	***HCCI Combustion Using Charge Stratification for Combustion Control***
		Andreas William Berntsson, Ingemar G. Denbratt, Chalmers Univ. of Technology
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-0204***	***Control of a Multi-Cylinder HCCI Engine During Transient Operation by Modulating Residual Gas Fraction to Compensate for Wall Temperature Effects***
		Kyoungjoon Chang, George Lavoie, Aristotelis Babajimopoulos, Zoran Filipi, Dennis Assanis, Univ. of Michigan
4:15 p.m.	***2007-01-0199***	***Study of SI-HCCI-SI Transition on a Port Fuel Injection Engine Equipped with 4VVAS***
		Hui Xie; Yan Zhang, Nenghui Zhou, Tianjin Univ.; Tao Chen, Tsinghua Univ.; Hua Zhao, Brunel University Services, Ltd.
4:45 p.m.	***2007-01-0195***	***Mode Swith of SI-HCCI Combustion on a GDI Engine***
		Guohong Tian; Zhi Wang, Qiangqing Ge, Jian-Xin Wang, Shi-Jin Shuai, Tsinghua Univ.

The papers in this session are available in a single publication, SP-2100, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Monday, April 16

Diesel Exhaust Emission Control (Part 1 of 10) New Development

Session Code: ***PFL5***

Room D3-19 ***Session Time:*** ***9:00 a.m.***

This session is devoted to the presentation and publication of papers outlining the latest new technology developments in the area of exhaust emissions control. In addition, this session commences with the annual review paper of Dr. Timothy Johnson of Corning presenting a review of significant technical papers and presentations presented in the area of exhaust emissions control in 2006.

Organizers - *Kevin F. Brown, Engine Control Systems; Dean Tomazic, FEV Engine Technology Inc.; Owen H. Bailey, Umicore*

Time	***Paper No.***	***Title***
9:00 a.m.	***2007-01-0233***	***Diesel Emission Control in Review***
		Timothy V. Johnson, Corning Inc.
10:00 a.m.	***2007-01-0235***	***Development of an Emission Controls Concept for an IDI Heavy-Duty Diesel Engine Meeting 2007 Phase-In Emission Standards***
		Marek Tatur, Martin Laermann, Erik W. Koehler, Dean Tomazic, FEV Engine Technology Inc.; Taylor William Holland, David Robinson, Jeffrey T. Dowell, AM General LLC; Kenneth S. Price, Delphi

10:30 a.m.	***2007-01-0230***	***HD Diesel Thermal Management Improvements Toward Meeting 2010 Standards***
		Charles R. Schenk, Charles Moulis, L. James Sanchez, Christopher A. Laroo, U.S. Environmental Protection Agency
11:00 a.m.	***2007-01-0234***	***New Platinum/Palladium Based Catalyzed Filter Technologies for Future Passenger Car Applications***
		Marcus Pfeifer, Markus Koegel, Paul C. Spurk, Gerald S. Jeske, Umicore AG & Co. KG

The papers in this session are available in a single publication, SP-2080, and also individually.

Planned by Exhaust Aftertreatment and Emissions Committee / Powertrain Fuels and Lubricants Activity

Monday, April 16

Diesel Exhaust Emission Control (Part 2 of 10) New Development

Session Code: ***PFL5***

Room D3-19 ***Session Time:*** ***1:30 p.m.***

This session is devoted to the presentation and publication of papers outlining the latest new technology developments in the area of exhaust emissions control. In addition, this session commences with the annual review paper of Dr. Timothy Johnson of Corning presenting a review of significant technical papers and presentations presented in the area of exhaust emissions control in 2006.

Organizers - *Kevin F. Brown, Engine Control Systems; Dean Tomazic, FEV Engine Technology Inc.; Owen H. Bailey, Umicore*

Time	***Paper No.***	***Title***
1:30 p.m.	***2007-01-0232***	***New Flow-Through Trap System Targeting 50% PM Removal for Diesel Emission Control***
		Yongtaek Choi, Zhongyuan Dang, Ron Stone, Martin Morrill, Sud-Chemie Inc.; Don Floyd, Porvair Fuel Cell Technology
2:00 p.m.	***2007-01-0238***	***Doped Zirconia with Acidity and High Thermal Stability, for Durable Diesel Catalysts***
		S. Verdier, G. Criniere, O. Larcher, E. Rohart, Rhodia Research & Technologies; M. Feeley, H. Bradshaw, D. Harris, C. Butler, MEL Chemicals
2:30 p.m.	***2007-01-0231***	***Comparison of Diesel Oxidation Catalyst Performance on an Engine and a Gas Flow Reactor***
		Alexander Knafl; Manbae Han, Stani Bohac, Dennis Assanis, Univ. of Michigan; Patrick Szymkowicz, General Motors Corp.
3:00 p.m.	***2007-01-0237***	***Development of NOx Reduction System for Diesel Aftertreatment with Sulfur Trap Catalyst***
		Kohei Yoshida, Takamitsu Asanuma, Hiromasa Nishioka, Kotaro Hayashi, Shinya Hirota, Toyota Motor Co., Ltd.
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-0239***	***Study on Low NOx Emission Control Using Newly Developed Lean NOx Catalyst for Diesel Engines***
		Tomoko Morita, Norio Suzuki, Naohiro Satoh, Katsuji Wada, Hiroshi Ohno, Honda R&D Co., Ltd.
4:15 p.m.	***2007-01-0236***	***Innovative Approach of PM Removal System for a Light-Duty Diesel Vehicle Using Non-Thermal Plasma***
		Yoonho Kim, Kazuya Naito, Hirotoshi Fujikawa, Takashi Ogawa, Isao Tan, Kunio Hasegawa, Hirohisa Tanaka, Daihatsu Motor Co., Ltd.

The papers in this session are available in a single publication, SP-2080, and also individually.

Planned by Exhaust Aftertreatment and Emissions Committee / Powertrain Fuels and Lubricants Activity

Monday, April 16

Transmission and Drivelines (Part 1 of 8) Torque Converters/Launch Devices

Session Code: ***PFL22***

Room D3-20/21 ***Session Time:*** ***9:00 a.m.***

This session contains papers about new torque converter development. Converter clutch durability, shudder phenomena and friction material hot spotting are also discussed.

Organizers - *Michael E. Fingerman, Kerry G. Knight, DaimlerChrysler Corp.*

Chairpersons - *Michael E. Fingerman, Kerry G. Knight, DaimlerChrysler Corp.*

Time	Paper No.	Title
9:00 a.m.	***2007-01-0240***	***Study of Durability Prediction with Focus on Wear Properties for Multiple Plate Clutches***
		Toshihiro Saito, Honda R&D Co., Ltd.
9:30 a.m.	***2007-01-0241***	***248 mm Elliptical Torque Converter from DaimlerChrysler Corporation***
		Tomasz K. Kietlinski, Michael E. Fingerman, DaimlerChrysler Corp.
10:00 a.m.	***2007-01-0242***	***Development of Friction Material and Quantitative Analysis for Hot Spot Phenomena in Wet Clutch System***
		Tadashige Hirano, Kenji Maruo, Xiaoming Gu, Tamotsu Fujii, NSK Warner
10:30 a.m.	***2007-01-0243***	***Mechanism of Shudder Phenomena in Torque Converter and System Simulation Model***
		Hideki Ogawa, Eiji Hayashi, Osamu Yoshida, Yoichi Hayakawa, Aisin AW Industries Co., Ltd.; Takamitsu Kuroyanagi, Kazunori Ishikawa, Aisin AW Co., Ltd.; Hideaki Takabayashi, Kenji Maruo, Tamotsu Fujii, NSK Warner

The papers in this session are available in a single publication, SP-2134, and also individually.

Planned by Transmission and Driveline Committee / Powertrain Fuels and Lubricants Activity

Monday, April 16

Transmission and Drivelines (Part 2 of 8) Components

Session Code: ***PFL22***

Room D3-20/21 ***Session Time:*** ***1:30 p.m.***

In this session papers will be presented on an optimized gear tooth geometry for high performance transmissions, an analysis on gear tooth fatigue strength and synchronizer design for dual clutch transmissions. Additional topics include analytical predictions of chain drive resonance and the influence of electrical current on bearing flaking life.

Organizers - *John C. Collins, John A. Frait, DaimlerChrysler Corp.*

Chairpersons - *John C. Collins, John A. Frait, DaimlerChrysler Corp.*

Time	Paper No.	Title
1:30 p.m.	***2007-01-0112***	***Analytical Predictions for the Chain Drive System Resonance***
		Jack S.P. Liu, Das Ramnath, Rajesh Adhikari, Ford Motor Co.
2:00 p.m.	***2007-01-0113***	***Influence of Electrical Current on Bearing Flaking Life***
		Hidenobu Mikami, Takayuki Kawamura, NTN Corporation

2:30 p.m.	***2007-01-0114***	***Synchronizer Design and Development for Dual Clutch Transmission (DCT)***
		Syed T. Razzacki, DaimlerChrysler Corp.; Jonathan Edward Hottenstein, FEV
3:00 p.m.	***2007-01-0117***	***Analysis of Tooth Surface Fatigue Strength of Automotive Transmission Gears***
		Atsuhiro Mori, Takeshi Kariya, Nissan Motor Co., Ltd.
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-0118***	***Optimised Tooth Flank Geometry for High Performance Transmissions***
		Rolland Tiberiu Donin, Ricardo

The papers in this session are available in a single publication, SP-2134, and also individually.

Planned by Transmission and Driveline Committee / Powertrain Fuels and Lubricants Activity

Monday, April 16

Diesel Fuel Injection and Sprays (Part 1 of 3)

Session Code: ***PFL19***

Room D3-22/23 ***Session Time:*** ***9:00 a.m.***

This session is devoted to experimental and computational work in the area of diesel fuel injection and sprays. Topics include: spray characterization, cavitation, multiphase jet modeling, wall films and impingement, hydraulic circuit analysis, and dissolved gas effects.

Organizers - *Essam M. El-Hannouny, Argonne National Laboratory; Ming-Chia D. Lai, Wayne State Univ.; Zhengbai Liu, International Truck and Engine Corp.; Scott E. Parrish, General Motors Corp.; Zhijun Peng, Univ. of Sussex; Franz Xavier Tanner, Michigan Technological Univ.*

Chairpersons - *Ramachandra Diwakar, GM Research Labs*

Assistant Chairpersons - *Franz Xavier Tanner, Michigan Technological Univ.*

Time	***Paper No.***	***Title***
9:00 a.m.	***2007-01-0244***	***3D Large Scale Simulation of the High-Speed Liquid Jet Atomization***
		G.M. Bianchi, F. Minelli, Univ. of Bologna; R. Scardovelli, DIENCA - Univ. of Bologna; S. Zaleski, CNRS et Universite Pierre et Marie Curie
9:30 a.m.	***2007-01-0245***	***Evaluation of Predictive Capability of Diesel Nozzle Cavitation Models***
		E. Giannadakis, D. Papoulias, M. Gavaises, C. Arcoumanis, City University London; C. Soteriou, W. Tang, Delphi Diesel Systems
10:00 a.m.	***2007-01-0246***	***Link Between Cavitation Development and Erosion Damage in Diesel Injector Nozzles***
		M. Gavaises, D. Papoulias, A. Andriotis, E. Giannadakis, City University London; A. Theodorakakos, Fluid Research Co.
10:30 a.m.	***2007-01-0247***	***Large Eddy Simulation of Diesel Spray Combustion with Eddy-Dissipation Model and CIP Method by Use of KIVALES***
		Tsukasa Hori, Takahiro Kuge, Jiro Senda, Hajime Fujimoto, Doshisha Univ.
11:00 a.m.	***2007-01-0248***	***Global Optimization of a Two-Pulse Fuel Injection Strategy for a Diesel Engine Using Interpolation and a Gradient-Based Method***
		Franz X. Tanner, Michigan Technological Univ.; Seshasai Srinivasan, University of Wisconsin-Madison

11:30 a.m.	***2007-01-0249***	***A Micro-Variable Circular Orifice Fuel Injector for HCCI-Conventional Engine Combustion - Part I Numerical Simulation of Cavitation***
		Deyang Hou, Dalian QuantLogic Technology Co., LTD.
12:00 p.m.	***2007-01-0250***	***Modeling Needle Motion Influence on Nozzle Flow in High Pressure Injection System***
		Fulvio Palmieri, University of Rome "ROMA TRE"

The papers in this session are available in a single publication, SP-2083, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Monday, April 16

Diesel Fuel Injection and Sprays (Part 2 of 3)

Session Code: ***PFL19***

Room D3-22/23 ***Session Time:*** ***1:30 p.m.***

This session is devoted to experimental and computational work in the area of diesel fuel injection and sprays. Topics include: spray characterization, cavitation, multiphase jet modeling, wall films and impingement, hydraulic circuit analysis, and dissolved gas effects.

Organizers - *Essam M. El-Hannouny, Argonne National Laboratory; Ming-Chia D. Lai, Wayne State Univ.; Zhengbai Liu, International Truck and Engine Corp.; Scott E. Parrish, General Motors Corp.; Zhijun Peng, Univ. of Sussex; Franz Xavier Tanner, Michigan Technological Univ.*

Chairpersons - *Zhengbai Liu, International Truck and Engine Corp.*

Assistant Chairpersons - *Michael C. Drake, GM Research Labs*

Time	***Paper No.***	***Title***
1:30 p.m.	***2007-01-0485***	***Measurement of Diesel Spray Impingement and Fuel Film Characteristics Using Refractive Index Matching Method***
		Bo Yang, Jaal Ghandhi, Univ. of Wisconsin Madison
2:00 p.m.	***2007-01-0486***	***Numerical and Experimental Analysis of the Wall Film Thickness for Diesel Fuel Sprays Impinging on a Temperature-Controlled Wall***
		Luca Montorsi, Alf Magnusson, Chalmers Univ. of Technology; Stanislaw Jedrzejowski, Technical University of Lodz; Sven Andersson, Chalmers Univ. of Technology
2:30 p.m.	***2007-01-0487***	***Experimental Study of the Hydraulic Circuit of a Commercial Common Rail Diesel Fuel Injection System***
		Philipp Beierer, Kalevi Huhtala, Matti Vilenius, Tampere Univ. of Technology
3:00 p.m.	***2007-01-0488***	***The Influence of Exhaust Gases Dissolved in Diesel Oil on Fuel Spray Particulary Parameters***
		Jerzy Merkisz; Maciej Bajerlein; W³adys³aw Kozak; Jaroslaw Markowski

The papers in this session are available in a single publication, SP-2083, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Monday, April 16

Modeling of SI and Diesel Engines (Part 1 of 7) - Engine Breathing, Intakes and Exhausts

Session Code: ***PFL37***

Room D3-26/27 ***Session Time:*** ***9:00 a.m.***

Engine breathing, intakes and exhausts

Organizers - *Thomas Morel, Gamma Technologies Inc.*

Chairpersons - *Christof Schernus, FEV Motorentechnik GmbH*

Assistant Chairpersons - *Michael L. Briggs, Ford Motor Co.*

Time	Paper No.	Title
9:00 a.m.	***2007-01-0383***	***Common Rail Multi-Jet Diesel Engine Combustion Model Development for Control Purposes*** *Fabrizio Ponti, Enrico Corti, Universita di Bologna; Gabriele Serra, Matteo De Cesare, Magneti Marelli Powertrain*
9:30 a.m.	***2007-01-0381***	***Steady-State and Transient Operation Simulation of a "Downsized" Turbocharged SI Engine*** *Fabio Bozza, Alfredo Gimelli, Universita di Napoli; Luigi Strazzullo, Enrico Torella, Claudio Cascone, Elasis SCPA Cr Auto*
10:00 a.m.	***2007-01-0382***	***Effect of Primary Intake Runner Tapers and Bellmouths on the Performance of a Single Cylinder Engine*** *Vincent Edward Mariucci; Ahmet Selamet, Ohio State Univ.; Keith Miazgowicz, Ford Motor Co.*
10:30 a.m.	***2007-01-0380***	***The Prediction of the Performance and Gasdynamic Noise Emitted by a Medium-Size Spark-Ignition Engine by Means of 1D and 3D Analyses*** *Fabio Bozza, Alfredo Gimelli, Renzo Piazzesi, Universita di Napoli; Francesco Fortunato, Vincenzo Pianese, Elasis SCPA Cr Auto; Daniela Siano, Istituto Motori CNR*

The papers in this session are available in a single publication, SP-2079, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Monday, April 16

Modeling of SI and Diesel Engines (Part 2 of 7) - Engine Breathing, Intakes and Exhausts

Session Code: ***PFL37***

Room D3-26/27 ***Session Time:*** ***1:30 p.m.***

Engine Breathing, Intakes and Exhausts.

Organizers - *Thomas Morel, Gamma Technologies Inc.*

Chairpersons - *Federico Millo, Politecnico di Torino*

Assistant Chairpersons - *Seth Wenzel, Gamma Technologies Inc.*

Time	Paper No.	Title
1:30 p.m.	***2007-01-0492***	***Relative Contributions of Intake and Exhaust Tuning on SI Engine Breathing - A Computational Study*** *Gilbert Sammut; Alexandros C. Alkidas*
2:00 p.m.	***2007-01-0491***	***Study of Measured and Model Based Generated Turbine Performance Maps within a 1D Model of a Heavy-Duty Diesel Engine Operated During Transient Conditions*** *Niklas Winkler, KTH Machine Design; Hans-Erik Angstrom, Royal Institute of Technology, Stockholm*
2:30 p.m.	***2007-01-0490***	***Virtual Air Path Calibration of a Multi Cylinder High Performance GDI Engine Using 1D Cycle Simulation*** *Jens Neumeister, Mahle Powertrain, Ltd.*

3:00 p.m.	***2007-01-0495***	***Integrated 1D-MultiD Fluid Dynamic Models for the Simulation of I.C.E. Intake and Exhaust Systems***
		Gianluca Montenegro, Angelo Onorati, Federico Piscaglia, Gianluca D'Errico, Politecnico di Milano
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-0494***	***A Simple Model for Predicting the Trapped Mass in a DI Diesel Engine***
		Francisco Payri, Jose Galindo, Jaime Martín, Francisco Arnau, Universidad Politecnica de Valencia
4:15 p.m.	***2007-01-0493***	***Real-Time Estimation of the Exhaust Gas Recirculation Ratio Based on Cylinder Pressure Signals***
		Philipp Klein, Raphael Grueter, DaimlerChrysler AG; Otmar Loffeld, University Siegen

The papers in this session are available in a single publication, SP-2079, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Monday, April 16

Advanced Hybrid Vehicle Powertrains (Part 1 of 6) Hybrid Powertrain Controls and In-the-Loop Testing and Calibration

Session Code: ***PFL14***

Room D3-28 ***Session Time:*** ***9:00 a.m.***

Papers in this session examine control methods for electric motors, accessories, and overall hybrid vehicle operation. Methodology for in-the-loop testing and model-based development is detailed.

Organizers - *Michael Duoba, Argonne National Laboratory; Matthew E. Fleming, Ford Motor Co.; Mark A. Theobald, GM Powertrain; S. R. Weerasinghe, University of Sussex*

Chairpersons - *S. R. Weerasinghe, Univ. of Sussex*

Time	***Paper No.***	***Title***
9:00 a.m.	***2007-01-0269***	***Development of Motor Control for Hybrid Electric Vehicle using Gain-scheduled H-infinity Control***
		Hiroyuki Inagaki, Aisin Seiki Co., Ltd.
9:30 a.m.	***2007-01-0286***	***AMT Control for a Mild-Hybrid Urban Vehicle with a Downsized Turbo-Charged CNG Engine***
		Paolino Tona, IFP; Philippe Moulin, IFP-Documentation; Stephane Venturi, Institut Francais du Petrole; Richard Tilagone, IFP Powertrain Engineering
10:00 a.m.	***2007-01-0285***	***Model-Based Development and Calibration of Hybrid Powertrains***
		Christian Schyr, AVL GmbH; Kurt Gschweitl, AVL LIST GmbH
10:30 a.m.	***2007-01-0274***	***Integrated Modeling Environment for Detailed Algorithm Design, Simulation and Code Generation.***
		Fazal Syed, Raju Nallapa, Deepa Ramaswamy, Ford Motor Co.
11:00 a.m.	***2007-01-0298***	***Optimized Start Strategy for Stop/Start Operation of a µ-Hybrid Vehicle***
		Johannes Beer, Wim Teulings, Siemens VDO

The papers in this session are available in a single publication, SP-2101, and also individually.

Planned by Advanced Power Sources Committeee / Powertrain Fuels and Lubricants Activity

Monday, April 16

Advanced Hybrid Vehicle Powertrains (Part 2 of 6) Hybrid Real-Time Powertrain Controls and Optimization; Systems Integration

Session Code: ***PFL14***

Room D3-28 ***Session Time:*** ***1:30 p.m.***

Papers in this session examine real-time controls and optimization for production and new concept hybrid powertrains. Additional papers examine system integration issues for hybrid components.

Organizers - *Michael Duoba, Argonne National Laboratory; Matthew E. Fleming, Ford Motor Co.; Mark A. Theobald, GM Powertrain; S. R. Weerasinghe, University of Sussex*

Chairpersons - *Michael Duoba, Argonne National Laboratory; Matthew E. Fleming, Ford Motor Co.*

Time	Paper No.	Title
1:30 p.m.	***2007-01-0282***	***Power Control for the Escape and Mariner Hybrids***
		Fazal Syed, Deepa Ramaswamy, Ford Motor Co.; Stephen Hunter; Ryan McGee, Ford Motor Co.
2:00 p.m.	***2007-01-0278***	***Variable Torque Distribution Yaw Moment Control For Hybrid Powertrains***
		Rob J. Rieveley, Bruce Minaker, University of Windsor
2:30 p.m.	***2007-01-0275***	***On-Line Suboptimal Control Strategies for a Power-Assist Hybrid Electric Vehicle***
		Yi-Hsuan Hung, Industrial Technology Research Institute
3:00 p.m.	***2007-01-0296***	***Hybrid System Development for High-Performance All Wheel Drive Vehicle***
		Kiyoshiro Ueoka, Kenya Maruyama, Zenichiro Mshiki, Takeshi Ito, Toyota Motor Corporation; Syuji Tomura, Toyota Central R&D Labs Inc.
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-0299***	***A Traction Enhanced On-Demand All Wheel Drive Control System for a Hybrid Electric Vehicle***
		Yifeng Lin, Servo Tech. Inc.; Sohel Anwar, Purdue Univ-Indianapolis
4:15 p.m.	***2007-01-0268***	***Fuel Economy Benefits of Electric and Hydraulic Off Engine Accessories***
		Michael Arthur Kluger, Southwest Research Institute

The papers in this session are available in a single publication, SP-2101, and also individually.

Planned by Advanced Power Sources Committeee / Powertrain Fuels and Lubricants Activity

Monday, April 16

Corrosion Prevention

Session Code: ***B3***

Room M2-29 ***Session Time:*** ***9:00 a.m.***

This session will focus on coatings and materials for enhanced corrosion prevention as it applies to bodies and components.

Organizers - *Kevin A. Smith, Auto Technology Co.*

Time	Paper No.	Title
9:00 a.m.	***ORAL ONLY***	***Facts & Myths - Microbial Influenced Corrosion, Causes, Effects, Cures, and Detection Methods***
		Howard L. Chesneau, Fuel Quality Services Inc.; Edward English

9:30 a.m.	***2007-01-0415***	***Development of Sintered Bearing Material with Higher Corrosion Resistance for Fuel Pumps***
		Takahiro Nozu, Youichi Murakami, Naruhiko Inayoshi, Kiyotoshi Ooi, Hideki Narisako, Denso Corp.; Teruo Shimizu, Tsuneo Maruyama, Toshiro Harakawa, Mitsubishi Materials MPG Corp.
10:00 a.m.	***2007-01-0416***	***New Generation Conversion Coatings for the Automotive Industry***
		Terrence Giles, Bruce H. Goodreau, William E. Fristad, Henkel Corp.; Patrick Droniou, Jens Krömer, Henkel KGaA
10:30 a.m.	***2007-01-0417***	***Development of an Improved Cosmetic Corrosion Test for Finished Aluminum Autobody Panels***
		Francine S. Bovard, Alcoa LLC; Janice L. Tardiff, Ford Motor Co.; Tracie Jafolla, General Motors; R. James Shaffer, DaimlerChrysler Corp.; Florina Mirela Vartolas, DaimlerChrysler Engineering; Sridhar Ramamurthy, Univ. of Western Ontario; Fred Lee, Atlas Material Testing Technology LLC; Kevin A. Smith, Auto Technology Co.; John P. Repp, Corrpro Companies Inc.; Duncan McCune, Quality/Statistics; Gregory J. Courval, Novelis, Inc.
11:00 a.m.	***2007-01-0418***	***Development of Sealing Material Used in the Body Welding Shop***
		Naokazu Yamamura, Toyota Motor Corp.

The papers in this session are available in a single publication, SP-2069, and also individually.

Planned by Body Engineering Committee / Automobile Body Activity

Monday, April 16

Controller System Software Testing and Validation

Session Code: ***AE25***

Room M2-29 ***Session Time:*** ***1:30 p.m.***

Advanced powertrain, chassis, vehicle dynamics and body systems electronic controls testing are complex undertakings in new vehicle development. Millions of lines of code, hundreds of communication messages, tens of interconnected control units, numerous communication busses, OBD functionality, and fail-safe operation must be validated prior to release. This session will highlight advances in process, tools, and technology being applied to reduce validation time and cost, and to improve the quality of embedded control software.

Organizers - *Kevin Kott, Vivek Moudgal, dSPACE Inc.; Peter Wältermann, dSPACE GmbH*

Time	***Paper No.***	***Title***
1:30 p.m.	***2007-01-0498***	***Hardware-in-the-Loop Test Systems for Electric Motors in Advanced Powertrain Applications***
		Andreas Wagener, Thomas Schulte, Peter Waeltermann, Herbert Schuette, dSPACE GmbH
2:00 p.m.	***2007-01-0499***	***Desktop and HIL Validation of Hybrid-Electric-Vehicle Battery-Management-System Algorithms***
		Gregory L. Plett, University of Colorado Colorado Springs
2:30 p.m.	***2007-01-0500***	***Hardware-in-the-Loop Testing of Engine Control Units - A Technical Survey***
		Herbert Schuette, Markus Ploeger, dSPACE GmbH
3:00 p.m.	***2007-01-0502***	***A Hardware-in-the-loop Test Bench for Production Transmission Controls Software Quality Validation***
		Quan Zheng, Woowon Chung, Ken Defore, Andrew Herman, Delphi Corp.
3:30 p.m.		***BREAK***

3:45 p.m.	***2007-01-0504***	***Automated Real-Time Testing of Electronic Control Units***
		Holger Krisp, Klaus Lamberg, Robert Leinfellner, dSPACE GmbH
4:15 p.m.	***2007-01-1777***	***An Engine Start/Stop System for Improved Fuel Economy***
		Ashok Nedungadi, John S. Bishop, Gregory Joseph Ostrowski, Bapiraju Surampudi, Southwest Research Institute; Paul Armiroli, Valeo Electrical Systems; Ertugrul Taspinar, Valeo
4:45 p.m.	***2007-01-0503***	***Model-Based Automated Validation Techniques for Automotive Embedded Systems***
		Daehyun Kum, Joonwoo Son, Seonbong Lee, DGIST; Ivan Wilson, DSYSD, Ltd.; Wootaik Lee, Changwon National Univ.
	2007-01-0505	***Software Testing Strategies for Model-Based Chassis Control Systems (Written Only -- No Oral Presentation)***
		Ying Chen, Brandon Jones, GM

The papers in this session are available in a single publication, SP-2126, and also individually.

Planned by Testing and Instrumentation Committee / Automobile Electronic Activity

Monday, April 16

In-Vehicle Software (Part 1 of 2)

Session Code: ***AE24***

Room M2-30 ***Session Time:*** ***9:00 a.m.***

This technical session concentrates on the development of embedded software that resides in production vehicle electronic modules. With a focus on current technical, business, and legal issues relevant to the auto industry, this session covers all aspects of embedded software development including requirements, implementation, algorithms, modeling, and autocode generation. Additional topics include: in-vehicle network software, the use of embedded operating systems, module application behavior, the software development lifecycle, CMM or other software improvement processes, software development tool experiences, future and upcoming software technologies, and related in-vehicle software standardizaton efforts. All experts across the embedded software community are encouraged to share their experiences, opinions, and agendas in order to improve automotive software.

Organizers - *Bruce Emaus, Tom Guthrie, Vector CANtech Inc.*

Time	***Paper No.***	***Title***
9:00 a.m.	***2007-01-0514***	***Fuzzy Logic Controller Implementation in ANSI C***
		Padraig Donovan, John Manning, Advanced Automotive Electronic Control Group
9:30 a.m.	***2007-01-0511***	***Aspect-Oriented Requirements Modeling and Analysis Methodology for Multiple Product Lines of Distributed Real-Time Automotive Software Systems***
		Mikio Aoyama, Atsuko Yoshino, Nanzan University
10:00 a.m.	***2007-01-0510***	***Experiences from Model supported Configuration Management and Production of Automotive Embedded Software***
		Ola Larses, Carl-Johan Sjostedt, Martin Torngren, KTH; Ola Redell, Enea AB
10:30 a.m.	***2007-01-0508***	***A New Development Environment for Embedded Control Systems Design: F.I.R.E.***
		Ferdinando De Cristofaro, ELASIS; F. Garofalo, Elasis SCPA Cr Auto; Iolanda Montalto, Domenico Tavella, ELASIS; Alessandro Casavola, Univ. Of Calabria

11:00 a.m.	***2007-01-0506***	***Quality Assurance Methods for Model-based Development - A Survey and Assessment***
		Ingo Stürmer, Ines Fey, DaimlerChrysler AG

The papers in this session are available in a single publication, SP-2126, and also individually.

Planned by Electrical and Electronic Systems Committee / Automobile Electronic Activity

Monday, April 16

In-Vehicle Software (Part 2 of 2)

Session Code: ***AE24***

Room M2-30 ***Session Time:*** ***1:30 p.m.***

This technical session concentrates on the development of embedded software that resides in production vehicle electronic modules. With a focus on current technical, business, and legal issues relevant to the auto industry, this session covers all aspects of embedded software development including requirements, implementation, algorithms, modeling, and autocode generation. Additional topics include: in-vehicle network software, the use of embedded operating systems, module application behavior, the software development lifecycle, CMM or other software improvement processes, software development tool experiences, future and upcoming software technologies, and related in-vehicle software standardizaton efforts. All experts across the embedded software community are encouraged to share their experiences, opinions, and agendas in order to improve automotive software.

Organizers - *Bruce Emaus, Tom Guthrie, Vector CANtech Inc.*

Time	***Paper No.***	***Title***
1:30 p.m.	***2007-01-0513***	***Innovative Approach to Implement Complex Automotive Electronic Systems at Reduced Time & Cost***
		Rajiv A Bongirwar, INCAT
2:00 p.m.	***2007-01-0515***	***Design and Implementation of an Integrated Development Environment Consisting of Engine Rapid Control Prototyping and Real Time Vehicle Simulation***
		Shugang Jiang, Dharshan Medonza, A&D Technology Inc.; Satoshi Furukawa, A & D Co., Ltd.; Michael H. Smith, A&D Technology Inc.
2:30 p.m.	***2007-01-0512***	***The Challenges of Next Generation Automotive Benchmarks***
		Patrick Leteinturier, Infineon Technologies AG; Markus Levy, EEMBC
3:00 p.m.	***2007-01-0507***	***Behavior Modeling Tools in an Architecture-Driven Development Process - From Function Models to AUTOSAR***
		Oliver Niggemann, Ulrich Eisemann, Michael Beine, Ulrich Kiffmeier, dSPACE GmbH
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-1624***	***A Three-Pillar Framework for Model-Based Engine Control System Development***
		Rong Zhang, GM R&D Center; Raymond C. Turin, SimuQuest Inc.; Man-Feng Chang, General Motors Corp.; Oguz H. Dagci, GM R&D Center
4:15 p.m.	***2007-01-1623***	***A Flexible Engine Control Architecture for Model-based Software Development***
		Oguz H. Dagci, GM R&D Center; Raymond C. Turin, SimuQuest Inc.; Rong Zhang, GM R&D Center; Alan Wayne Brown, Man-Feng Chang, General Motors Corp.

4:45 p.m.	***2007-01-1778***	***Development of Telematics Software Platform Using WIPI for Service-based Applications***
		Young Woo Choi, HMC
5:15 p.m.	***ORAL ONLY***	***A Comprehensive Approach to Testing Model-Based Safety Critical Software***
		Devesh Bhatt
	2007-01-0509	***The AUTOSAR Standard - The Experience of Applying Simulink According to its Requirements (Written Only -- No Oral Presentation)***
		Anila Mjeda, Gabriel Leen, Eamonn Walsh, University of Limerick

The papers in this session are available in a single publication, SP-2126, and also individually.

Planned by Electrical and Electronic Systems Committee / Automobile Electronic Activity

Monday, April 16

Emissions Measurement and Testing (Part 1 of 6)

Session Code: ***PFL3***

Room M3-31 ***Session Time:*** ***9:00 a.m.***

Papers in the Particulate measurement techniques / related studies cover a range of instrumental assessments and related testing strategies for gauging particulate formation and aftertreatment effects.

Organizers - *Alberto Ayala, California Air Resources Board; Tony R. Collier, Ford Motor Co.; Allen B. Duncan, US Environmental Protection Agency; Leslie Hill, Horiba, Ltd.; Greg J. Smallwood, National Research Council Canada*

Chairpersons - *Allen B. Duncan, US Environmental Protection Agency*

Time	***Paper No.***	***Title***
9:00 a.m.	***2007-01-0305***	***Speciation of Hydrocarbons in Exhaust from Low-Emission, Gasoline-Fueled Vehicles by High-Speed and Standard Gas Chromatography Methods***
		Jennifer E. Farrugia, Ford Motor Co.; Keith L. Olson, General Motors Corp.
9:30 a.m.	***2007-01-0306***	***A Study of an Analysis Method for Trace Substances in Vehicle Exhaust Gas***
		Yasunori Iwakiri, Nissan Motor Co., Ltd.; Hirotaka Kanno, Hiroyuki Koyama, Nissan ARC LTD.
10:00 a.m.	***2007-01-0307***	***Sampling System for Solid and Volatile Exhaust Particle Size, Number, and Mass Emissions***
		Imad A. Khalek, Southwest Research Institute
10:30 a.m.	***2007-01-0308***	***Impact of Traffic Conditions and Road Geometry on Real World Urban Emissions using a SI Car***
		Hu Li, Gordon E. Andrews, Basil Daham, Margaret Bell, James Tate, Karl Ropkins, Univ. of Leeds
11:00 a.m.	***2007-01-0310***	***Experimental and Error Analysis Investigation into Dilution Factor Equations***
		John Nuszkowski, Gregory Thompson, Nigel Clark, West Virginia Univ.
11:30 a.m.	***2007-01-0311***	***Measurement of Soot Mass and Pressure Drop Using a Single Channel DPF to Determine Soot Permeability and Density in the Wall Flow Filter***
		Chan Sik Yoon, Soonho Song, Kwang Min Chun, Yonsei Univ.

	2007-01-0334	***Comparing Measurements of Carbon in Diesel Exhaust Aerosols Using the Aethalometer, NIOSH Method 5040, and SMPS (Written Only -- No Oral Presentation)***
		Iam Pou Ng, University of Minnesota; Arthur Miller, NIOSH; Hongbin Ma, David Kittelson, University of Minnesota
	2007-01-0335	***Estimating Actual Exhaust Gas Temperature from Raw Thermocouple Measurements Acquired During Transient and Steady State Engine Dynamometer Tests (Written Only -- No Oral Presentation)***
		Seha Son, Arthur Kolasa, Ford Motor Co.

The papers in this session are available in a single publication, SP-2089, and also individually.

Planned by Exhaust Aftertreatment and Emissions Committee / Powertrain Fuels and Lubricants Activity

Monday, April 16

Emissions Measurement and Testing (Part 2 of 6)

Session Code: ***PFL3***

Room M3-31 ***Session Time:*** ***1:30 p.m.***

Papers in the Testing facility / strategy developments covers the enhancement of existing emission and related measurement techniques through to new testing strategies.

Organizers - *Alberto Ayala, California Air Resources Board; Tony R. Collier, Ford Motor Co.; Allen B. Duncan, US Environmental Protection Agency; Leslie Hill, Horiba, Ltd.; Greg J. Smallwood, National Research Council Canada*

Chairpersons - *Allen B. Duncan, US Environmental Protection Agency*

Time	***Paper No.***	***Title***
1:30 p.m.	***2007-01-0312***	***Investigation of Errors in NOx Recovery with a CVS Using a Vehicle Exhaust Emission Simulator (VEES) as a Cross Check Tool***
		Dave McDonnough, Tim Nevius, Daniel Whelan, Horiba Instruments Inc.
2:00 p.m.	***2007-01-0313***	***Multi-Instrumental Assessment of Diesel Particulate Filters***
		Athanasios G. Konstandopoulos, Dimitrios Zarvalis, Ioannis Dolios, Aerosol & Particle Technology Laboratory, CERTH/CPERI
2:30 p.m.	***2007-01-0314***	***Effect of a DPF and Low Sulfur Lube Oil on PM Physicochemical Characteristics from a Euro 4 Light Duty Diesel Vehicle***
		Elias Vouitsis, Leonidas Ntziachristos, Theodoros Grigoratos, Aristotle University Thessaloniki; George Miltsios, Technical Educational Institute Serres; Constantini Samara, Zissis Samaras, Aristotle University Thessaloniki
3:00 p.m.	***2007-01-0315***	***Effect of Diesel Particles on the Photooxidation of a Diluted Diesel Exhaust-Toluene Mixture***
		Seung-Bok Lee, Korea Institute of Science and Technology; Gwi-Nam Bae, Korea Institute of Science and Technology; Kil-Choo Moon, Korea Institute of Science and Technology; Mansoo Choi, Seoul National University
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-0316***	***Exhaust Emissions Simulator for Verification of Extremely Low Emission Measurement Systems***
		Kimikazu Yoda, Nobuhisa Mori, Kenichi Uchida, Yukihiro Sonoda, Toyota Motor Corp.

4:15 p.m.	***2007-01-0317***	***Soot Emission Behavior from Diverse Vehicles and Catalytic Technologies Measured by a Solid Particle Counting System***
		Rahman M. Montajir, Takeshi Kusaka, Inoue Kaori, Nobutaka Kihara, Ichiro Asano, Horiba Ltd.; Masayuki Adachi, Qiang Wei, Horiba Instrument Inc.
4:45 p.m.	***2007-01-0318***	***Detailed Chemical and Physical Characterization of Ash Species in Diesel Exhaust Entering Aftertreatment Systems***
		Alexander Sappok, Victor W. Wong, Massachusetts Institute of Technology

The papers in this session are available in a single publication, SP-2089, and also individually.

Planned by Exhaust Aftertreatment and Emissions Committee / Powertrain Fuels and Lubricants Activity

Monday, April 16

Advances in Lightweight Materials - Aluminum

Session Code: ***M1***

Room M3-32 ***Session Time:*** ***9:00 a.m.***

To take full advantage of the flexibility that lightweight materials allow, a need exists for well-developed process and property information so that the selection and design of lightweight components can be optimized. To this end, this session will focus on recent process developments, improvements, and applications for wrought aluminum alloys in the ground transportation industry.

Organizers - *James M. Boileau, Ford Motor Co.; Alan A. Luo, General Motors Corp.*

Time	***Paper No.***	***Title***
9:00 a.m.	***2007-01-0419***	***Aluminum Foam-Phase Change Material Composites as Heat Exchangers***
		Sung-tae Hong, Darrell Herling, Pacific Northwest National Labs
9:30 a.m.	***2007-01-0420***	***Simulation of Warm Forming Assisted Hemming to Study the Effect of Process Parameters on Product Quality***
		Ricardo H. Espinosa, Ford Motor Co.; Shuvra Das, Jonathan M. Weaver, Univ. of Detroit Mercy
10:00 a.m.	***2007-01-0421***	***Tailor-Welded Aluminum Blanks for Liftgate Inner***
		Z. Connie Yao, DaimlerChrysler Corp.; Li Zhang, DaimlerChrysler Manufacturing Div.; Shyam Kariat, Yongjun Zhou, DaimlerChrysler Corp.
10:30 a.m.	***2007-01-0422***	***The Correlation Between Punch Forces and Wrinkling for Aluminum Sheet Metal Stamping with Adjustable Drawbeads***
		William J. Emblom, Univ. of Louisiana; Klaus J. Weinmann, Univ. of California-Berkeley
11:00 a.m.	***2007-01-0423***	***Damage-Based Finite Element Simulation of Void Nucleation in Al-Mg Alloy Sheet***
		Zengtao Chen, Cliff Butcher, Yang Zhang, Univ. of New Brunswick; Michael J. Worswick, Univ. of Waterloo

The papers in this session are available in a single publication, SP-2105, and also individually.

Planned by Non-Ferrous Committee / Materials Engineering Activity

Monday, April 16

SI Combustion - Alternative Fuels / Knock / Basic Combustion / Mixture Preparation

Session Code: ***PFL10***

Room M3-32 ***Session Time:*** ***1:30 p.m.***

This session presents papers on general topics in the field of Spark-Ignited Combustion. The scope is technologies that improve the efficiency and emissions of spark-ignition engines by improving fuel preparation, gas exchange, ignition, and the combustion process itself. This includes alternative fuel and bi-fuel applications in terms of how they affect the combustion process. The 2007 session includes papers along several main themes: knock, ignition, mixture preparation, alternate fuels, hydrogen enhancement, and basic combustion studies.

Organizers - *Terrence Alger, Southwest Research Institute; Richard S. Davis, General Motors Powertrain; Mark C. Sellnau, Delphi Corp.*

Chairpersons - *Richard S. Davis, General Motors Powertrain; Terrence Alger, Southwest Research Institute; Mark C. Sellnau, Delphi Corp.*

Time	Paper No.	Title
1:30 p.m.	***2007-01-0472***	***Particulate and Hydrocarbon Emissions from a Spray Guided Direct Injection Spark Ignition Engine with Oxygenate Fuel Blends***
		Philip Price, Ben Twiney, Richard Stone, Univ. of Oxford; Kenneth Kar, Univ. of Auckland; Harold Walmsley, Shell Global Solutions
2:00 p.m.	***2007-01-0473***	***An Experimental and Modeling Investigation into the Comparative Knock and Performance Characteristics of E85, Gasohol [E10] and Regular Unleaded Gasoline [87 (R+M)/2]***
		Jim Cowart, Patrick Caton, Len Hamilton, United States Naval Academy
2:30 p.m.	***2007-01-0474***	***The Effects of Blending Hydrogen with Methane on Engine Operation, Efficiency, and Emissions***
		Thomas Wallner, Henry K. Ng, Argonne National Laboratory; Robert W. Peters, Univ. of Alabama Birmingham
3:00 p.m.	***2007-01-0475***	***The Effect of Hydrogen Enrichment on EGR Tolerance in Spark Ignited Engines***
		Terry Alger, Jess Gingrich, Barrett Mangold, Southwest Research Institute
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-0476***	***Developing a Fuel Stratification Concept in Spark Ignition Engines***
		Yufeng Li, Hua Zhao, Tom Ma, Brunel University
4:15 p.m.	***2007-01-0477***	***Analysis and Prediction of Unburned HCs in a Lean-Burn Engine***
		Atsushi Teraji, Tsuyoshi Tsuda, Toru Noda, Masaaki Kubo, Teruyuki Itoh, Nissan Motor Co., Ltd.
4:45 p.m.	***2007-01-0478***	***Experimental Investigations of Intake and Exhaust Valve Timing Effects on Charge Dilution by Residuals, Fuel Consumption and Emissions at Part Load***
		Paul J. Shayler, Lawrence Alger, Univ. of Nottingham
	2007-01-0479	***Investigations on Pre-Chamber Spark Plug with Pilot Injection (Written Only -- No Oral Presentation)***
		J. Pape, J. Getzlaff, C. Gruenig, IAV GmbH; D. Kuhnert, R. Latsch, MULTITORCH GmbH

The papers in this session are available in a single publication, SP-2127, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Monday, April 16

Copper Alloys

Session Code: ***M27***

Room O2-33 ***Session Time:*** ***9:00 a.m.***

This session will explore the use of copper alloys for the powertrain of hybrid electric vehicles and other technologies required in future vehicles. Topics will include electric motor technology, electrical and electronic connectors, air conditioning and improved interior air quality.

Organizers - *Yaomin Dong, Kettering Univ.; Robert D. Weed, Copper Development Association Inc.*

Time	Paper No.	Title
9:00 a.m.	***ORAL ONLY***	***The Antimicrobial Properties of Copper Alloys and Potential Applications in Automobiles***
		Harold T. Michels, Copper Developmnet Association Inc.
9:30 a.m.	***2007-01-1384***	***Surface Resistance Changes Due to Heat Aging of Copper and Coated Copper Alloys in Transmission and Brake Fluids***
		John G. Cowie, Copper Development Association Inc.
10:00 a.m.	***2007-01-1385***	***Copper and its Properties for HVAC Systems***
		Ulrik Palmqvist, Luvata Sweden AB; Mattias Liljedahl; Anders Falkeno
10:30 a.m.	***2007-01-1386***	***Die-cast Copper Rotors for Smaller High Efficiency Automobile Traction Motors - A Design Study***
		Dale T. Peters, Copper Development Association Inc.

Planned by Non-Ferrous Committee / Materials Engineering Activity

Monday, April 16

ElectricalWiring Harnesses

Session Code: ***AE21***

Room O2-33 ***Session Time:*** ***1:30 p.m.***

Informative session of new upcoming innovative design geared toward efficiency in automotive lamps, simplifying design process making it automatic, increasing power density in automotive modules for smaller units and industry wide standard processes for universal simplicity. Also being presented wire harness optimization with respect to power, weight and cost and thermal effects in cable bunches.

Organizers - *Carlos Gutierrez, Leoni; Crystal Nasser, Leoni Wiring Systems Inc.*

Time	Paper No.	Title
1:30 p.m.	***2007-01-0518***	***Electrical Distribution Dimensioning Tools and Solutions***
		Koupaia Henry, Jean-Pierre Chevillon, Anne Laliron, Valeo
2:00 p.m.	***2007-01-0517***	***Reliability and Failure Mode Considerations for Electrical Distribution Systems***
		Howard Evans, Leoni - Business Unit Ford
2:30 p.m.	~~***2007-01-0516***~~	***Techniques for Increasing Power Density in Automotive Modules***
	CANCELLED	*Kyuhwan Chin, Hyundai Motor Company*
3:00 p.m.	***2007-01-0520***	***Considerations for PWM Control of Automotive Lamps and its Modeling***
		Dongsun Kim, Hyundai Research Institute; Hyounguk Kim, Kyuhwan Chin, Sangkil Lee, Hyundai Motor Company; Keumcheol Jeong, Hyundai Motor Co.; Jooil Park, Freescale Semiconductor; KIm Gauen, Freescale
3:30 p.m.		***BREAK***
3:45 p.m.	***ORAL ONLY***	***Thermal Effects in Cable Bunches - Design Rules for Wire Size***
		Juergen Engbring, Leoni Bordnetz-Systeme GmbH; Felix Kuester, LEONI Bordnetz-Systeme GmbH
4:15 p.m.	***ORAL ONLY***	***Continuous Power Supply for Sliding Doors of Vehicles***
		Mario Pieh, Leoni Bordnetz-Systeme GmbH & Co. KG

4:45 p.m.	***2007-01-0519***	***Systematic Automotive Wiring Guideline Based on Coupling Theory***
		Ealgoo Kim; Quy Trinh Ngoc; Jeongpyo Lee, Jaehong Park, Seoul National Univ.; Jingoo Kwon, Hyundai Motor Co. & KIA Motors Corp.; Soonsuk Ok, Hyundai Motor Co.; Kwihan Chae, Hyundai Motor Co. & KIA Motors Corp.; Seungwoo Song, Seoul National Univ.; Jangdon Choi, Hyundai Motor Company
	2007-01-0521	***Multifuse for High Current and special application (Written Only -- No Oral Presentation)***
		Alfred Sadrinna, LEONI Bordnetz-Systeme GmbH

Planned by Electrical and Electronic Systems Committee / Automobile Electronic Activity

Monday, April 16

Recycling/Design for Recyclability/Design for the Environment (Part 1 of 2)

Session Code: ***ENV2***

Room O2-37 ***Session Time:*** ***9:00 a.m.***

This session presents papers detailing advancements in the research of recycling and design for the environment. The presentations will update session attendees on technologies and processes from recovering materials from shredder residue, converting materials recovered from waste into products, converting organic materials into oil, a comparison of mechanical and chemical conversion technologies, and incorporating recycling into the vehicle design phase and biofuels.

Organizers - *Nakia L. Simon, DaimlerChrysler Technology Center*

Time	***Paper No.***	***Title***
9:00 a.m.	***2007-01-0522***	***Design for Assembly: An AHP Approach for Automotive Front End Component Design Evaluation***
		Ramakrishna P. Koganti, Matthew John Zaluzec, Ford Motor Co.; Mingyuan Chen, Fantahun Defersha, Concordia Univ.
9:30 a.m.	***2007-01-0523***	***Alternative Treatments for Plastic Fuel Tanks from End-of-Life Vehicles***
		Richard Paul, Automotive Recycling Consultant; Michael Harrell, Ash Grove Cement Co.; David Raney, American Honda Motor Co. Inc.
10:00 a.m.	***2007-01-0526***	***Technologies for Recycling Shredder Residue***
		Bassam J. Jody, Edward J. Daniels, Argonne National Lab.
10:30 a.m.	***2007-01-0524***	***Development of Integrated System for DfD (Design for Disassembly) of Automobile in Design Phase***
		Jae Soo Gwon, Hyundai Motor Co. & KIA Motors Corp.; John Hee Hong, Byeong Kwon Hong, Hyundai Motor Co.; Jong Rae Cho, Hyundai Motor Co. & KIA Motors Corp.
11:00 a.m.	***ORAL ONLY***	***Thermal Conversion of an Organic Rich Stream***
		Nakia L. Simon, DaimlerChrysler Technology Center; Brian S. Appel, Terry N. Adams, Claudia Mettler Duranceau, Ford Motor Co.; Candace Wheeler, General Motors Corp.

The papers in this session are available in a single publication, SP-2118, and also individually.

Planned by Environmental Activity / EMB Land and Sea Group

Monday, April 16

Recycling/Design for Recyclability/Design for the Environment (Part 2 of 2)

Session Code: ***ENV2***

Room O2-37 ***Session Time: 1:30 p.m.***

This session presents papers detailing advancements in the research of recycling and design for the environment. The presentations will update session attendees on technologies and processes from recovering materials from shredder residue, converting materials recovered from waste into products, converting organic materials into oil, a comparison of mechanical and chemical conversion technologies, and incorporating recycling into the vehicle design phase and biofuels.

Organizers - *Nakia L. Simon, DaimlerChrysler Technology Center*

Time	Paper No.	Title
1:30 p.m.	***ORAL ONLY***	***Recovery of Plastics from Pre-Processed Shredder Residue*** *Michael B. Biddle, Brian L. Riise, MBA Polymers Inc.; Michael M. Fisher, American Chemistry Council; Nakia L. Simon, DaimlerChrysler Technology Center; Claudia Mettler Duranceau, Ford Motor Co.; Candace Sue Wheeler, General Motors Corp.; Gerald R. Winslow, DaimlerChrysler Engineering*
2:00 p.m.	***2007-01-0527***	***Mass Balance and Composition Analysis of Shredder Residue*** *Joseph A. Pomykala Jr., Bassam J. Jody, Jeffrey S. Spangenberger, Edward J. Daniels, Argonne National Lab.*
2:30 p.m.	***ORAL ONLY***	***A Comparative Assessment of Mechanical versus Thermal Conversion Technologies using a Life Cycle Approach*** *Candace Sue Wheeler, General Motors Corp.; Nakia L. Simon, DaimlerChrysler Technology Center; Claudia Mettler Duranceau, Ford Motor Co.; Gerald R. Winslow, DaimlerChrysler Engineering*
3:00 p.m.	***ORAL ONLY***	***Validation of Low-Cost Polyols Recycled from Shredder Residue Foams Targeting Automotive Foam Applications*** *Ibrahim Sendijarevic, Vahid Sendijarevic, Kavin Mayne, Troy Polymers Inc.; Gerald R. Winslow, DaimlerChrysler Engineering; Claudia Mettler Duranceau, Ford Motor Co.; Nakia L. Simon, DaimlerChrysler Technology Center; Candace Sue Wheeler, General Motors Corp.*
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-0528***	***Metal Recovery from Shredder Residue Fines*** *Trip Allen, Energy Anew, Inc.*
4:15 p.m.	***ORAL ONLY***	***Biodiesel - The Cold Hard Facts*** *Howard L. Chesneau, Edward English, Fuel Quality Services Inc.*

The papers in this session are available in a single publication, SP-2118, and also individually.

Planned by Environmental Activity / EMB Land and Sea Group

Monday, April 16

Air Bags

Session Code: ***B25***

Room O2-38 ***Session Time: 9:00 a.m.***

The air bag session contains several cutting edge papers on topics including: passenger air bag design for full low risk deployment, knee air bag design, side impact air bag simulation, linear impact testing, occupant containment testing, and advancements in occupant classification systems for air bag suppression.

Organizers - *Scott David Thomas, General Motors Corp.; Walter K. Kosiak, Delphi Corp.; Jeffrey A. Pike, Biomechanics Consulting, Inc.*

Time	Paper No.	Title

9:00 a.m.	***2007-01-0347***	***Invisible Knee Airbag Module Development***
		Soon Gu Hong, Hunhee Jeong, Byungryong Joo, Ikwhan Kim, Hyundai MOBIS
9:30 a.m.	***2007-01-0349***	***Low Risk Deployment Passenger Airbag System***
		Seung-Jae Song, Jong Seop Nam, CIS Tech.; Young-Yeol Park, Soung-Jin Kim, Dong-Eun Kim, S&T Daewoo
10:00 a.m.	***2007-01-0351***	***Passenger Air Bag Linear Impactor Dynamic Testing Method and Data Analysis***
		Stephen H. Kang, Ellen Barnes, Sing Liu, Matt Lenart, Matt Maher, Ford Motor Co.
10:30 a.m.	***2007-01-0345***	***Optimization of the Side Airbag System Using MADYMO Simulations***
		Naoki Kaneko, Seigo Taguchi, Masaki Motoki, Shigeru Ogawa, Mazda Motor Corp.
	2007-01-0353	***Development of Ferritic Stainless Steel Sheet for Weight Sensor Substrate (Written Only -- No Oral Presentation)***
		Masuhiro Fukaya, Haruki Ariyoshi, Tadashi Komori, Nippon Steel & Sumikin Stainless Steel Corp.
	2007-01-0354	***Inflatable Restraint System Design Optimization Approaches (Written Only -- No Oral Presentation)***
		Paul M.A. Slaats, Eugene Lee, Takata; Ivo De Castro, Smart Tech

The papers in this session are available in a single publication, SP-2122, and also individually.

Planned by Occupant Protection Committee / Automobile Body Activity

Monday, April 16

Human Factors in Seating Comfort

Session Code: ***B22***

Room O2-38 ***Session Time:*** ***1:30 p.m.***

A discussion of ergonomics, design and analysis of seating for development of seating comfort.

Organizers - *Marilyn D. Vala, Currell L. Pattie, General Dynamics Land Systems*

Time	***Paper No.***	***Title***
1:30 p.m.	***2007-01-0346***	***Predicting Overall Seating Discomfort Based on Body Area Ratings***
		Raphael Zenk, BMW Group; Christian Mergl, Audi AG; Jürgen Hartung, Heiner Bubb, Technische Univ. Muenchen
2:30 p.m.	***2007-01-0348***	***Evaluations of Physical Fatigue During Long-term Driving with a New Driving Posture***
		Akinari Hirao, Kazuhito Kato, Satoshi Kitazaki, Nissan Motor Co., Ltd.; Nobutoshi Yamazaki, Keio Univ.
3:00 p.m.	***2007-01-0350***	***Comparison of Passive Seat Suspension with Different Configuration of Seat Pads and Active Seat Suspension***
		Bertrand Valero, F. M.L. Amirouche, Univ. of Illinois at Chicago; Alan Mayton, Chris Jobes, NIOSH
3:30 p.m.		***BREAK***

3:45 p.m.	***2007-01-0352***	***Experimental Correlation Between the Road Roughness and the Comfort Perceived in Bus Cabins***
		Gabriele Fichera, Marco Scionti, Univ. of Catania; Francesca Garesci, Univ. of Messina
4:15 p.m.	***2007-01-0344***	***New Ergonomic Studies for Transportation Design***
		Laura Ciuffi, Paolo Pignato, V. Pascuzzi, Carcerano S.r.l.

The papers in this session are available in a single publication, SP-2104, and also individually.

Planned by Human Factors Committee / Automobile Body Activity

Monday, April 16

Systems Engineering (Part 1 of 2)

Session Code: ***AE19***

Room O2-44 ***Session Time:*** ***9:00 a.m.***

System engineering session covers automotive related topics in interdisciplinary areas from requirement, high level system design, cost analysis, simulation, modeling, testing, and validation. System includes components, sub assemblies, computer based controllers, hardware and software. The session focuses on intelligent and efficient approaches to analysis, design (not detailed design), modeling, measurement, document management and optimizing performance. Topics on effect of cost, and human machine interface are also covered.

Organizers - *Subramaniam Ganesan, Oakland Univ.; Ken N. Rao*

Time	***Paper No.***	***Title***
9:00 a.m.	***2007-01-0776***	***CPU Model-based Hardware / Software Co-design for Real-Time Embedded Control Systems***
		Makoto Ishikawa, Donald McCune, George Saikalis, Hitachi America, Ltd.; Shigeru Oho, Hitachi, Ltd.
9:30 a.m.	***2007-01-0777***	***Best Practices for Establishing a Model-Based Design Culture***
		Paul Smith, Sameer M. Prabhu, Jon Friedman, The MathWorks Inc.
10:00 a.m.	***2007-01-0786***	***Intelligent Welding System for Automobile Components to Optimize Angular Distortion and Longitudinal Residual Stresses***
		Venkatapathy Gunaraj, Kumaraguru College of Technology
10:30 a.m.	***2007-01-0779***	***Robust Virtual Sensors and Controller Design to Improve Vehicle Stability Enhancement in the Critical Situations***
		Hassan Ali Shraim
11:00 a.m.	***2007-01-0780***	***Creating Human Machine Interface (HMI) Based Tests within Model-Based Design***
		Chris Fillyaw, The Mathworks; Jon Friedman, Sameer M. Prabhu, The MathWorks Inc.
11:30 a.m.	***2007-01-0778***	***A Simple, Effective Lead-Acid Battery Modeling Process for Electrical System Component Selection***
		Robyn Jackey, The MathWorks Inc.
	2007-01-0789	***Front End Accessory Drive Vibration Control Solutions for Engines with Cylinder Deactivation (Written Only -- No Oral Presentation)***
		Scott Francis Thompson, Schaeffler Group USA Inc.

The papers in this session are available in a single publication, SP-2130, and also individually.

Planned by Electrical and Electronic Systems Committee / Automobile Electronic Activity

Monday, April 16

Systems Engineering (Part 2 of 2)

Session Code: ***AE19***

Room O2-44 ***Session Time:*** ***1:30 p.m.***

System engineering session covers automotive related topics in interdisciplinary areas from requirement, high level system design, cost analysis, simulation, modeling, testing, and validation. System includes components, sub assemblies, computer based controllers, hardware and software. The session focuses on intelligent and efficient approaches to analysis, design (not detailed design), modeling, measurement, document management and optimizing performance. Topics on effect of cost, and human machine interface are also covered.

Organizers - *Subramaniam Ganesan, Oakland Univ.; Ken N. Rao*

Time	Paper No.	Title
1:30 p.m.	***2007-01-0781***	***Minimizing Cost of Material Variances in Printed Circuit Board Assembly***
		Naji Gebara, Badih Ali Jawad, Lawrence Technological Univ.
2:00 p.m.	***2007-01-0783***	***Model-based Development for Event-driven Applications Using MATLAB: Audio Playback Case Study***
		Peter J. Schubert, Packer Engineering Inc.; Lev Vitkin, Delphi Automotive Systems; David Braun, Purdue University
2:30 p.m.	***2007-01-0782***	***Why Have a Systems Engineering (SE) Capability for Automotive Product Development? - Questions and Answers***
		Thomas Edmund Austin, Delphi
3:00 p.m.	***2007-01-0784***	***Charging System: Design Simluation & Validation Methodology***
		Anandswaroop S. Sikchi, Automotive
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-0788***	***Document Management for Vehicle Type Approval used in Tata Motors through Teamcenter***
		Upendra Kulkarni, Tata Technologies, Ltd.; Vivek Arvind Pande, Tata Motors, Ltd.
4:15 p.m.	***2007-01-0785***	***New Brushless Synchronous Machine for Vehicle Applications***
		Yuriy Usinin, Southern Ural State University; Sergey Gladyshev, Univ. of Michigan-Dearborn; Maxim Grigorjev, Konstantin Vinogradov, Southern Ural State University
4:45 p.m.	***2007-01-1775***	***Configuration Management of Model-Based Design Process***
		Gavin Walker, Jon Friedman, Rob Aberg, The MathWorks Inc.

The papers in this session are available in a single publication, SP-2130, and also individually.

Planned by Electrical and Electronic Systems Committee / Automobile Electronic Activity

Monday, April 16

Electromagnetic Compatibility (EMC)

Session Code: ***AE23***

Room O3-45 ***Session Time:*** ***9:00 a.m.***

Electromagnetic Compatibility (EMC) continues to grow in importance as manufactures add increased electronic content to their vehicles to meet ever increasing customer needs and expectations. This session will present papers relating to the understanding and managing of the EMC environment from vehicle and subsystems down to the component level.

Organizers - *Michael J. Bosley, Visteon Corp.*

Assistant Chairpersons - *Igor Belokour, Visteon Corp.*

Time	Paper No.	Title

9:00 a.m.	***2007-01-0358***	***Immunity of Analog Devices against Continuous Radio-Frequency Disturbances***
		Ching Chen, Ford Motor Co.
9:30 a.m.	***2007-01-0360***	***Engine Component Effects on Spark-Ignition Caused Radio Frequency Interference (RFI)***
		Mark Steffka, GM Powertrain; David Trzcinski, General Motors
10:00 a.m.	***2007-01-0361***	***Reduction of EMI in Switched Mode DC/DC-converters by Shaped Pulse Transitions***
		A. Tryggve Tuveson, Volvo Car Corp.; Andreas Karvonen, Torbjörn Thiringer, Pravin Futane, Chalmers Univ. of Technology; Henrik Holst, Condesign AB
10:30 a.m.	***2007-01-0362***	***Optimization of Position Where in-vehicle Reception Antenna is Set Up (Written Only -- No Oral Presentation)***
		Shinichi Ishiko, Akihiro Kamemura, Toru Sasamoto, Auto Networks Technologies, Ltd.

Planned by Electrical and Electronic Systems Committee / Automobile Electronic Activity

Monday, April 16

Six Sigma

Session Code: ***AE28***

Room O3-45 ***Session Time:*** ***1:30 p.m.***

This session will present papers associated with the use and application of Six Sigma Methodologies and Statistical Tools for Continuous Improvement. The area of application may not be limited to a specific product but to a wide range of products, services and processes to improve productivity, reduce defects, and to optimize processes.

Organizers - *Bryan L. Dodson, Visteon Corp.; Vijit Jayasheela, Kohler Co.; G. Michael Smith, E-Z-Go Textron*

Assistant Chairpersons - *John T. Doyle, Continental Teves Inc.; George Snow, Continental Automotive Systems N.A.*

Time	***Paper No.***	***Title***
1:30 p.m.	***2007-01-0529***	***Leveraging Success of Six Sigma Initiatives with TRIZ***
		Maria V. Stoletova, GOAL/QPC
2:00 p.m.	***2007-01-0530***	***Using Six Sigma Concepts in the Engineering Process at Automotive Suppliers: Analysis of an Acoustical Test Bench***
		Jan-Friedrich Brand, Tenneco; Stefan Berg, Patrick Garcia, Tenneco Automotive Europe
2:30 p.m.	***2007-01-0533***	***A Case Study: Improvements in Automotive Motion Simulators Using Six Sigma Methodologies***
		Robert W. Mitchell, Barb Schultz, Ideal Aerosmith Inc.
3:00 p.m.	***2007-01-0535***	***Six Sigma Applied to Transactional Area***
		Patrick Garcia, Tenneco Inc.; Alfred Baumann, Roland Kolsch, Tenneco Automotive Europe
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-0532***	***Lean Engineering Best Practice in the Automotive Industry***
		Patrick Garcia, Tenneco Inc.; John Drogosz, Optiprise Inc.

4:15 p.m.	***2007-01-0534***	***Establishing a Process for Validation of an Electronic Control Unit Using Six Sigma Methodology***
		Yaamini Devi Loganathan, Ashfaque Ahmed Ansari, Ashok Leyland; Satyanarayana Makkapati, Vivek Upadhyay, Ashok Leyland, Ltd.; S.H. Venkatasubramanian, Ashok Leyland
4:45 p.m.	***2007-01-0636***	***Scrap Reduction Project for a New Launch at a North American OEM***
		Mark Ripple, BBK, Ltd.
5:15 p.m.	***2007-01-0531***	***Implementation of a New Lean Innovation Strategy***
		Bernd Fuhrmann, Tenneco Inc.; Patrick Garcia, Gregg Desilvio, Tenneco Automotive Europe
	2007-01-0536	***Development of Advanced Dimensional Control Method for Design for Six Sigma (DFSS) (Written Only -- No Oral Presentation)***
		Bo Zhang, Dimensional Control System, Inc.

The papers in this session are available in a single publication, SP-2071, and also individually.

Planned by Accelerated Testing Conference General Committee / General Planning Committees (Natl. Mtgs)

Monday, April 16

Rear Impact, Rollover and Side Impact (Part 1 of 3): Rollover

Session Code: ***B30***

Room O3-46 ***Session Time:*** ***9:00 a.m.***

Occupant protection in automotive collisions is a multi-modal activity. The technical session "Rear Impact, Rollover and Side Impact" focuses on three impact modes, each requiring unique countermeasures designed to address specific occupant injury paradigms.

Rollover: While rollovers represent a relatively small number of the total collisions on the roadway, they are accompanied by the highest risk of serious-to-fatal occupant injury. Analysis of field data, injury assessment techniques, analysis of experimental rollover test data, occupant containment and countermeasure design are all topics presented in this session.

Rear Impact: Frequent minor-to-moderate injury continues to drive injury-mitigating research and countermeasure design activity for this impact configuration. Continued research into rear occupant protection with a focus on seat and head restraint design and human response to rear-end impacts are presented. Techniques of mathematical modeling and countermeasure optimization are also presented.

Side Impact: Occupant protection in side impacts continues to be a unique design challenge for safety engineers. Techniques of restraint optimization through mathematical modeling are presented with a focus on smaller stature occupants such as female and child near-side occupants as well as far-side occupants.

Organizers - *Charles J. Griswold, C J Griswold Inc.; Alan W. Thebert, Engineering Research/Analysis; Warren N. Hardy, Wayne State Univ.; David E. Raymond*

Chairpersons - *Charles J. Griswold, C J Griswold Inc.*

Time	***Paper No.***	***Title***
9:00 a.m.	***2007-01-0373***	***NHTSA's Benefit Model in the Proposed FMVSS 216 Roof Strength Standard***
		Edward A. Moffatt, Biomech Inc.; Jeya Padmanaban, JP Research Inc.
9:30 a.m.	***2007-01-0369***	***Occupant Injury in Rollover Crashes: A Reexamination of Malibu II***
		Michael B. James, Ronald P. Nordhagen, Collision Safety Engineering, LC; Dennis C. Schneider, Sung-Woo Koh, Biokinetic Engineering Inc.
10:00 a.m.	***2007-01-0374***	***Ejection Mitigation in Rollover Events ¿ Component Test Development***
		Bridget M. O'Brien-Mitchell, Robert C. Lange, General Motors Corp.
10:30 a.m.	***2007-01-0376***	***Retention Characteristics of Production Laminated Side Windows***
		Janine Pierce, Michael Carhart, H. Cleve Bare, Angela Blakeslee, James Heald, Exponent Failure Analysis

11:00 a.m.	***2007-01-0367***	***An Evaluation of Laminated Side Window Glass Performance During Rollover*** *Peter Luepke, Exponent Inc.; Michael Carhart, Exponent Failure Analysis; Jeffrey Croteau, Exponent Inc.; Richard Morrison, Joseph Loibl, Glass & Glazing Forensics; Jack Ridenour, Ford Motor Co.*

The papers in this session are available in a single publication, SP-2117, and also individually.

Planned by Occupant Protection Committee / Automobile Body Activity

Monday, April 16

Rear Impact, Rollover and Side Impact (Part 2 of 3): Rear Impact

Session Code: ***B30***

Room O3-46 ***Session Time:*** ***1:30 p.m.***

Occupant protection in automotive collisions is a multi-modal activity. The technical session "Rear Impact, Rollover and Side Impact" focuses on three impact modes, each requiring unique countermeasures designed to address specific occupant injury paradigms.

Rollover: While rollovers represent a relatively small number of the total collisions on the roadway, they are accompanied by the highest risk of serious-to-fatal occupant injury. Analysis of field data, injury assessment techniques, analysis of experimental rollover test data, occupant containment and countermeasure design are all topics presented in this session.

Rear Impact: Frequent minor-to-moderate injury continues to drive injury-mitigating research and countermeasure design activity for this impact configuration. Continued research into rear occupant protection with a focus on seat and head restraint design and human response to rear-end impacts are presented. Techniques of mathematical modeling and countermeasure optimization are also presented.

Side Impact: Occupant protection in side impacts continues to be a unique design challenge for safety engineers. Techniques of restraint optimization through mathematical modeling are presented with a focus on smaller stature occupants such as female and child near-side occupants as well as far-side occupants.

Organizers - *Charles J. Griswold, C J Griswold Inc.; Alan W. Thebert, Engineering Research/Analysis; Warren N. Hardy, Wayne State Univ.; David E. Raymond*

Chairpersons - *Shashi M. Kuppa, National Hwy Traffic Safety Admin; Stephen W. Rouhana, Ford Motor Co.*

Time	***Paper No.***	***Title***
1:30 p.m.	***2007-01-0375***	***Rollover Sensor Signature Test Development*** *Bridget M. O'Brien-Mitchell, Christopher K. Horn, Robert C. Lange, General Motors Corp.*
2:00 p.m.	***2007-01-1773***	***Effective Numerical Simulation Tool for Real-World Rollover Accidents by Combining PC-Crash and FEA*** *Ryuuji Ootani, Chinmoy Pal, Nissan Motor Co., Ltd.*
2:30 p.m.	***2007-01-0366***	***Theoretical Analysis of a Method of Computing Dynamic Roof Crush During Rollovers*** *Gary T. Yamaguchi, Blake M. Ashby, Peter Luepke, Tara Moore, Robert Bove, Catherine Corrigan, Exponent Failure Analysis*
3:00 p.m.	***2007-01-0377***	***Compressive Neck Preloading During the Airborne Phase of Vehicle Rollover*** *Blake Ashby, William Lai, Michael Carhart, William Newberry, Brian Weaver, Catherine Corrigan, Exponent Failure Analysis*
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-0370***	***Timing of Head-To-Vehicle Perimeter Contacts in Rollovers*** *D. Claire Gloeckner, Robert T. Bove, Jeffrey Croteau, Catherine Ford Corrigan, Tara L.A. Moore, Exponent Inc.*

4:15 p.m.	***2007-01-0364***	***Sport Utility Vehicle (SUV) Rollover Collisions: An Analysis of NASS - CDS Injury Data for 1998 through 2004*** *Orion Keifer, Jr., Orion Keifer, Sr., Applications Engineering Group Inc.; Michael Woodhouse, Biodynamic Research Corp.*

The papers in this session are available in a single publication, SP-2117, and also individually.

Planned by Occupant Protection Committee / Automobile Body Activity

Monday, April 16

Military Vehicle: Vehicle Modeling and Simulation (Part 1 of 2)

Session Code: ***MV4***

Room Safety/Testing Pavilion (on the exhibi ***Session Time:*** ***9:00 a.m.***

This session will discuss vehicle modeling and simulation with military vehicle applications.

Organizers - *Kris Argeropoulos, Mark J. Brudnak, Christopher B. Mushenski, US Army TACOM*

Time	***Paper No.***	***Title***
9:00 a.m.	***ORAL ONLY***	***Standardizing the Next Generation of Military Vehicle Cooling Systems*** *Neil J. Slyva, Flowmaster USA Inc.; Mary Lynn Goryca, US Army TACOM*
9:30 a.m.	***ORAL ONLY***	***A Comprehensive Simulation-Based Framework for Design of Army Ground Vehicles*** *Gregory M. Hulbert, Univ. of Michigan*
10:00 a.m.	***2007-01-0138***	***Modeling and Simulation of 2D ARMA Terrain Models for Vehicle Dynamics Applications*** *Corina Sandu, Lin Li, Virginia Tech.*
10:30 a.m.	***2007-01-0481***	***Real-Time Multi-Body Track Modeling*** *Dale Holtz, Huron Sam Perera, Richard A. Romano, Realtime Technologies Inc.*
11:00 a.m.	***2007-01-0140***	***Software Integration for Simulation-based Analysis and Robust Design Automation of HMMWV Rollover Behavior*** *Kuei-Yuan Chan, National Cheng Kung Univ.; Subroto Gunawan, Panos Y. Papalambros, Univ. of Michigan-Ann Arbor; Mark J. Brudnak, TACOM; Gaetan Van den Bergh, Noesis Solutions*
	2007-01-0482	***Modeling and System Identification of Wheel-Soil System (Written Only -- No Oral Presentation)*** *Jaroslaw Pytka, Univ. of Lublin*

The papers in this session are available in a single publication, SP-2110, and also individually.

Planned by Military Vehicle Committee / Commercial Vehicle Activity

Monday, April 16

Experiments in Automotive Engineering (Part 1 of 8) - Residual Stress Measurement and Applications I

Session Code: ***M19***

Room W1-54 A ***Session Time:*** ***9:00 a.m.***

Program Chairs - Lianxiang Yang, Oakland Univ.; Darryl Taylor, Kah Wah Long, DaimlerChrysler Corp.

It has been known that the fatigue properties of a metal are significantly affected by the residual stresses retained in the metal. Compressive residual stresses at the surface of a part can improve its fatigue life; tensile residual stresses at the surface reduce fatigue life. This session is regarding the residual stress measurement technologies and applications in industries.

Organizers - *Keyu Li, Oakland Univ.; Xichen Sun, Michael Wiezbowski, DaimlerChrysler Corp.*

Time	***Paper No.***	***Title***
9:00 a.m.	***2007-01-0801***	***Program Keynote Address - Contribution of the Experimental Mechanics to the Automotive Design***
		Jian Lu, M. W. Fu, Hong Kong Polytechnic Univ.
10:00 a.m.	***ORAL ONLY***	***Optical Residual Stress Measurement through Thickness on an Ultrasonic Spot Welding***
		Keyu Li, Oakland Univ.
10:30 a.m.	***2007-01-0802***	***Mapping Residual Stress Gradients in Automotive Components Via X-Ray Diffraction***
		James Pineault, M. Belassel, Michael Brauss, J. Ladouceur, Proto Manufacturing, Ltd.
11:00 a.m.	***2007-01-0803*** ***ORAL ONLY***	***Residual Stresses near Crankshaft Fillets after Rolling with Consideration of Pressure Sensitivity***
		Kyoo Sil Choi, Jwo Pan, Univ. of Michigan-Ann Arbor

The papers in this session are available in a single publication, SP-2094, and also individually.

Planned by Materials Modeling and Testing Committee / Materials Engineering Activity

Monday, April 16

Experiments in Automotive Engineering (Part 2 of 8) - Residual Stress Measurement and Applications II

Session Code: ***M19***

Room W1-54 A ***Session Time:*** ***1:30 p.m.***

Program Chairs - Lianxiang Yang, Oakland Univ.; Darryl Taylor, Kah Wah Long, DaimlerChrysler Corp.

It has been known that the fatigue properties of a metal are significantly affected by the residual stresses retained in the metal. Compressive residual stresses at the surface of a part can improve its fatigue life; tensile residual stresses at the surface reduce fatigue life. This session is regarding the residual stress measurement technologies and applications in industries.

Organizers - *Keyu Li, Oakland Univ.; Xichen Sun, Michael Wiezbowski, DaimlerChrysler Corp.*

Time	***Paper No.***	***Title***
1:30 p.m.	***2007-01-0804***	***Comparison of Residual Stress Measurements Using X-Ray Diffraction and PRISM - Electronic Speckle Pattern Interferometry and Hole-Drilling***
		Theo Rickert, Robert Fix, American Stress Technologies Inc.; Lasse Suominen, Stress Tech.
2:00 p.m.	***ORAL ONLY***	***Effect of Surface Ground Burn on the Residual Stress Condition in Crankshaft***
		Xichen Sun, DaimlerChrysler Corp.
2:30 p.m.	***2007-01-0805*** ***ORAL ONLY***	***Monitoring Residual Stress in the Induction Hardening Process***
		Michael F. Wiezbowski, DaimlerChrysler

3:00 p.m.	***2007-01-0806***	***The Use of Navy C-Ring Specimens to Investigate the Effects of Initial Microstructure and Heat Treatment on the Residual Stress, Retained Austenite, and Distortion of Carburized Automotive Steels***
		Erin Boyle, Randy Bowers, Derek O. Northwood, Univ. of Windsor

The papers in this session are available in a single publication, SP-2094, and also individually.

Planned by Materials Modeling and Testing Committee / Materials Engineering Activity

Monday, April 16

Experiments in Automotive Engineering (Part 3 of 8) - Durability Process

Session Code: ***M19***

Room W1-54 A ***Session Time:*** ***3:45 p.m.***

Program Chairs - Lianxiang Yang, Oakland Univ.; Darryl Taylor, Kah Wah Long, DaimlerChrysler Corp.

This session will cover fatigue and other durability test results from seats, power steering hoses and suspension springs, etc.

Organizers - *Mohamed El-Sayed, Kettering Univ.*

Time	***Paper No.***	***Title***
3:45 p.m.	***2007-01-0385***	***Effect of Variation in Suspension Spring Stiffness on the Fatigue Life of CAR BIW***
		Santosh Shankarrao Gosavi, Tata Technologies, Ltd.; Makarand Govind Khaparde, Geometric Software Solutions Ltd.
4:15 p.m.	***2007-01-0386***	***A Study on Lifetime Prediction of Power Steering Rubber Hose***
		Yoo Sin Kang, Jeum Sub Kim, Kyung Mo Yang, Jong Myung Kim, Hyundai Motor Co.; Young Han Lim, Kwan Sub Jeong, HS R&A Co., Ltd.
4:45 p.m.	***ORAL ONLY***	***Effect of Stress History on Fatigue Crack Initiation in an Automotive Seat Structural Component***
		Catherine Marie Amodeo, Johnson Controls Inc.; Jwo Pan, Univ. of Michigan-Ann Arbor

The papers in this session are available in a single publication, SP-2094, and also individually.

Planned by Materials Modeling and Testing Committee / Materials Engineering Activity

Monday, April 16

Reliability and Robust Design in Automotive Engineering (Part 1 of 14) - Part 4A- Reliability-Based Design Optimization and Robust Design

Session Code: ***M18***

Room W1-54 B ***Session Time:*** ***9:00 a.m.***

Program Chairs: Zissimos Mourelatos, Oakland Univ.; Yung-Li Lee, DaimlerChrysler; Efstratios Nikolaidis, Univ. of Toledo; Ren-Jye Yang, Ford Motor Co.; Yih-Chyun Sheu, General Motors Corp.

Theoretical developments and automotive applications in RBDO and Robust Design are presented in this session. Topics include among others: imprecise reliability, computational algorithms, error estimation, Bayesian reliability, time-dependent reliability, possibility theory, Taguchi methods, and robust design of exhaust and braking systems.

Organizers - *Zissimos Mourelatos, Oakland Univ.; Efstratios Nikolaidis, Univ. of Toledo*

Chairpersons - *Zissimos Mourelatos, Oakland Univ.; Efstratios Nikolaidis, Univ. of Toledo*

Time	***Paper No.***	***Title***

9:00 a.m.	***2007-01-0552***	***Assessment of Imprecise Reliability Using Efficient Probabilistic Reanalysis***
		Farizal, Efstratios Nikolaidis, Univ. of Toledo
9:30 a.m.	***2007-01-0556***	***Robust Optimal Design of the Power-train Mounting System of the Light Truck (Written Only -- No Oral Presentation)***
		Jiansheng Weng, Nanjing Univ. of Aeronautics
10:00 a.m.	***2007-01-0555***	***System Reliability-Based Design Using a Single-Loop Method***
		Jinghong Liang; Zissimos P. Mourelatos, Oakland Univ.; Efstratios Nikolaidis, Univ. of Toledo
10:30 a.m.	***2007-01-0549***	***Error Amplification in Failure Probability Estimates of Small Errors in Response Surface Approximations***
		Palaniappan Ramu, Nam-Ho Kim, Ralphael Haftka, Univ. of Florida
11:00 a.m.	***2007-01-0559***	***Bayesian Reliability-Based Design Optimization Using the Eigenvector Dimension Reduction (EDR) Method***
		Pingfeng Wang, Byeng Dong Youn, Lee Wells, Michigan Technological Univ.
11:30 a.m.	***ORAL ONLY***	***Robust Multi Objective Genetic Algorithm for Powertrain Torque Converter Design***
		Thomas Wang, GM Technical Center; Walter Zhou, General Motors Corp.; Charles Yuan, Engineous Software

The papers in this session are available in a single publication, SP-2119, and also individually.

Planned by Materials Modeling and Testing Committee / Materials Engineering Activity

Monday, April 16

Reliability and Robust Design in Automotive Engineering (Part 3 of 14) - Part 4B - Reliability-Based Design Optimization and Robust Design

Session Code: ***M18***

Room W1-54 B ***Session Time:*** ***1:30 p.m.***

Program Chairs: Zissimos Mourelatos, Oakland Univ.; Yung-Li Lee, DaimlerChrysler; Efstratios Nikolaidis, Univ. of Toledo; Ren-Jye Yang, Ford Motor Co.; Yih-Chyun Sheu, General Motors Corp.

Theoretical developments and automotive applications in RBDO and Robust Design are presented in this session. Topics include among others: imprecise reliability, computational algorithms, error estimation, Bayesian reliability, time-dependent reliability, possibility theory, Taguchi methods, and robust design of exhaust and braking systems.

Organizers - *Zissimos Mourelatos, Oakland Univ.; Efstratios Nikolaidis, Univ. of Toledo; Om P. Yadav, North Dakota State Univ.*

Chairpersons - *Efstratios Nikolaidis, Univ. of Toledo; Zissimos Mourelatos, Oakland Univ.*

Time	***Paper No.***	***Title***
1:30 p.m.	***2007-01-0548***	***A Time-Dependent Reliability Analysis Method Using a Niching Genetic Algorithm***
		Jing Li, Zissimos Mourelatos, Oakland Univ.
2:00 p.m.	***2007-01-0558***	***Complimentary Intersection Method (CIM) for System Reliability Analysis***
		Byeng Dong Youn, Pingfeng Wang, Zhimin Xi, Michigan Technological Univ.
2:30 p.m.	***2007-01-0550***	***Reliability-Based Robust Design Optimization Using the EDR Method***
		Zhimin Xi, Michigan Tech. Univ.; Byeng Dong Youn, Michigan Technological Univ.; David J. Gorsich, US Army TACOM

3:00 p.m.	***2007-01-0551***	***Reliability-Based Design Optimization with Correlated Input Variables***
		Kyung K. Choi, Yoojeong Noh, Liu Du, Univ. of Iowa
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-0553***	***An Efficient Possibility-Based Design Optimization Method for a Combination of Interval and Random Variables***
		Jun Zhou; Zissimos P. Mourelatos, Oakland Univ.
4:15 p.m.	***2007-01-0554***	***Identifying Useful Variables for Vehicle Braking Using the Adjoint Matrix Approach to the Mahalanobis-Taguchi System***
		Elizabeth Anne Cudney; Kenneth M. Ragsdell, Univ. of Missouri-Rolla; Kioumars Paryani, General Motors Corp.
5:15 p.m.	***2007-01-0560***	***The Optimization of Exhaust and Catalytic Converter System for ULEV-II Using the Robust Design***
		Sangbeom Kim, Sung-Kun Kim, Hyundai Motor Co.; Yongjung Park, Youngbum Kim, Hyundai & Kia Corp.; Hyun-Soo Kim, Hyundai Motor Co.; Seungseok Lee, Hyundai & Kia Corp.; Taehun Yeon, Heesung Engelhard Corp.
	2007-01-0557	***Fundamentals and Common Problems of Seal Integrity Robustness of Standardized Brake Tubing Threaded Connectors (Written Only -- No Oral Presentation)***
		Stanislav Pliassounov, Ford Motor Co.

The papers in this session are available in a single publication, SP-2119, and also individually.

Planned by Materials Modeling and Testing Committee / Materials Engineering Activity

Monday, April 16

Fatigue Research and Applications (Part 1 of 3)

Session Code: ***M8***

Room W1-55 A ***Session Time:*** ***9:00 a.m.***

The first day of the Fatigue Research and Applications session covers both testing and analytical techniques.

Organizers - *John J. Bonnen, Ford Motor Co.; Russell A. Chernenkoff, Ford Research Laboratory; Chin-Chan Chu, Ford Motor Co.; Jackie D. Rehkopf, Exponent Inc.*

Time	***Paper No.***	***Title***
9:00 a.m.	***ORAL ONLY***	***Keynote - This Matter of Scatter - Variability of Fatigue Life Under Spectrum Loading***
		David Duquesnay, Royal Military College
10:00 a.m.	***2007-01-0387***	***Fatigue Test for Magnesium Alloy***
		Yukio Miyashita, Nagaoka National College of Technology; Yoshiharu Mutoh, Zainuddin bin Sajuri, Nagaoka Univ. of Technology
10:30 a.m.	***2007-01-0388***	***Development of a Computational Method of Low Cycle Fatigue Prediction for Multi-Layer Surfaces under Rolling/Sliding Contact Conditions***
		Jonathan Farley, Ken Mao, Luiz Wrobel, Brunel Univ.
11:00 a.m.	***2007-01-0389***	***Designing for the Effects of Corrosion on the Fatigue of Automotive Materials***
		E. A. Conle, J. J. F. Bonnen, R. A. Chernenkoff, A. R. Krause, Ford Research & Innovation Center

11:30 a.m.	***2007-01-0565***	***A Review on Crack Propagation in 2D Small Scale Yielding under Constant and Variable Spectrum Loading***
		Luiz Carlos H. Ricardo, Ipen, Univ. of Sao Paulo; Arnaldo Homobono P. Andrade, Univ. of Sao Paulo; Norman E. Dowling, Virginia Tech.
	2007-01-0390	***Fatigue Properties of High Pressure Die-Cast Magnesium Am60b Alloy (Written Only -- No Oral Presentation)***
		You Lu; Farid Taheri, Dalhousie Univ.; M. A. Gharghouri, Natl. Res. Council Canada

The papers in this session are available in a single publication, SP-2103, and also individually.

Planned by Ferrous Committee / Materials Engineering Activity

Monday, April 16

Fatigue Research and Applications (Part 2 of 3)

Session Code: ***M8***

Room W1-55 A ***Session Time:*** ***1:30 p.m.***

The first day of the Fatigue Research and Applications session covers both testing and analytical techniques.

Organizers - *John J. Bonnen, Ford Motor Co.; Russell A. Chernenkoff, Ford Research Laboratory; Chin-Chan Chu, Ford Motor Co.; Jackie D. Rehkopf, Exponent Inc.*

Time	***Paper No.***	***Title***
1:30 p.m.	***2007-01-0561***	***Application of Statistical Theory of Extremes and Random Convolutions to Predict the Stochastic Properties of Nonmetallic Inclusion Size and Count in Steel***
		Uma Ramadorai, Mike Sharp, Carl Musolff, Cummins Inc.
2:00 p.m.	~~***2007-01-0562***~~ ***ORAL ONLY***	***The Application of Mesh-Insensitive Structure Stress Method in Problem Solving for Welded Component Failure in Exhaust System***
		Huaqing Zhao, Emission Control
2:30 p.m.	***2007-01-0563***	***Fatigue Life Prediction Method in Rear Suspension Analysis***
		Guangqiang Wu, Tong Ji Univ.; Li Yu, Tongji Univ.
3:00 p.m.	***2007-01-0564***	***Thermal Fatigue Design of Stainless Steel Exhaust Manifolds***
		Guillaume Chinouilh, Pierre-Olivier Santacreu, J. M. Herbelin, Ugine & Alz Research Ctr., Arcelor-Mittal Group
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-1650***	***Regarding Influences of Production Processes on Material Parameters in Fatigue Life Prediction***
		Werner Aichberger, Harald Riener, Helmut Dannbauer, MAGNA Powertrain ECS

Planned by Ferrous Committee / Materials Engineering Activity

Monday, April 16

Reliability and Robust Design in Automotive Engineering (Part 2 of 14) Innovative Industrial Applications

Session Code: ***M18***

Room W1-55 B ***Session Time: 9:00 a.m.***

Program Chairs: Zissimos Mourelatos, Oakland Univ.; Yung-Li Lee, DaimlerChrysler; Efstratios Nikolaidis, Univ. of Toledo; Ren-Jye Yang, Ford Motor Co.; Yih-Chyun Sheu, General Motors Corp.

Innovative Industrial Applications invite papers on the computational design of industrial product, material, and/or manufacturing processes and systems. Priority will be given to those papers that describe innovative applications of advanced design optimization, reliability and robust design, design automation techniques to real-world industrial products and processes.

Organizers - *Richard Sun, DaimlerChrysler Corp.; Ren-Jye Yang, Ford Motor Co.*

Chairpersons - *Ching-Hung Chuang, Ford Motor Co.; Stacey Gu, General Motors Corp.*

Time	Paper No.	Title
9:00 a.m.	***2007-01-0355***	***Uncertainty-Based Design in Automotive and Aerospace Engineering*** *Stijn Donders, Roberto D'Ippolito, Herman D. Van der Auweraer, Michael Hack, LMS International; Nick Tzannetakis, Noesis Solutions; Laszlo Farkas, Wim Desmet, Katholieke Universiteit Leuven*
9:30 a.m.	***2007-01-0357***	***Analytical Benchmarking of Body Architectural Efficiency of Competitive Vehicles*** *Everett Y. Kuo, Raj Mehta, Ford Motor Co.; Glen Prater, Jr., Ali M. Shahhosseini, Univ. of Louisville*
10:00 a.m.	***ORAL ONLY***	***Multi-Disciplinary Optimization of Full Vehicle using Tailor Roller Blank Technology*** *Ching-Hung Chuang, Ren-Jye Yang, Guosong Li, Kiran Mallela, Parameswararao Pothuraju, Ford Motor Co.*

The papers in this session are available in a single publication, SP-2119, and also individually.

Planned by Materials Modeling and Testing Committee / Materials Engineering Activity

Monday, April 16

Reliability and Robust Design in Automotive Engineering (Part 4 of 14) - Reliability and Robust Design in Automotive Aero-Thermal and Fluid Systems

Session Code: ***M18***

Room W1-55 B ***Session Time: 1:30 p.m.***

Program Chairs: Zissimos Mourelatos, Oakland Univ.; Yung-Li Lee, DaimlerChrysler; Efstratios Nikolaidis, Univ. of Toledo; Ren-Jye Yang, Ford Motor Co.; Yih-Chyun Sheu, General Motors Corp.

The purpose of this session is to bring awareness among the automotive aerodynamics, thermal and hydraulic systems development community to address the need of reliability analysis and robust design to improve the overall product quality. This session also introduces CAE based optimization of aero-thermal and fluid systems to improve automotive fuel economy. This session presents papers covering both testing and simulation.

Organizers - *Sadek S. Rahman, Richard Sun, DaimlerChrysler Corp.*

Chairpersons - *Sadek S. Rahman, Richard Sun, DaimlerChrysler Corp.*

Time	Paper No.	Title
1:30 p.m.	***2007-01-0593***	***Model Tuning by Stochastic Methods and Optimization of Thermodynamic Parameters and Component Sets of a Cooling System*** *Wolfgang Puntigam, V. Wippel, Virtual Vehicle; Siegfried Voessner, Graz Univ. of Technology; Christian Kussmann, Magna Steyr*
2:00 p.m.	***2007-01-0594***	***Balance Between Reliability and Robustness in Engine Cooling System Optimal Design*** *Sadek S. Rahman, DaimlerChrysler Corp.; Malik Kayupov, Engineous Software; Jing Li, Zissimos P. Mourelatos, Oakland Univ.*

2:30 p.m.	***2007-01-0600***	***Reliability Analysis of Dynamometer Loading Parameters During Vehicle Cell Testing***
		Alaa E. El-Sharkawy, DaimlerChrysler Corp.
3:00 p.m.	***2007-01-0595***	***Viscous Fan Drive Model for Robust Cooling Air Flow Simulation***
		Timothy C. Scott, Univ. of Virginia; Zhe Xie, Optimal Inc.
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-0596***	***Robust Compressor Model for AC System Simulation***
		Timothy C. Scott, Univ. of Virginia; Shan Sundaram, DaimlerChrysler Corp.
4:15 p.m.	***2007-01-0598***	***Sensitivity Analysis of Powertrain Cooling System Performance***
		John R. Savage, Ying Tang, Valeo Engine Cooling Inc.; Zhe Xie, Optimal Inc.; Sadek S. Rahman, DaimlerChrysler Corp.
4:45 p.m.	***2007-01-0597***	***Morphing and Parametrization Technologies for CFD Applications***
		Arun Narayanan, A. Einstein, Detroit Engineered Products

The papers in this session are available in a single publication, SP-2119, and also individually.

Planned by Materials Modeling and Testing Committee / Materials Engineering Activity

Monday, April 16

Digital Modeling, Design Tools and Virtual Development

Session Code: ***B6***

Room W2-62 ***Session Time:*** ***9:00 a.m.***

A digital evaluation of models for humans and road systems. A look at the use of current design tools to maximize efficiencies in the design and analysis process. Virtual development techniques for automotive applications.

Organizers - *Randy Gu, Oakland Univ.; Yu J. Teng, DaimlerChrysler Corp.; William J. Altenhof, Univ. of Windsor; Yun Lu, DaimlerChrysler Corp.; Pilaka V. Murty, West Texas A&M Univ.*

Time	***Paper No.***	***Title***
9:00 a.m.	***2007-01-0398***	***Vehicle System Energy Analysis Methodology and Tool for Determining Vehicle Subsystem Energy Supply and Demand***
		Melody Baglione, DaimlerChrysler Corp., Univ. of Michigan; Gregory Pannone, Mark Duty, DaimlerChrysler Corp.
9:30 a.m.	***2007-01-0466***	***Hybrid Technique Based on Finite Element and Experimental Data for Automotive Applications***
		Mallikarjuna Bennur, Lesley G. Weiss, General Motors Corp.
10:00 a.m.	***2007-01-0465***	***Newly Developed Functionalities for the Virtual Human Santos***
		Jingzhou Yang, Xiaolin Man, Yu-Jiang Xiang, Hyun-Joo Kim, Amos Patrick, Colby Swan, Karim A. Abdel-Malek, Jasbir Arora, Univ. of Iowa
10:30 a.m.	***2007-01-0464***	***A Digital Simulation Method of Urban Road Traffic Noise***
		Ge-qun Shu, Yang-jun Wang, Hai-qiao Wei, Xing-yu Liang, Tianjin Univ.
	2007-01-0407	***Tolerance Analysis of Mechanical Assemblies with Asymmetric Tolerances (Written Only -- No Oral Presentation)***
		Mohammad R. Movahhedy, Saeed Khodaygan, Sharif Univ. of Technology
	2007-01-0408	***Probabilistic Tolerance Analysis of Compliant Assemblies (Written Only -- No Oral Presentation)***
		Ehsan Babaei, Mohammad R. Movahhedy, Sharif Univ. of Technology

	2007-01-0414	***A Numerical Integration Method for Singular Perturbation Problems (Written Only -- No Oral Presentation)***
		A.S. Ravi Kanth, Vellore Institute of Technology; Y. Reddy, National Institute of Technology; Rao V. Dukkipati, Fairfield Univ.

The papers in this session are available in a single publication, SP-2072, and also individually.

Planned by Body Engineering Committee / Automobile Body Activity

Monday, April 16

Primary Ride

Session Code: ***AC5***

Room W2-62 ***Session Time:*** ***1:30 p.m.***

Designing suspension systems to enhance vehicle ride through the use of damping, hydraulics and optimization are presented.

Organizers - *Pinhas Barak, Kettering Univ.; Richard D. Tonda, Ford Motor Co.*

Time	***Paper No.***	***Title***
1:30 p.m.	***2007-01-0580***	***Improvement of Vehicle Ride Performance Using A Switchable Damper Suspension System***
		Aref M. A. Soliman, Minia Univ., Egypt
2:00 p.m.	***2007-01-0581***	***Improvement of the NVH Quality of High-performance Sport Cars by using a Split-Frame Layout***
		Gabriele Fichera, Marco Scionti, Univ. of Catania
2:30 p.m.	***2007-01-0582***	***Transient Characteristics of a Hydraulically Interconnected Suspension System***
		Jeku Jeyakumaran, Wade Smith, Nong Zhang, University of Technology, Sydney
3:00 p.m.	***2007-01-0583***	***Hydraulically Interconnected Suspension Parameter Sensitivity in Half-Car Ride Performance***
		Wade Alister Smith, Nong Zhang, Jeku Jeyakumaran, University of Technology, Sydney
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-0584***	***Optimal Damping Design of Heavy Vehicle with Interconnected Hydro-Pneumatic Suspension (Written Only -- No Oral Presentation)***
		Dongpu Cao, Concordia Univ.
	2007-01-0585	***Designing Suspensions to Achieve Desirable Impact Harshness and Impact Shake Performance (Written Only -- No Oral Presentation)***
		Xuting Wu, Max Farhad, Robert Sheets, General Motors Corp.
	2007-01-0586	***Combining DFSS and Multi-body Dynamics for Vehicle Ride Tuning (Written Only -- No Oral Presentation)***
		Thomas Cherian, Max Farhad, Jason Wong, Xuting Wu, General Motors Corp.

Planned by Steering, Chassis and Suspension Committee / Automobile Chassis Activity

Monday, April 16

Thermal Management Systems (Part 1 of 2)

Session Code: ***HX1*** ***9:00 a.m.***

Room W2-64 ***Session Time:***

Providing thermal comfort to the occupants and thermal management of components in an energy efficient way has challenged the automotive industry to search for new and innovative approaches to thermal management. Hence, management of heat flow, coolant flow, oil flow, and airflow is extremely important as it directly affects the system performance under full range of vehicle operating conditions.

Organizers - *Ales Alajbegovic, Exa Corporation; Ramesh Kumar Goyal, General Motors Corp.; Gursaran D. Mathur, CalsonicKansei North America Inc.*

Time	Paper No.	Title
9:00 a.m.	***2007-01-0537***	***Waste Heat Recovery of Heavy-Duty Diesel Engines by Organic Rankine Cycle Part I: Hybrid Power System of Diesel and Rankine Engines*** *Ho Teng, Gerhard Regner, Chris N. Cowland, AVL Powertrain Engineering Inc.*
9:30 a.m.	***2007-01-0543***	***Waste Heat Recovery of Heavy-Duty Diesel Engines Using Organic Rankine Cycle Part II: Working Fluids for WHR-ORC*** *Ho Teng, Gerhard Regner, Chris N. Cowland, AVL Powertrain Engineering Inc.*
10:00 a.m.	***2007-01-0539***	***Experimental Investigation to Monitor Tailpipe Emissions Entering into Vehicle Cabin to Improve Indoor Air Quality (IAQ)*** *Gursaran D. Mathur, CalsonicKansei North America Inc.*
10:30 a.m.	***2007-01-0538***	***Development of Air/Oil-Cooled Motorcycle Engine Using Thermal and Fluid Analyses*** *Yoshitsugu Gokan; Yasushi Takahashi, Honda R&D Co., Ltd.; Makoto Inayoshi, Design Network; Tsuneaki Ishima, Tomio Obkata, Gunma Univ.*
11:00 a.m.	***2007-01-0546***	***Improvement of Cylinder Cooling in Air-Cooled Engines by Utilizing Baffle Plates*** *Soichi Ishihara, Masao Yoshida, Yoshio Murakami, Kohei Nakashima, Masago Yamamoto, Meijo Univ.*

The papers in this session are available in a single publication, SP-2132, and also individually.

Planned by Vehicular Thermal Management Activity / EMB Land and Sea Group

Monday, April 16

Thermal Management Systems (Part 2 of 2)

Session Code: ***HX1***

Room W2-64 ***Session Time:*** ***1:30 p.m.***

Providing thermal comfort to the occupants and thermal management of components in an energy efficient way has challenged the automotive industry to search for new and innovative approaches to thermal management. Hence, management of heat flow, coolant flow, oil flow, and airflow is extremely important as it directly affects the system performance under full range of vehicle operating conditions.

Organizers - *Ales Alajbegovic, Exa Corporation; Ramesh Kumar Goyal, General Motors Corp.; Gursaran D. Mathur, CalsonicKansei North America Inc.*

Time	Paper No.	Title
1:30 p.m.	***2007-01-0547***	***Thermal Analysis of Textile Structures in Automotive Applications*** *Jimmy Teal, Zhong Huai Zhang, Federal-Mogul*
2:00 p.m.	***2007-01-1780***	***Experimental and Numerical Study of Underbody Drive and Soak Thermal Conditions on the Basis of a Heatshield Test Rig*** *Edward Bendell, Luka Gorlato, Michael Hauenstein, Rieter Automotive Management AG*

2:30 p.m.	***2007-01-0544***	***Silicone Thermal Interface Materials for Under-hood Electronics*** *Martin Stephan, Dow Corning Corporation*
3:00 p.m.	***2007-01-0545***	***Detection of Aerodynamic Noise Sources over a Rotating Radiator Fan Blade for Automobile*** *Atsushi Nashimoto, Tsuneo Akuto, Yuichi Nagase, Takeshi Yoda, Tomonori Nakano, Mitsuba Corp.; Nobuyuki Fujisawa, Niigata Univ.*
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-0541***	***Evaluation of the SmartCooling (SC) Library for the Simulation of the Thermal Management of an Internal Combustion Engine*** *Dragan Simic, Hannes Lacher, Christian Kral, Franz Pirker, Arsenal Research*
4:15 p.m.	***2007-01-0542***	***A Numerical Approach to Develop the Front End Cooling Package in a Vehicle Using Predicted Engine Fan Performance Data and Vehicle System Resistances*** *P. Dube, S. Natarajan, A. Mulemane, V. Damodaran, Mahindra & Mahindra*
4:45 p.m.	***2006-01-1035 ****	***Development of Control system for Electrical radiator Fan Using Dual Sensor and Microprocessor Based Electronic Unit*** *Raman S. Badekar, Jitendra S. Mahajan, Sunil G. Kakaye, Pradeep N. Khire, Kapila Gopalakrishna, Tata Motors Limited, India*
5:15 p.m.	***2007-01-0540***	***Automotive Fan Electric Motor Cooling: A Numerical and Experimental Analysis*** *Jonathan Ryval, Univ. of Western Ontario*

The papers in this session are available in a single publication, SP-2132, and also individually.

** Previously published and/or presented at the SAE 2006 World Congress & Exhibition*

Planned by Vehicular Thermal Management Activity / EMB Land and Sea Group

Monday, April 16

Advances in Plastic Components, Processes and Technologies (Part 1 of 2)

Session Code: ***M11***

Room W2-65 ***Session Time:*** ***9:00 a.m.***

This session will feature a wide range of plastic applications. Some examples include: wheel liners, sound absorbing foam, engine intercoolers, plastic welds, etc.

Organizers - *Robert R. Maynard, Nova Chemicals Inc.; Kartik Srinivas, Akron Rubber Development Laboratory Inc.*

Time	***Paper No.***	***Title***
9:00 a.m.	***2007-01-0570***	***An All-Polyamide Intercooler for Turbo-Charged Engines*** *Paul D. Daly, Bobbye Baylis, Siemens VDO Automotive Corp.*
9:30 a.m.	***2007-01-0578***	***Expanded Polyolefin Bead Foam Property and Processing Innovations for Automotive Interior Applications*** *Steven R. Sopher, JSP International*
10:00 a.m.	***2007-01-0572***	***Foaming Visualization of Thermoplastic Polyolefin (TPO) Blends with N2*** *Ryan Seonggi Kim, Chul B. Park, Mohini Sain, Univ. of Toronto*

10:30 a.m.	***2007-01-0574***	***Poly (butyl acrylate)-Modified Cellulose Fibres for Toughening WPC***
		Zhuang Wang, Huining Xiao, Univ. of New Brunswick; Mohini Sain, Univ. of Toronto
11:00 a.m.	***2007-01-0577***	***Influence of Interfacial Interaction on the Foamability of Wood Fiber/HDPE Composites***
		Yoon Hwan Lee, Mohini Sain, Takashi Kuboki, Chul B. Park, Univ. of Toronto
11:30 a.m.	***2007-01-0576***	***Mechanical Properties of Rice Hull/High Density Polyethylene and Wood/High Density Polyethylene Composites***
		Takashi Kuboki, Yoon Hwan Lee, Chul B. Park, Mohini Sain, Univ. of Toronto

The papers in this session are available in a single publication, SP-2115, and also individually.

Monday, April 16

Advances in Plastic Components, Processes and Technologies (Part 2 of 2)

Session Code: ***M11***

Room W2-65 ***Session Time:*** ***1:30 p.m.***

This session will feature a wide range of plastic applications. Some examples include: wheel liners, sound absorbing foam, engine intercoolers, plastic welds, etc.

Organizers - *Robert R. Maynard, Nova Chemicals Inc.; Kartik Srinivas, Akron Rubber Development Laboratory Inc.*

Time	***Paper No.***	***Title***
1:30 p.m.	***2007-01-0571***	***Method of Evaluating Shear Strengths in Contour Laser Transmission Welding***
		Philip J. Bates, Royal Military College; Mingliang Chen, Gene Zak, Queen's Univ.; Bobbye K. Baylis, Siemens VDO; Martin McLeod, Decoma Intl.
2:00 p.m.	***2007-01-0568***	***Trilaminate Wheel Arch Liners (Mud Guards)***
		Andrea Strignano, Victor Santoro, San Valeriano S.p.A.
2:30 p.m.	***2007-01-0573***	***Development of Low Friction Washer for AT-CVT (Torque Converter)***
		Kazunari Seki, Yoshihiro Kuzumaki, Yuki Sato, Yasuaki Tanabe, NOK Corp.
	2007-01-0566	***Study of Sealing Mechanism to Prevent Oil Leakage for the Thermoplastic Cylinder Head Cover (Written Only -- No Oral Presentation)***
		Yong-Choo Yong-Choo/Tho, Hyundai Motor Co.; Gwon Gwon/Sul, DuPont Korea Inc.; Jong-Sub Jong-Sub/Lee, Hyundai Motor Co.; Jung-Sik Jung-Sik/Kim, INZI Controls; Jae-Chun Jae-Chun/Kim, Hyundai Motor Co.; Gwang-Ho Gwang-Ho/Oh, INZI Controls

The papers in this session are available in a single publication, SP-2115, and also individually.

Planned by Polymers and Coatings Committee / Materials Engineering Activity

Monday, April 16

Glass Applications

Session Code: ***B7***

Room W2-65 ***Session Time:*** ***3:45 p.m.***

A review of vehicle glass designs related to the properties required for safer vehicles.

Organizers - *Ashoka Jinka, Glasstech Inc.*

Time	Paper No.	Title
3:45 p.m.	***2007-01-1546***	***Automotive Side Glazing for Primary and Secondary Occupant Retention*** *Stephen A. Batzer, G. Grant Herndon, Chandra Thorbole, Engineering Institute; Henry Chamberlain, Allied Glass Experts; Donald R. Phillips, National Forensic Engineers; Herbert Yudenfriend, My-Lite Corp.*
4:15 p.m.	***ORAL ONLY***	***Advanced Modeling of Automotive Glass Forming*** *A. Jinka, Glasstech Inc.*
4:45 p.m.	***ORAL ONLY***	***Stress Corrosion in Silicate Glasses*** *Suresh T. Gulati, Corning Inc.*

Planned by Body Engineering Committee / Automobile Body Activity

Monday, April 16

Human Factors in Driver Vision and Lighting

Session Code: ***B18***

Room W2-66 ***Session Time:*** ***9:00 a.m.***

Visual aspects of the lighting systems and how drivers are effected by the inputs of these systems.

Organizers - *Michael J. Flannagan, Univ. of Michigan; Richard H. Karbowski, Ford Motor Co.*

Chairpersons - *Richard H. Karbowski, Ford Motor Co.*

Time	Paper No.	Title
9:00 a.m.	***2007-01-0425***	***The Visual Power of the Dashboard of a Passenger Car by Applying Eye-Tracking Theory*** *Yu-ming Chang, Li Lan Wang, National Cheng Kung Univ.*
9:30 a.m.	***2007-01-0606***	***Infrared Radiation Based Night Vision Systems in Headlamps*** *Michael Hamm, Automotive Lighting*
10:00 a.m.	***2007-01-1229***	***Rear Signal Lighting: From Research to Standards, Now and in the Future*** *John Bullough, John Van Derlofske, Rensselaer Polytechnic Institute; Michael Kleinkes, Hella KGaA Hueck & Co.*
10:30 a.m.	***2007-01-0602***	***Reverse Engineering Applied to Vehicle Lighting Systems Design*** *Janusz Waldemar Mazur, Warsaw Univ. of Technology; Jaroslaw Wilk, Technical Univ. of Warsaw*
	2007-01-0427	***Calculations of the Automotive Headlamps Systems with the Mixed Reflecting Surface Structure, Supported by CAD Application (Written Only -- No Oral Presentation)*** *Janusz Waldemar Mazur, Warsaw Univ. of Technology; Michal Sionek*
	2007-01-0612	***Lighting Parameters Analysis on Road by Car Fog Projector in Difficult Weather Conditions (Written Only -- No Oral Presentation)*** *Janusz Waldemar Mazur, Warsaw Univ. of Technology; Piotr Tomczuk, Warsaw Univ. of Technology Transport Department*

The papers in this session are available in a single publication, SP-2106, and also individually.

Planned by Human Factors Committee / Automobile Body Activity

Monday, April 16

Automotive Lighting Technology (Part 1 of 5): Benefits of the Advanced Road Illumination

Session Code: ***B17***

Room W2-66 ***Session Time:*** ***1:30 p.m.***

Enhance road illumination and improve public road safety has been a high priority of development and evaluation of automotive lighting technology. This session provides update information for technological progress.

Organizers - *Jianzhong Jiao, North American Lighting Inc.*

Chairpersons - *Michael J. Flannagan, Univ. of Michigan*

Time	Paper No.	Title
1:30 p.m.	***2007-01-0601***	***The Road to Active Light - Headlamp Concepts With Enhanced Adaptive Functionalities***
		Detlef Decker, Andreas Himmler, Christian Amsel, Hella KGaA Hueck & Co.
2:00 p.m.	***2007-01-0611***	***Optical Sensor Concepts for Future Head-Lighting System***
		Atsushi Yamamoto, Yasuaki Makino, Yasutoshi Horii, Denso Corp.
2:30 p.m.	***2007-01-0604***	***Dynamic Bending Light: An Innovative Technology for Today and the Future***
		Martin Grimm, Sébastian Casenave, Valeo Lighting Systems
3:00 p.m.	***2007-01-0610***	***Horizontal Adjusting Control for Automotive Headlight System***
		Yaojung Shiao, Yu-jia Ou, National Taipei Univ. of Technology

The papers in this session are available in a single publication, SP-2106, and also individually.

Planned by Human Factors Committee / Automobile Body Activity

Monday, April 16

Fire Safety (Part 1 of 5): Hydrogen Vehicle Fire Safety (Part 1 of 2)

Session Code: ***B13***

Room W2-67 ***Session Time:*** ***9:00 a.m.***

Organized by the Fire Safety Committee, the B13 session addresses fire and safety issues unique to fuel cell, hydrogen, and compressed natural gas (CNG) vehicles. Issues are discussed from a broad range of perspectives, combining results from analytical and experimental studies of fundmental phenomema with reports of actual vehcile experience.

Organizers - *Glenn W. Scheffler, UTC Power; Rich Cregar, Wake Technical College; R Rhoads Stephenson, Motor Vehicle Fire Research Institute*

Time	Paper No.	Title
9:00 a.m.	***2007-01-0428***	***Diffusion and Ignition Behavior on the Assumption of Hydrogen Leakage from Hydrogen-Fueled Vehicle***
		Yasumasa Maeda, Hirohiko Itoi, Jinji Suzuki, Shogo Watanabe, Japan Automobile Research Inst.
9:30 a.m.	***2007-01-0429***	***Fire Hazards of Small Hydrogen Leaks***
		N. Morton, Peter B. Sunderland, Univ. of Maryland; R. Axelbaum, Washington Univ.; B. Chao, Univ. of Hawaii
10:00 a.m.	***2007-01-0432***	***Investigation of Small-Scale Unintended Releases of Hydrogen***
		William G. Houf, Robert W. Schefer, Sandia National Laboratories

10:30 a.m.	***2007-01-0436***	***Developing Safety Standards for FCVs and Hydrogen Vehicles***
		Glenn W. Scheffler, UTC Power; Jake W. DeVaal, Ballard Power Systems; Gery Kissel, General Motors Corp.; Jesse M. Schneider, DaimlerChrysler Corp.; Michael J. Veenstra, Ford Motor Co.; Tommy Wei-Lii Chang, American Honda Motor Co. Inc.; Nathan T. Warner, Toyota Technical Center USA Inc.; William P. Chernicoff, US Dept. of Transportation
11:00 a.m.	***2007-01-0437***	***Development of Safety Criteria for Potentially Flammable Discharges from Hydrogen Fuel Cell Vehicles***
		Reto Corfu, Jake W. DeVaal, Ballard Power Systems Inc.; Glenn W. Scheffler, UTC Power

The papers in this session are available in a single publication, SP-2097, and also individually.

Planned by Fire Safety Committee / Automobile Body Activity

Monday, April 16

Fire Safety (Part 2 of 5): Hydrogen Vehicle Fire Safety (Part 2 of 2)

Session Code: ***B13***

Room W2-67 ***Session Time:*** ***1:30 p.m.***

Organized by the Fire Safety Committee, the B13 session addresses fire and safety issues unique to fuel cell, hydrogen, and compressed natural gas (CNG) vehicles. Issues are discussed from a broad range of perspectives, combining results from analytical and experimental studies of fundmental phenomema with reports of actual vehcile experience.

Organizers - *Glenn W. Scheffler, UTC Power; Rich Cregar, Wake Technical College; R Rhoads Stephenson, Motor Vehicle Fire Research Institute*

Time	***Paper No.***	***Title***
1:30 p.m.	***2007-01-0430***	***Safe Storage of Natural Gas on Urban Buses: Case Early Investigation and Learnings***
		Lionel Perrette, INERIS; Helmut K. Wiedemann, TÜV Saarland Holding
2:00 p.m.	***2007-01-0431***	***Intentional Failure of a 5000 psig Hydrogen Cylinder Installed in an SUV Without Standard Required Safety Devices***
		Nathan Weyandt, Southwest Research Institute
2:30 p.m.	***2007-01-0433***	***Effects of High-Pressure Gaseous Hydrogen on Structural Metals***
		Chris San Marchi, Brian Somerday, Sandia National Laboratories
3:00 p.m.	***2007-01-0434***	***Presentation of the French National Project DRIVE: Experimental Data for the Evaluation of Hydrogen Risks Onboard Vehicles, the Validation of Numerical Tools and the Edition of Guidelines***
		Lionel Perrette, INERIS; Henri Paillere, CEA; Guillaume Joncquet, PSA
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-0435***	***Safety Evaluation on Fuel Cell Stacks Fire and Toxicity Evaluation of Material Combustion Gas for FCV***
		Jinji Suzuki, Yohsuke Tamura, Kimio Hayano, Koichi Oshino, Shogo Watanabe, Japan Automobile Research Inst.

The papers in this session are available in a single publication, SP-2097, and also individually.

Planned by Fire Safety Committee / Automobile Body Activity

Monday, April 16

Human Factors in Driving and Automotive Telematics (Part 1 of 2)

Session Code: ***B19***

Room W2-68 ***Session Time:*** ***9:00 a.m.***

This session introduces most recent applications and research results on both physical and cognitive aspects for the driver. Studies explore effects of vehicle environments and dynamics on the driver's comfort, behavior, and usage of advanced in-vehicle electronics and how it affects driver workload, and investigate ways to assist the driver in order to reduce workload and avoid traffic accidents.

Organizers - *Rana Balci, Lijian Zhang, Delphi Corp.*

Time	Paper No.	Title
9:00 a.m.	***2007-01-0439***	***Evaluation of a New In-Vehicle HMI System Composed of Steering Wheel Switch and Head-Up Display When a Driver Encounters Sudden Danger*** *Hiroaki Kosaka, Kyosuke Uematsu, Akira Kurosaki, Masaru Noda, Hirokazu Nishitani, Nara Institute of Science & Technology; Masaki Tada, Tsuyoshi Tanaka, Kouichi Santo, Fumiyasu Konno, Panasonic Electronic Devices Co. Ltd.*
9:30 a.m.	***2007-01-0441***	***Radio Usage: Observations from the 100-Car Naturalistic Driving Study*** *M. Lucas Neurauter, Jonathan M. Hankey, Virginia Tech. Transportation Institute; Richard A. Young, General Motors Corp.*
10:00 a.m.	***2007-01-0440***	***Analysis of Drivers' Behaviors in Car Following Based on A Performance Index for Approach and Alienation*** *Takahiro Wada, Shun'ichi Doi, Keisuke Imai, Kagawa Univ.; Naohiko Tsuru, Kazuyoshi Isaji, Denso Corp.; Hiroshi Kaneko, Paris Miki. Inc.*
10:30 a.m.	***2007-01-0451***	***User Experience in the U.S. and Germany of In-Vehicle Touch Screens with Integrated Haptic and Auditory Feedback*** *Colleen Serafin, Rainer Heers, Michael Tschirhart, Visteon Corp.; Chris Ullrich, Christophe Ramstein, Immersion Corp.*
11:00 a.m.	***2007-01-0446***	***Integrating CE-based Applications into the Automotive HMI*** *Reinhard Stolle, BMW Car IT GmbH; Daniel Weyl, Alexandre Saad, Markus Wagner, BMW AG*
11:30 a.m.	***2007-01-0443***	***An Integrated Auditory Warning Approach for Driver Assistance and Active Safety Systems*** *Varsha K. Sadekar, Donald K. Grimm, Baktiarr Litkouhi, Raymond J. Kiefer, General Motors Corp.*

The papers in this session are available in a single publication, SP-2104, and also individually.

Planned by Human Factors Committee / Automobile Body Activity

Monday, April 16

Human Factors in Driving and Automotive Telematics (Part 2 of 2)

Session Code: ***B19***

Room W2-68 ***Session Time:*** ***1:30 p.m.***

This session introduces most recent applications and research results on both physical and cognitive aspects for the driver. Studies explore effects of vehicle environments and dynamics on the driver's comfort, behavior, and usage of advanced in-vehicle electronics and how it affects driver workload, and investigate ways to assist the driver in order to reduce workload and avoid traffic accidents.

Organizers - *Rana Balci, Lijian Zhang, Delphi Corp.*

Time	Paper No.	Title

1:30 p.m.	***2007-01-0442***	***Guidelines for the Designing and Evaluating In-Vehicle Navigation Devices: A Preliminary Study of Their Usage and Value***
		Peter Calak, RIM; Blair Nonnecke, Univ. of Guelph
2:00 p.m.	***2007-01-0438***	***Commonality and Differences between Cruiser, Sport, and Touring Motorcycles: An Ergonomics Study***
		Allen Hale, Metaldyne; Derek Pelowski, Ford Truck Vehicle Center; Vivek D. Bhise, Univ. of Michigan
2:30 p.m.	***2007-01-0444***	***Effect of Car Cabin Environment on Driver's Comfort and Fatigue***
		Hitomi Tsutsumi, Yoshitaka Hoda, Shin-ichi Tanabe, Waseda Univ.; Akiko Arishiro, Honda Motor Co., Ltd.
3:00 p.m.	***2007-01-0445***	***State Drivers' Manuals Can Kill Your Kids!***
		Eddie Wren, Drive And Stay Alive Inc.
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-0448***	***Improvement of Vehicle Dynamics Based on Human Sensitivity (First Report) - Development of Human Sensitivity Evaluation System***
		Yuji Muragishi, Eiichi Ono, Toyota Central R&D Labs Inc.; Takahiro Kodaira, Hideki Sakai, Yasushi Yamamoto, Toyota Motor Corp.; Katsuhiko Fukui, Toyota Central R&D Labs Inc.
4:15 p.m.	***2007-01-0449***	***Motor Vehicle Driver Characteristics - Crash Avoidance Behavior***
		Lee Carr, Robert Liebbe, Jennifer Crimeni, Michael Johnston, Carr Engineering Inc.
4:45 p.m.	***2007-01-0447***	***Inprovement of Vehicle Dynamics Based on Human Sensitivity (Second Report) - A Study of Cornering Feel -***
		Takahiro Kodaira, Yasushi Yamamoto, Hideki Sakai, Toyota Motor Corp.; Yuji Muragishi, Katsuhiko Fukui, Eiichi Ono, Toyota Central R&D Labs Inc.
5:15 p.m.	***2007-01-0450***	***In-Car Auditory Signals***
		Martin Hiersemann, Hiersemann Prozessautomation GmbH; Jens Mühlstedt, Holger Unger, Birgit Spanner-Ulmer, Chemnitz Univ of Technology

The papers in this session are available in a single publication, SP-2104, and also individually.

Planned by Human Factors Committee / Automobile Body Activity

Monday, April 16

Body Engineering and Design (Part 1 of 2)

Session Code: ***B1***

Room W2-69 ***Session Time:*** ***9:00 a.m.***

The papers in Body Design & Engineering session cover several important areas that are related to Body-in-White (BIW) and Components Design. These areas are: analysis and conceptual design of door and trunk modules, Geometric Dimensioning and Tolerancing (GD&T) issues in measurements and stamped parts, weight and shape optimization of - vehicle components such as cylinder head, cross car beam, integration of vibration, NVH and durability issues in vehicle design, finite element analysis of BIW, material considerations, joining issues and ride quality. As can be seen, the session involves many papers on the body design and dynamics, optimization, and crash worthiness of components and subsystems. The contributing authors are researchers both from universities and practicing engineers from industrial establishments.

Organizers - *Vesna Savic, GM Technical Center; Raghu Echempati, Kettering Univ.; Ramakrishna P. Koganti, Ford Motor Co.*

Time	***Paper No.***	***Title***

9:00 a.m.	***2007-01-0462***	***Supporting Methods for Conceptual Automotive Design and Digital Mock Up Based on External Parameter Control***
		Tanja Goeber, Mario Hirz, Graz Univ. of Technology; Siegfried Krammer, David Pollheimer, Magna Steyr Graz
9:30 a.m.	***2007-01-0459***	***An Integrated Design and Appraisal System for Vehicle Interior Packaging***
		Nanxin Wang, Jian Wan, Gianna Gomez-Levi, Vijitha Kiridena, Steve Sieczka, David Pulliam, Ford Motor Co.
10:00 a.m.	***2007-01-0457***	***Transit Bus Design Effects Utilizing Improved Steel or Fiber Reinforced Composite Structures***
		Keith D. Friedman, John Hutchinson, Erich Weerth, Dennis Mihora, Friedman Research Corp.
10:30 a.m.	***2007-01-0454***	***A-TRIX: A Three-Wheels Electric Scooter with Innovative Tilting Mechanism***
		Carlo Angiono, Roberto Angiono, Marco Falchi, Giacomo Zolfini, Autostudi S.r.l.
11:00 a.m.	***ORAL ONLY***	***OEM Capless Fueling Devises, Key Step Toward Robotic Fueling, Environmental Safety***
		James A. Hollerbach, Holtech Inc. & TransAmerican Robotic Fueling LLC; David L. Rogers, Holtech Inc.
11:30 a.m.	***2007-01-0453***	***A Value Analysis Tool for Automotive Interior Door Trim Panel Materials and Process Selection***
		Sonal Onkar, Marc Hayes, Jim Dalpizzol, James Dowd, Collins & Aikman; Vivek D. Bhise, Univ. of Michigan
	2007-01-0463	***Computational Analysis of Pressure Control Characteristics in a VFS Solenoid Valve (Written Only -- No Oral Presentation)***
		Hyung-Man Kim, Hak-Min Wang, Il-Hwan Kang, Kap-Seung Choi, Inje Univ.; Hyeok-Jun Tae, Kyungwon Tech.

The papers in this session are available in a single publication, SP-2069, and also individually.

Planned by Body Engineering Committee / Automobile Body Activity

Monday, April 16

Body Engineering and Design (Part 2 of 2)

Session Code: ***B1***

Room W2-69 ***Session Time:*** ***1:30 p.m.***

The papers in Body Design & Engineering session cover several important areas that are related to Body-in-White (BIW) and Components Design. These areas are: analysis and conceptual design of door and trunk modules, Geometric Dimensioning and Tolerancing (GD&T) issues in measurements and stamped parts, weight and shape optimization of - vehicle components such as cylinder head, cross car beam, integration of vibration, NVH and durability issues in vehicle design, finite element analysis of BIW, material considerations, joining issues and ride quality. As can be seen, the session involves many papers on the body design and dynamics, optimization, and crash worthiness of components and subsystems. The contributing authors are researchers both from universities and practicing engineers from industrial establishments.

Organizers - *Vesna Savic, GM Technical Center; Raghu Echempati, Kettering Univ.; Ramakrishna P. Koganti, Ford Motor Co.*

Time	***Paper No.***	***Title***
1:30 p.m.	***ORAL ONLY***	***Designing for Profitability***
		Mitch Free
2:00 p.m.	***2007-01-0456***	***Flexible Joint Design for Tube Structure***
		Liang Huang, Min Kuo, Mittal Steel USA Inc.

2:30 p.m.	***2007-01-0460***	***High Integrity Die Cast Aluminum Body Components***
		Zachary Brown, Phil Burton, SPX Contech Corp.
3:00 p.m.	***2007-01-0458***	***Structural Strengthening of Vehicle Chassis with Adhesives***
		Stephan Koch, Sika Technology AG
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-0461***	***Design of Dual Sliding Door Mechanism for a Small Sized Car***
		Upendra A. Deshmukh, Hong Tae Kang, Kalpak Shah, Univ. of Michigan-Dearborn
4:15 p.m.	***2007-01-0455***	***Dynamic Analysis of Vehicle Trunk Lid with 4-Bar Link Structure***
		Kap-Seung Choi, Sang-Ki Park, Hak-Min Wang, Inje Univ.; Chae-Wook Lim, Yeong-Hun Jin, Hanil Precision Ind. Co., Ltd.; Hyung-Man Kim, Inje Univ.

The papers in this session are available in a single publication, SP-2069, and also individually.

Planned by Body Engineering Committee / Automobile Body Activity

Monday, April 16

Vehicle Aerodynamics (Part 1 & 2 of 6): CFD Methodology

Session Code: ***B34***

Room W2-70 ***Session Time:*** ***ALL DAY***

These six sessions, organized by the Vehicle Aerodynamics Committee, discuss the latest technology advancements in aerodynamics and aero-acoustics for automotive design. Wind-tunnel simulation of the on-road condition and Computational Fluid Dynamic (CFD) methodologies are essential to an effective product development process.

Organizers - *Bahram Khalighi, GM R&D Center; Sandeep Dinkar Sovani, Fluent Inc.*

Chairpersons - *Bahram Khalighi, GM R&D Center; Sandeep Dinkar Sovani, Fluent Inc.*

Time	***Paper No.***	***Title***
9:00 a.m.	***2007-01-0104***	***Experimental Investigations and Computations of Unsteady Flow Past a Real Car Using a Robust Elliptic Relaxation Closure with a Universal Wall Treatment***
		B. Basara, AVL LIST GmbH; F. Aldudak, S. Jakirlic, C. Tropea, Darmstadt Univ. of Technology; M. Schrefl, J. Mayer, BMW Group; K. Hanjalic, Darmstadt Univ. of Technology/Delft Univ. of Technology
9:30 a.m.	***2007-01-0100***	***Multi-Disciplinary Aerodynamics Analysis for Vehicles: Application of External Flow Simulations to Aerodynamics, Aeroacoustics and Thermal Management of a Pickup Truck***
		Bradley D. Duncan, Sivapalan Senthooran, Dena Hendriana, Pradeep Sivakumar, David Freed, Exa Corp.; Mark E. Gleason, Deborah C. Hall, DaimlerChrysler Corp.
10:00 a.m.	***2007-01-0109***	***The Immersed Boundary CFD Approach for Complex Aerodynamics Flow Predictions***
		Shailesh Jindal, Bahram Khalighi, James P. Johnson, Kuo-Huey Chen, General Motors Corp.; Gianluca Iaccarino, Stanford Univ.
10:30 a.m.	***2007-01-0110***	***A CFD Application of Surface Morphing for Vehicle Exterior Development***
		Xijia Zhu, Mark E. Gleason, DaimlerChrysler Corp.; Khaled Sbeih, EXA Corp.

11:00 a.m.	***2007-01-0108***	***Experimental and Numerical Analysis of the Effect of Side Wind on a Simplified Car Model***
		Emmanuel Guilmineau, Ecole Centrale de Nantes; Francis Chometon, Conserv National des Arts Et Metiers
11:30 a.m.	***2007-01-0101***	***Exterior Water Management Using a Custom Euler-Lagrange Simulation Approach***
		Nicolas Kruse, General Motors Europe Engineering; Kuo-Huey Chen, General Motors North American Engineering
1:30 p.m.	***2007-01-0102***	***Virtual Aerodynamic Engineering at GM Europe Development of the 2006 OPEL Corsa***
		Silvestre Artiaga Hahn, Nicolas Kruse, Frank Werner, General Motors Europe Engineering
2:00 p.m.	***2007-01-0105***	***CFD-based Robust Optimization of Front-end Cooling Airflow***
		Rajneesh Singh, Fred Shen, General Motors Corp.
2:30 p.m.	***2007-01-0111***	***Dynamic Moving Mesh CFD Study of Semi-truck Passing a Stationary Vehicle with Hood Open***
		Z. George Yang, James P. Johnson, John B Morley, General Motors Corp.; Sunil Unaune, General Motors Technical Center India; Sandeep D. Sovani, ANSYS-FLUENT Inc.
3:00 p.m.	***2007-01-0106***	***Large Eddy Simulation of Unsteady Flow Around a Formula Car on Earth Simulator***
		Makoto Tsubokura, Univ. of Electro-Communications; Kozo Kitoh, Kozo Kitoh Technology, Inc.; Nobuyuki Oshima, Hokkaido Univ.; Takuji Nakashima, Hiroshima Univ.; Huilai Zhang, Keiji Onishi, Advance Soft; Toshio Kobayashi, Japan Automobile Research Institute
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-0107***	***The Influence of Rotating Wheels on Vehicle Aerodynamics - Numerical and Experimental Investigations***
		Alexander Wäschle, DaimlerChrysler AG
	2007-01-0103	***Large Eddy Simulation on the Underbody Flow of the Vehicle with Semi-Complex Underbody Configuration (Written Only -- No Oral Presentation)***
		Kozo Kitoh, Kozo Kitoh Technology; Shouta Chatani, Nobuyuki Oshima, Hokkaido Univ.; Takuji Nakashima, Hiroshima Univ.; Simone Sebben, Volvo Car Corp.

The papers in this session are available in a single publication, SP-2066, and also individually.

Planned by Vehicle Aerodynamics Committee / Automobile Body Activity

Tuesday, April 17

Is It Time for the Wagon to Pull the Horse?

Session Code: ***CONG72***

Room ***FEV Powertrain Innovation Forum*** ***Session Time:*** ***9:30 a.m.***

Mass production and mass markets are giving way to increased vehicle personalization and customization. OEMs are looking for products, processes and partners to help them create and launch the most accessory-friendly vehicles for fragmenting market segments and still make a profit. The future of OEM-aftermarket collaboration is all about delivering fully-integrated customization while significantly reducing capital investments for tooling and time to profit -- but it takes a new manufacturing and marketing mindset to make it work.

This session will focus on an alternative business model and provide details of the Post-Production Aftermarket Business Model, or what is becoming known as the, "SEMA Model" to help automotive companies capitalize on emerging lifestyle trends and aftermarket revenue streams. Early collaboration between OEMs and aftermarket suppliers can make the difference between built-in profits and reverse-engineered costs. Customization validates a platform's authenticity. OEMs make cool products. SEMA companies help make those products cool.

Organizers - *John M. Waraniak, VP, Vehicle Technology, SEMA*

Moderators - *John M. Waraniak, VP, Vehicle Technology, SEMA*

Time	Paper No.	Title
	Panel	***Customized Marketing for Lifestyle Integration - Toyota Zone and TMX Program***
		Panelists - *Doug Frisbie, Engagement Mktg Mgr, Toyota Motor Sales*
	Panel	***Collaborating for Growth, OEM-Aftermarket Landscape and Opportunities***
		Panelists - *David E. Cole, Chairman, Center For Automotive Research*
	Panel	***Designing for Customization***
		Panelists - *Ralph Gilles, VP, Jeep/Truck & CFM Design, DaimlerChrysler Corp.*
	Panel	***Engineering for Accessorization***
		Panelists - *Hermann Salenbauch, Dir, Adv Product Creation & SVT, Ford Motor Co.*
	Panel	***Marketing Personalization Capabilities, Scion Model***
		Panelists - *James Farley, Group VP, Marketing, Toyota Motor Sales, U.S.A., Inc.*

Tuesday, April 17

After the Perfect Storm, Now Where? The Changing Global Realities of the OEM/Supplier Business Model

Session Code: ***CONG77***

Room ***FEV Powertrain Innovation Forum*** ***Session Time:*** ***11:45 a.m.***

The relationship between supplier and the OEM has been in the spotlight due to the economics of the automotive industry and the methods and processes used to procure parts and systems. The executive panel will discuss how the market dynamics are beginning to bring better collaboration into the system to the benefit of both supplier and OEM.

Organizers - *Edward E. Mabley, Director, Risk Advisory Services, KPMG*

Moderators - *Edward E. Mabley, Director, Risk Advisory Services, KPMG*

Panelists - *Bo Andersson, Group VP, Global Purchasing & Supply Chain, General Motors; Laurie Harbour-Felax, President, Harbour-Felax Group; Timothy D. Leuliette, Chairman & CEO, Metaldyne Corporation; Mitsuo Matsushita, CEO, DENSO International of America*

Tuesday, April 17

Today's Student, Tomorrow's Engineers

Session Code: ***CONG73*** ***1:30 p.m.***

Room FEV Powertrain Innovation Forum ***Session Time:***

Institutions of higher learning and industries are recognizing the ever increasing need to drive innovation. What methodologies are both groups practicing, and what cooperations are being put in place to attract the talented students and ensure tomorrow's engineers are the best of the best?

Moderators - *Chuck Gulash, VP, Materials & Research, Toyota Motor Corp.*

Panelists - *Dennis N. Assanis, Director, Automotive Research Ctr, Univ. of Michigan; John Lowe, Chairman of the Auto Div, IMechE; Gary W. Rogers, President & CEO, FEV Engine Technology, Inc.; Carson S. Walburn, Director, SAE Foundation; John M. Waraniak, Vice President, Vehicle Technology, SEMA*

Tuesday, April 17

New Generation Powertrain - 2015

Session Code: ***CONG62***

Room AVL Technology Theater (open to all ***Session Time:*** ***10:30 a.m.***

What will be in the basket of available powertrains to meet customer needs and government regulations in the year 2015? General consensus at this time is that there will be many different choices available to meet the varying needs of a fickle customer base. Various alternative powertrain technologies will be discussed such as flex fuel vehicles, fuel management systems, advanced transmissions, hydrogen fueled powertrains, etc. The panel will share their insight as to the powertrain mix they feel will be available in 8 years.

Moderators - *Bernard I. Robertson, Senior VP, DaimlerChrysler Corp (Retired)*

Panelists - *Guenter K. Fraidl, Deputy VP Productline Gasoline Engines, AVL List GmbH; Nigel F. Gale, VP, Engine, Emissions & Vehicle Res. Div., SwRI; Toru Ogawa, Operating Officer, Honda R&D Co., Ltd.; Gerhard Schmidt, Vice President, Research & Adv. Engrg., Ford Motor Co.; J. Gary Smyth, Director Powertrain Sys Res, General Motors Corp.*

Tuesday, April 17

High Performance and Fuel Economy: Can We Have Both?

Session Code: ***CONG63***

Room AVL Technology Theater (open to all ***Session Time:*** ***2:30 p.m.***

Can the consumer have both fuel economy and high performance in vehicles they purchase in the short term? Are technologies such as plug-in hybrids, E85 fueled powertrains, GDI, turbocharging, etc. sustainable choices in the short term to give performance and operating efficiency? The panel will discuss various possible solutions to a question being asked more frequently than ever.

Moderators - *Raymond W. Corbin, President, AVL Powertrain Engineering, Inc.*

Panelists - *Wolfgang Epple, Vice President, Hybrids, BMW Group; David Friedman, Research Director, Union of Concerned Scientists; Nobuhiro Hayama, Managing Exec Officer, R&D Qty & Pwtn Dev, Mazda Motor Corp.; Larry T. Nitz, Executive Director, Hybrid Technology, GM Powertrain; Don Whitsitt, Executive Vice President, AISIN World Corp. of America*

Tuesday, April 17

Electronic Engine Controls (Part 1 of 6)

Session Code: ***PFL17***

Room D2-08 ***Session Time:*** ***9:00 a.m.***

The Electronic Engine Controls session covers advanced control and on-board-diagnostic strategies and related topics including control-oriented system modeling, signal processing, sensors and actuators, electronic control units, system integration and implementation.

Organizers - *Patrick Leteinturier, Infineon Technologies AG; Peter J. Maloney, The MathWorks Inc.; James C. Peyton-Jones, Villanova University*

Time	***Paper No.***	***Title***

9:00 a.m.	***2007-01-0774***	***Design of an Automotive Grade Controller for In-Cylinder Pressure Based Engine Control Development***
		Karl Schten, Gene Ripley, Ash Punater, Clinton Erickson, Delphi Corp.
9:30 a.m.	***2007-01-0773***	***Cylinder Pressure-Based Control of Pre-Mixed Diesel Combustion***
		Harry L. Husted, Duane Kruger, Gerald Fattic, Gene Ripley, Edward Kelly, Delphi Corporation
10:00 a.m.	***2007-01-0770***	***Hybrid Robust Control for Engines Running Low Temperature Combustion and Conventional Diesel Combustion Modes***
		Junmin Wang, Southwest Research Institute
10:30 a.m.	***2007-01-0771***	***Heat Release Based Adaptive Control to Improve Low Temperature Diesel Engine Combustion***
		Raj Kumar, Ming Zheng, Usman Asad, Graham T. Reader, Univ. of Windsor
11:00 a.m.	***2007-01-0772***	***Cylinder Pressure Based Combustion Phasing Control of a CRDI Diesel Engine***
		Maru Yoon, Hyundai-Kia Motor Company; Byounggul Oh, Kangyoon Lee, Hanyang Graduate Univ.; Myoungho Sunwoo, Hanyang Univ.
	2007-01-0775	***Model Based Fault Diagnosis for an Engine under Speed Control (Written Only -- No Oral Presentation)***
		Wenguang Yan, Annalisa Scacchioli, Giorgio Rizzoni, Ohio State Univ.

The papers in this session are available in a single publication, SP-2087, and also individually.

Planned by Control and Calibration Committee / Powertrain Fuels and Lubricants Activity

Tuesday, April 17

Electronic Engine Controls (Part 2 of 6)

Session Code: ***PFL17***

Room D2-08 ***Session Time:*** ***1:30 p.m.***

The Electronic Engine Controls session covers advanced control and on-board-diagnostic strategies and related topics including control-oriented system modeling, signal processing, sensors and actuators, electronic control units, system integration and implementation.

Organizers - *Patrick Leteinturier, Infineon Technologies AG; Peter J. Maloney, The MathWorks Inc.; James C. Peyton-Jones, Villanova University*

Time	***Paper No.***	***Title***
1:30 p.m.	***2007-01-0970***	***Air System Control for Advanced Diesel Engines***
		John V. Shutty, BorgWarner Inc.; Houcine Benali, Lorenz Daeubler, IAV GmbH; Michael Traver, IAV Inc.
2:00 p.m.	***2007-01-0971***	***Real-Time Adaptive Predictive Control of the Diesel Engine Air-Path Based on Fuzzy Parameters Estimation***
		Alexandros Plianos, Univ of Sussex; Richard K. Stobart, Univ. of Sussex; Ali Achir, Ecole Centrale
2:30 p.m.	***2007-01-0973***	***Algorithmic Maintenance of a Diesel Engine Electronic Fuel Feed Controller by Criterion of the Contents of Soot in Exhaust Gas***
		Sergey Gladyshev, Univ. of Michigan-Dearborn; Vyacheslav Bunov, Vera Morozova, Elena Bunova, Valentina Goon, Southern Ural State University
3:00 p.m.	***2007-01-0972***	***Accelerometer Based Sensing of Combustion in a High Speed HPCR Diesel Engine***
		Christopher John Polonowski, Vivek Mathur, Jeffrey Naber, Jason Blough, Michigan Technological Univ.

3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-0974***	***The use of Vibration Parameters in the Research of Misfire Events in CI Engines in the Point of View of the OBD System Appliance in Diesel Locomotives***
		Jerzy Merkisz; Marek Waligórski
4:15 p.m.	***2007-01-0975***	***A Transient Heat Transfer System for Research Engines***
		Stephen J. Klick, ACS Inc.; Brian D. Krosschell, Polaris Industries Inc.; Marcus D. Marty, John J. Moskwa, Univ. of Wisconsin
	2007-01-0976	***Air-to-Fuel Ratio Control of a Turbocharged Diesel Engine Equipped with EGR using Fuzzy Logic Controller (Written Only -- No Oral Presentation)***
		Amir Hossein Shamdani, Amir Hossein Shamekhi, Masoud Ziabasharhagh, Cyrus Aghanajafi, K. N. Toosi University of Technology

The papers in this session are available in a single publication, SP-2087, and also individually.

Planned by Control and Calibration Committee / Powertrain Fuels and Lubricants Activity

Tuesday, April 17

CI Engine Performance for Use with Alternative Fuels (Part 1 of 2)

Session Code: ***PFL20***

Room D2-09/10 ***Session Time:*** ***9:00 a.m.***

Organizers - *Avinash Kumar Agarwal, Indian Institute of Technology - Kanpur; Gregory J. Thompson, West Virginia Univ.*

Time	***Paper No.***	***Title***
9:00 a.m.	***2007-01-0624***	***Controlling PCCI Combustion with Mixed Fuel - Application of Flashing Spray to Early Injection***
		Yoshimitsu Wada, Yuji Nishimura, Akihiro Yamaguchi, Noriyuki Magara, Jiro Senda, Hajime Fujimoto, Doshisha Univ.
9:30 a.m.	***2007-01-0626***	***Effects of Ethanol Addition on Performance, Emission and Combustion of DI Diesel Engine Running at Different Injection Pressures***
		Gajendra Babu, Indian Institute of Technology
10:00 a.m.	***2007-01-0623***	***Lean Combustion Chemical-Kinetics Studies of an Ethanol Four-Stroke Radical-Ignition DI-Diesel Engine***
		David A. Blank, HCRI Technologies Intl.
10:30 a.m.	***2007-01-0622***	***Mechanisms in Reduction of Smoke and NOx from BDF Combustion by Ethanol Blending and EGR***
		Toshio Shudo, Hokkaido Univ.
11:00 a.m.	***2007-01-0615***	***An Experimental and Numerical Investigation of the Combustion Characteristics of a Dual Fuel Engine With a Swirl Chamber***
		Ghazi A. Karim, Univ. of Calgary
	2007-01-0628	***The Effect of Preheating the Inlet Air to Study the Performance and Combustion Characteristics of Diesel Engine using Ethanol Emulsion (Written Only -- No Oral Presentation)***
		Saravanan Ganapathy, Mechanical Engrg.

	2007-01-0629	***Study on Characteristics of Auto-Ignition and Combustion of Unsteady Synthetic Gas Jet (Written Only -- No Oral Presentation)***
		Taku Tsujimura, National Institute of AIST

The papers in this session are available in a single publication, SP-2067, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Tuesday, April 17

CI Engine Performance for Use with Alternative Fuels (Part 2 of 2)

Session Code: ***PFL20***

Room D2-09/10 ***Session Time:*** ***1:30 p.m.***

This session is comprised of presentations touching on a variety of technical topics relative to exhaust emissions operating on diesel and bio-diesel blends, ethanol, mixed fuels, performance, heat release analysis, reduction of smoke and NOx, natural gas-fueled compression ignition, soy based bio-diesel, ultra low sulfur diesel, engine tests and model validation.

Organizers - *Avinash Kumar Agarwal, Indian Institute of Technology - Kanpur; Gregory J. Thompson, West Virginia Univ.*

Time	***Paper No.***	***Title***
1:30 p.m.	***2007-01-0620***	***Predicting Effects of DME on the Operating Range of Natural Gas-Fueled Compression Ignition Engines***
		Song-Charng Kong, Iowa State Univ.
2:00 p.m.	***2007-01-0613***	***Studies on Performance and Exhaust Emissions of a CI Engine Operating on Diesel and Diesel Biodiesel Blends at Different Injection Pressures and Injection Timings***
		Gajendra Babu, Indian Institute of Technology
2:30 p.m.	***2007-01-0614***	***Combustion and Emission Characteristics of DI Diesel Engine Using Three Different Biodiesel Fuels***
		Saravanan Ganapathy
3:00 p.m.	***2007-01-0627***	***Detailed Heat Release Analyses with Regard to Combustion of RME and Oxygenated Fuels in a HSDI Diesel Engine***
		Uwe Horn, Rolf Egnell, Lund University; Öivind Andersson, Volvo Car Corporation; Bengt Johansson, Lund University
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-0621***	***Spray and Combustion Characteristics of Reformulated Biodiesel with Mixing of Lower Boiling Point Fuel***
		Jiro Senda, Tomoki Ikeda, Teruaki Haibara, Sho Sakurai, Yoshimitsu Wada, Hajime Fujimoto, Doshisha Univ.
4:15 p.m.	***2007-01-0617***	***Computational Analysis of Biodiesel Combustion in a Low-Temperature Combustion Engine using Well-Defined Fuel Properties***
		Chia-Fon F. Lee, Univ. of Illinois at Urbana-Champaign
4:45 p.m.	***2007-01-0616***	***Neat Biodiesel Fuel Engine Tests and Preliminary Modelling***
		Ming Zheng, Univ. of Windsor

The papers in this session are available in a single publication, SP-2067, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Tuesday, April 17

Combustion and Flow Diagnostics (Part 1 of 3)

Session Code: ***PFL39***

Room D2-11/12 ***Session Time:*** ***9:00 a.m.***

This session is comprised of presentations touching on a variety of technical topics relative to spark ignition, emission behavior, laser diagnostics, injectors, air/fuel ratios, and combustion behavior.

Organizers - *Matthew J. Hall, Univ. of Texas-Austin; Paul C. Miles, Sandia National Laboratories*

Chairpersons - *Gilles Bruneaux, Institut Francais du Petrole; Matthew J. Hall, Univ. of Texas-Austin*

Time	Paper No.	Title
9:00 a.m.	***2007-01-0653***	***Correlating an Air Motion Number to Combustion Metrics and Initial Flame Kernel Development***
		Dennis Soltis, DaimlerChrysler Corp.
9:30 a.m.	***2007-01-0646***	***Ionization Current in a Spark Ignition Engine Using Negative Polarity on Center Electrode***
		Ahmed A. Rehim, Benha University; Naeim A. Henein, Wayne State Univ.; Edward A. VanDyne, Woodword Governor Co.
10:00 a.m.	***2007-01-0643***	***Development of Combustion Behavior Analysis Techniques in the Ultra High Engine Speed Range***
		Takehiko Kato, Nippon Soken, Inc.; Tatsushi Nakashima, Denso Corporation; Kiyokazu Akiyama, Nippon Soken, Inc.; Rio Shimizu, Toyota Motor Corporation
10:30 a.m.	***2007-01-0649***	***Combining Flow Losses at Circular T-Junctions Representative of Intake Plenum and Primary Runner Interface***
		Jacques Paul, Ahmet Selamet, Ohio State Univ.; Keith Miazgowicz, Kevin V. Tallio, Ford Motor Co.
11:00 a.m.	***2007-01-0652***	***Improved Passage Design for a Spark Plug Mounted Pressure Transducer***
		Matthew J. Hall, Alejandro Martinez, Preston S. Wilson, Ronald D. Matthews, University of Texas at Austin

The papers in this session are available in a single publication, SP-2075, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Tuesday, April 17

Cliff Garrett Turbomachinery Engineering Award Presentation

Session Code: ***CONG300***

Room D2-11/12 ***Session Time:*** ***1:30 p.m.***

This award promotes engineering developments and the presentation of SAE papers on turbomachinery engineering. The award honors Cliff Garrett and the inspiration he provided to engineers by his example, support, encouragement, and many contributions as an aerospace pioneer.

Time	Paper No.	Title
1:30 p.m.	***2007-01-0916***	***Non-Reacting and Reacting Flow Analysis in an Aero Gas Turbine Combustion Using CFD***
		V. Ganesan, Indian Institute of Technology

Tuesday, April 17

Combustion and Flow Diagnostics (Part 2 of 3)

Session Code: ***PFL39*** ***2:30 p.m.***

Room D2-11/12 ***Session Time:***

This session is comprised of presentations touching on a variety of technical topics relative to spark ignition, emission behavior, laser diagnostics, injectors, air/fuel ratios, and combustion behavior.

Organizers - *Matthew J. Hall, Univ. of Texas-Austin; Paul C. Miles, Sandia National Laboratories*

Chairpersons - *Matthew J. Hall, Univ. of Texas-Austin*

Time	Paper No.	Title
2:30 p.m.	***2007-01-0639***	***Simultaneous Measurement of In-Cylinder Temperature and Residual Gas Concentration in the Vicinity of the Spark Plug by Wavelength Modulation Infrared Absorption*** *Akihiko Kakuho, Nissan Motor Co., Ltd.*
3:00 p.m.	***2007-01-0642***	***Behavior of the Acetone Laser-Induced Fluorescence under Engine Relevant Conditions for the Simultaneous Visualization of Temperature and Concentration Fields*** *Micha Guntram Löffler, Berthold Melcher, Andreas Braeuer, Frank Beyrau, Alfred Leipertz, Friedrich-Alexander Universität*
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-0645***	***Planar Fuel-Air-Ratio-LIF with Gasoline for Dynamic Mixture-Formation Investigations*** *Jochen Scholz, Tim Wiersbinski, Volker Beushausen, Laser-Laboratorium Goettingen e.V.*
4:15 p.m.	***2007-01-0644***	***Crank Angle Resolved Determination of Fuel Concentration and Air/Fuel Ratio in a SI-Internal Combustion Engine Using a Modified Optical Spark Plug*** *Alexander Grosch, Volker Beushausen, Laser-Laboratorium Goettingen e.V.; Olaf Thiele, LaVision GmbH; Roman Grzeszik, Robert Bosch GmbH*

The papers in this session are available in a single publication, SP-2075, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Tuesday, April 17

Multi-Dimensional Engine Modeling (Part 3 of 3)

Session Code: ***PFL38***

Room D2-13/14 ***Session Time:*** ***9:00 a.m.***

This session is comprised of presentations touching on a variety of technical topics relative to in-cylinder flow, heat transfer calculation, effects on mixing gaseous fuel, improvement of predictive behavior, validation, experimental and theoretical studies, HCCI, and turbulent combustion modeling.

Organizers - *Hardo Barths, General Motors Corp.; A. David Gosman, Imperial College London; Carl Hergart, Caterpillar Inc.*

Chairpersons - *A. David Gosman, Imperial College London*

Time	Paper No.	Title
9:30 a.m.	***2007-01-0154***	***New Developments in Turbulent Combustion Modeling for Engine Design: The ECFM-CLEH Combustion Submodel*** *Luc Vervisch, Scientists & Engrs for Secure Engrg*

10:00 a.m.	***2007-01-0150***	***Modeling Engine Turbulent Auto-Ignition Using Tabulated Detailed Chemistry***
		Ganesan Subramanian
10:30 a.m.	***2007-01-0159***	***A New Parallel Cut-Cell Cartesian CFD Code for Rapid Grid Generation Applied to In-Cylinder Diesel Engine Simulations***
		P. K. Senecal, K. J. Richards, E. Pomraning, T. Yang, M. Z. Dai, Convergent Thinking LLC; R. M. McDavid, M. A. Patterson, S. Hou, T. Shethaji, Caterpillar Inc.
11:00 a.m.	***2007-01-0170***	***Automatic Mesh Motion with Topological Changes for Engine Simulation***
		Tommaso Lucchini, Gianluca D'Errico, Politecnico di Milano; Hrvoje Jasak, Wikki, Ltd.; Zeljko Tukovic, Univ. of Zagreb
11:30 a.m.	***2007-01-0147***	***An Efficient IC Engine Conjugate Heat Transfer Calculation for Cooling System Design***
		Egel Urip
	2007-01-0166	***Using LES to Investigate Reacting Flow Physics in Engine Design Process (Written Only -- No Oral Presentation)***
		Ludovic Thobois, PSA Peugeot Citroen

The papers in this session are available in a single publication, SP-2125, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Tuesday, April 17

Plastic Optical Fiber Technology and Automotive Applications

Session Code: ***AE12***

Room D2-13/14 ***Session Time:*** ***1:30 p.m.***

This session will present the latest developments in plastic optical fiber (POF) technology including, sources, connectors, and fibers. POF has already made inroads in Europe as an optical data bus in over 40 models of cars from low to high end with over 35 million optical nodes connected. Speakers will address implementation problems and lessons learned with first generation systems. Future plans and trends will also be covered by OEMs, system, subsystem, and component suppliers.

Organizers - *Paul Polishuk, Information Gatekeepers Inc.*

Time	***Paper No.***	***Title***
1:30 p.m.	***ORAL ONLY***	***Plastic Optical Fiber Technology, Applications, and Standards Options for Automotive Industry***
		Paul Polishuk, Information Gatekeepers Inc.
2:00 p.m.	***ORAL ONLY***	***Technology Trends of Plastic Optical Fiber Media for Automotive Applications***
		Kazuki Nakamura, Mitsubishi Rayon Co., Ltd.
2:30 p.m.	***ORAL ONLY***	***Getting the Most Out of MOST Networks***
		Paul M. Mulligan, Fiberfin Inc.
3:00 p.m.	***ORAL ONLY***	***Plastic Clad Silica Fibers for Automotive Networks***
		James P. Clarkin, PolyMicro Technologies Inc.
3:30 p.m.		***BREAK***
3:45 p.m.	***ORAL ONLY***	***Lessions Learned from the Installed Most Networks***
		Wolfgang Bott, MOST Cooperation

4:15 p.m.	***ORAL ONLY***	***Light Sources for POF Automotive Networks***
		TBD

Planned by Electrical and Electronic Systems Committee / Automobile Electronic Activity

Tuesday, April 17

Homogeneous Charge Compression Ignition (HCCI) (Part 3 of 8) Combustion Modeling

Session Code: ***PFL11***

Room D2-15 ***Session Time:*** ***9:00 a.m.***

This session deals with detailed models of HCCI combustion based on CFD and chemical kinetics.

Organizers - *Kevin P. Duffy, Caterpillar Inc.; Bengt Johansson, Lund University; David M. Milam, Caterpillar Inc.; Nebojsa Milovanovic, Delphi Diesel Systems; Per Tunestal, Lund University; Hongming Xu, Univ. of Birmingham*

Chairpersons - *Per Tunestal, Lund University*

Time	***Paper No.***	***Title***
9:00 a.m.	***2007-01-0205***	***Investigating the Effects of Reformed Fuel Blending in a Methane- or n-Heptane-HCCI Engine Using a Multi-Zone Model***
		Paitoon Kongsereeparp, M. David Checkel, Univ. of Alberta
9:30 a.m.	***2007-01-0175***	***Development of an Experimental Database and Chemical Kinetic Models for Surrogate Gasoline Fuels***
		William J. Pitz, Lawrence Livermore National Lab.; Nicholas P. Cernansky, Drexel University; Frederick L. Dryer, Princeton University; Fokion N. Egolfopoulos, University of Southern California; John T. Farrell, ExxonMobil Research & Engineering Co.; Dan G. Friend, National Institute Standards & Tech.; Heinz Pitsch, Stanford University
10:00 a.m.	***2007-01-0227***	***A Computational Analysis of Direct Fuel Injection During the Negative Valve Overlap Period in an Iso-Octane Fueled HCCI Engine***
		Tanet Aroonsrisopon, Kasetsart University, Bangkok, Thailand; Dennis Nitz, John Ogalla Waldman, Univ. of Wisconsin Madison; David E. Foster, Univ. of Wisconsin; Minoru Iida, Yamaha Motor Co., Ltd.
10:30 a.m.	***2007-01-0194***	***Modeling and Experiments on NOx Formation in DI-PCCI Combustion***
		Takuji Ishiyama, Sung-Sub Kee, Yasutaka Kitamura, Naoto Horibe, Masahiro Shioji, Kyoto Univ.
11:00 a.m.	***2007-01-0218***	***Development of a Reduced Chemical Kinetic Mechanism and Ignition Delay Measurement in a Rapid Compression Machine for CAI Combustion***
		Yongrae Kim, Kyoungdoug Min, Min Soo Kim, Suk Ho Chung, Seoul National Univ.; Choongsik Bae, Korea Advanced Inst. of Science & Tech.

The papers in this session are available in a single publication, SP-2100, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Tuesday, April 17

Homogeneous Charge Compression Ignition (HCCI) (Part 4 of 8) Combustion Modeling / Optical Diagnostics

Session Code: ***PFL11***

Room D2-15 ***Session Time: 1:30 p.m.***

This session deals with detailed models of HCCI combustion based on CFD and chemical kinetics. Optical methods to characterize HCCI combustion are also presented.

Organizers - *Kevin P. Duffy, Caterpillar Inc.; Bengt Johansson, Lund University; David M. Milam, Caterpillar Inc.; Nebojsa Milovanovic, Delphi Diesel Systems; Per Tunestal, Lund University; Hongming Xu, Univ. of Birmingham*

Chairpersons - *Bengt Johansson, Lund University*

Time	Paper No.	Title
1:30 p.m.	***2007-01-0190***	***Multidimensional Simulation of PCCI Combustion Using Gasoline and Dual-Fuel Direct Injection with Detailed Chemical Kinetics*** *Daniele Tamagna, Universita degli Studi di Pisa; Youngchul Ra, Rolf Reitz, Univ. of Wisconsin*
2:00 p.m.	***2007-01-0201***	***Development of an Experimental Database and Kinetic Models for Surrogate Diesel Fuels*** *John T. Farrell, ExxonMobil Research & Engineering Co.; Nicholas P. Cernansky, Drexel Univ.; Frederick L. Dryer, Princeton Univ.; Dan Friend, Institute Standards & Tech.; Carl-Anders Hergart, Caterpillar Inc.; C. K. Law, Princeton Univ.; Robert M. McDavid, Caterpillar Inc.; Charles J. Mueller, Sandia National Laboratories; Amar Patel, Caterpillar Inc.; Heinz Pitsch, Stanford Univ.*
2:30 p.m.	***2007-01-0211***	***Investigation into Controlled Auto-Ignition Combustion in a GDI Engine with Single and Split Fuel Injections*** *Li Cao, Brunel Univ.; Hua Zhao, Xi Jiang, Brunel University Services, Ltd.*
3:00 p.m.	***2007-01-0177***	***Controlling CAI Combustion Mode with VVA: A Simulation Approach*** *Vincent Knop, Jean-Charles Boulerie, Julien Bohbot, Stephane Jay, IFP Powertrain Engineering*
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-0182***	***Locally Resolved Measurement of Gas-Phase Temperature and EGR-Ratio in an HCCI-Engine and Their Influence on Combustion Timing*** *Markus Christian Weikl, Frank Beyrau, Alfred Leipertz, Lehrstuhl für Technische Thermodynamik; Adam Loch, Christian Jelitto, Juergen Willand, Volkswagen AG*
4:15 p.m.	***2007-01-0217***	***Study on Combustion Chamber Geometry Effects in an HCCI Engine Using High-Speed Cycle-Resolved Chemiluminescence Imaging*** *Andreas Vressner, Anders Hultqvist, Bengt Johansson, Lund University*
4:45 p.m.	***2007-01-0213***	***High-Speed PLIF Imaging for Investigation of Turbulence Effects on Heat Release Rates in HCCI Combustion*** *Hans Seyfried, Jimmy Olofsson, Johan Sjöholm, Mattias Richter, Marcus Aldén, Andreas Vressner, Anders Hultqvist, Bengt Johansson, Lund University*
5:15 p.m.	***2007-01-0183***	***Effect of Turbulence on HCCI Combustion*** *Xue-Song Bai, R. X. Yu, Andreas Vressner, Anders Hultqvist, Bengt Johansson, Jimmy Olofsson, Hans Seyfried, J. Sjoholm, Mattias Richter, Marcus Alden, Lund University*

The papers in this session are available in a single publication, SP-2100, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Tuesday, April 17

Diesel Exhaust Emission Control (Part 3 of 10) Substrates - New Substrates, Substrate Improvements and Substrate Designs

Session Code: ***PFL7***

Room D3-19 ***Session Time:*** ***9:00 a.m.***

This session covers advances in substrates for diesel exhaust aftertreatment. Topics include new substrate materials, new particulate filter designs, and various aspects of filter performance.

Organizers - *Paul J. Richards, Innospec Limited; Kirby J. Baumgard, John Deere Power Systems; Willard A. Cutler, Corning GmbH; Kevin F. Brown, Engine Control Systems*

Time	Paper No.	Title
9:00 a.m.	***2007-01-0654***	***The IP Filter, a DOC-Integrated DPF, for an Advanced PM Aftertreatment System (2): An Evaluation of Fundamental Performance*** *Hiroshi Satoh, Toshitaka Ishizawa, Kenichiro Sekiguchi, Hitachi Metals, Ltd.; Munetomo Matsunami, Eishi Kunishima, Toshikatsu Muramatsu, Hino Motors, Ltd.; Naokatsu Minoshima, Tomofumi Andoh, Jun Ozawa, Tokyo Roki Co., Ltd.*
9:30 a.m.	***2007-01-0655***	***A New Design Concept for Metallic Diesel Particulate Filter Substrates*** *Gerd Gaiser, Patrick Mucha, Lorenz Hermann, Michael Kuhnle, Daniel Wagner, Klaus_ Meiser, J Eberspacher GmbH & Co.*
10:00 a.m.	***2007-01-0656***	***Performance Evaluations of Aluminum Titanate Diesel Particulate Filters*** *Roychelle S. Ingram-Ogunwumi, Qunlong Dong, Thomas Murrin, Rajesh Bhargava, Jason Warkins, Achim Heibel, Corning Incorporated*
10:30 a.m.	***2007-01-0657***	***Minimizing Filter Volume by Design Optimization*** *Anthony Briot, Francisco Carranza, Patrick Girot, Sebastien Bardon, Saint-Gobain AEC*
11:00 a.m.	***2007-01-0658***	***Fundamental Study and Possible Application of New Concept Honeycomb Substrate for Emission Control*** *Takahiko Ido, Masafumi Kunieda, Kazutake Ogyu, Kazushige Ohno, Ibiden Co., Ltd.*
11:30 a.m.	***2007-01-0659***	***Metal Foam Substrate for DOC and DPF Applications*** *G. C. Koltsakis, D. K. Katsaounis, I. A. Markomanolakis, Z. C. Samaras, Aristotle University Thessaloniki; D. Naumann, S. Saberi, A. Boehm, INCO Special Products*

The papers in this session are available in a single publication, SP-2080, and also individually.

Planned by Exhaust Aftertreatment and Emissions Committee / Powertrain Fuels and Lubricants Activity

Tuesday, April 17

Diesel Exhaust Emission Control (Part 4 of 10) Substrates- Substrate Performance Aspects

Session Code: ***PFL7***

Room D3-19 ***Session Time:*** ***1:30 p.m.***

This session covers advances in substrates for diesel exhaust aftertreatment. Topics include new substrate materials, new particulate filter designs, and various aspects of filter performance.

Organizers - *Paul J. Richards, Innospec Limited; Kirby J. Baumgard, John Deere Power Systems; Willard A. Cutler, Corning GmbH; Kevin F. Brown, Engine Control Systems*

Time	Paper No.	Title

1:30 p.m.	***2007-01-0917***	***Visualization Study of PM Trapping and Reaction Phenomena in Micro-Structural Pores through Cross Section of DPF Wall***
		Teppei Tsuruta, Katsunori Hanamura, Tokyo Institute of Technology
2:00 p.m.	***2007-01-0918***	***Durability Performance of Advanced Ceramic Material DPFs***
		Reggie Zhan, Southwest Research Institute; Cheng G. Li, Dow Automotive; Frank Mao, Dow Chemical Co.; Scott Eakle, Southwest Research Institute
2:30 p.m.	***2007-01-0919***	***Study on Catalyzed-DPF for Improving the Continuous Regeneration Performance and Fuel Economy***
		Kazutake Ogyu, Tomokazu Oya, Kazushige Ohno, Ibiden Co., Ltd.; Ioannis Dolios, Evdoxia Kladopoulou, Souzana Lorentzou, Athanasios Konstandopoulos, CERTH/CPERI
3:00 p.m.	***2007-01-0920***	***Improved Lifetime Pressure Drop Management for Robust Cordierite (RC) Filters with Asymmetric Cell Technology (ACT)***
		Krishna S. Aravelli, Achim Heibel, Corning Inc.
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-0921***	***Filtration Behavior of Diesel Particulate Filters (1)***
		Etsuji Ohara, Yukio Mizuno, Yukio Miyairi, Takashi Mizutani, Kazuya Yuuki, Akira Takahashi, Yasushi Noguchi, Takuya Hiramatu, Mikio Makino, Hitoshi Sakai, NGK Insulators, Ltd.; Claus-Dieter Vogt, Tadato Ito, Ingo Lappas, Tetsuo Toyoshima, NGK Europe GmbH; Paul Busch, Mikio Tanaka, Arthur Martin, Shuuji Fujii, Kazuki Nomura, NGK Automotive Ceramics USA Inc.; Ryohei Iwasaki, NGK Europe GmbH
4:15 p.m.	***2007-01-0922***	***Temperature Distribution in Sintered Metal Diesel Particulate Trap at Active-Regeneration Conditions***
		Dirk Woiki, Dominik Lamotte, Kathrin Preising, Purem Abgassysteme GmbH
4:45 p.m.	***2007-01-0923***	***Filtration Behavior of Diesel Particulate Filters (2)***
		Takashi Mizutani, NGK Insulators, Ltd.; Atsushi Kaneda; Shuichi Ichikawa, Yukio Miyairi, Etsuji Ohara, Akira Takahashi, Kazuya Yuuki, NGK Insulators, Ltd.; Hiroto Matuda; Hiroshi Kurachi, NGK Insulators, Ltd.; Tetsuo Toyoshima, Tadato Ito, Ingo Lappas, Claus-Dieter Vogt, NGK Europe GmbH; Mikio Tanaka; Arthur Martin, Shuuji Fujii, Paul Busch, NGK Automotive Ceramics USA Inc.
	2007-01-0924	***IP Filter with DOC-integrated DPF for an Advanced PM Aftertreatment System (1): A Preliminary Evaluation (Written Only -- No Oral Presentation)***
		Toshitaka Ishizawa, H. Yamane, H. Sato, Kenichiro Sekiguchi, Kazuhiko Watanabe, Yasuhiko Ohtsubo, Hitachi Metals, Ltd.

The papers in this session are available in a single publication, SP-2080, and also individually.

Planned by Exhaust Aftertreatment and Emissions Committee / Powertrain Fuels and Lubricants Activity

Tuesday, April 17

Transmission and Drivelines (Part 3 of 8) AWD Drivelines

Session Code: ***PFL22***

Room D3-20/21 ***Session Time:*** ***9:00 a.m.***

This session is comprised of presentations touching on a variety of technical topics relative to limited slip differential, center differential, electronic driveline coupling, AWD coupling and controls for high performance, and vehicle dynamics.

Organizers - *Mircea Gradu, Harvey P. Nixon, Timken Corp.*

Chairpersons - *Mircea Gradu, Harvey P. Nixon, Timken Corp.*

Time	Paper No.	Title
9:00 a.m.	ORAL ONLY	**Driveline Clunk CAE Analyses for Rear Wheel Drive Vehicles** *Yier Lin, Jianmin Gu, Kun-Tien Shu, Bijan Shahidi, Ford Motor Co.*
9:30 a.m.	2007-01-0660	**Development of NexTrac Electronic Driveline Coupling for Front-Wheel-Drive Based All-Wheel Drive Applications** *Donn Niffenegger, John Barlage, Joe Mastie, BorgWarner Inc.*
10:00 a.m.	2007-01-0115	**Simulation of Buckling Phenomena for a TPEE CVJ Boot** *Tetsuya Endoh, Satoru Ohtsuki, Kobun Yamada, Manshu Kameike, NOK Corporation*
10:30 a.m.	2007-01-0116	**Development of Rubber Boot for Propeller Shaft** *Shinji Abe, NOK Corporation*
11:00 a.m.	2007-01-0928	**Vehicle Dynamics Control System Actuating an Active Differential** *Marco P. Pedrinelli, Federico Cheli, Politecnico di Milano*
	2007-01-0662	**The Application Concept of Universal Joint to Make Limited Slip Differential, Center Differential and Clutch (Written Only -- No Oral Presentation)** *Nonnwats Anantapal, University of Bangkok*

The papers in this session are available in a single publication, SP-2134, and also individually.

Planned by Transmission and Driveline Committee / Powertrain Fuels and Lubricants Activity

Tuesday, April 17

Transmission and Drivelines (Part 4 of 8) AWD Drivelines

Session Code: ***PFL22***

Room D3-20/21 ***Session Time:*** ***1:30 p.m.***

This session is comprised of presentations touching on a variety of technical topics relative to limited slip differential, center differential, electronic driveline coupling, AWD coupling and controls for high performance, and vehicle dynamics.

Organizers - *Mircea Gradu, Harvey P. Nixon, Timken Corp.*

Chairpersons - *Mircea Gradu, Harvey P. Nixon, Timken Corp.*

Time	Paper No.	Title
1:30 p.m.	2007-01-0926	**An Innovative 4WD Controlled Powertrain for High Performance Vehicle** *Andrea Zorzutti, Paolo Dellachà, Federico Cheli, Politecnico di Milano*
2:00 p.m.	2007-01-0661	**Development of an AWD Coupling and Controls for a High Performance Sports Car** *Brian B. Ginther, Chris Kowalsky, BorgWarner TorqTransfer Systems*
2:30 p.m.	2007-01-0925	**Development of an Electronically-Controlled, Limited-Slip Differential (eLSD) for FWD Applications** *Craig Stephen Ross, Clinton Carey, Todd C. Schanz, Edmund F. Gaffney, General Motors Corp.; Michael J. Catalano, Dana Corporation*
3:00 p.m.	2007-01-0927	**Development of a Control Strategy for a Semi-Active Differential for a High Performance Vehicle** *Marco P. Pedrinelli, Andrea Zorzutti, Federico Cheli, Politecnico di Milano*

The papers in this session are available in a single publication, SP-2134, and also individually.

Planned by Transmission and Driveline Committee / Powertrain Fuels and Lubricants Activity

Tuesday, April 17

Diesel Fuel Injection and Sprays (Part 3 of 3)

Session Code: ***PFL19***

Room D3-22/23 ***Session Time:*** ***9:00 a.m.***

This session is devoted to experimental and computational work in the area of diesel fuel injection and sprays. Topics include: spray characterization, cavitation, multiphase jet modeling, wall films and impingement, hydraulic circuit analysis, and dissolved gas effects.

Organizers - *Essam M. El-Hannouny, Argonne National Laboratory; Ming-Chia D. Lai, Wayne State Univ.; Zhengbai Liu, International Truck and Engine Corp.; Scott E. Parrish, General Motors Corp.; Zhijun Peng, Univ. of Sussex; Franz Xavier Tanner, Michigan Technological Univ.*

Chairpersons - *Ming-Chia D. Lai, Wayne State Univ.*

Assistant Chairpersons - *Essam M. El-Hannouny, Argonne National Laboratory*

Time	Paper No.	Title
9:00 a.m.	***2007-01-0663***	***Reduction of HC emission for Passenger Car Diesel Engine*** *Kazuhiro Omae, Yoshimasa Watanabe, Souichi Matsushita, Ichiro Sakata, Toyota Motor Corp.*
9:30 a.m.	***2007-01-0664***	***Experimental Characterization of Diesel Fuel Pulsed Sprays*** *Antonio Paolo Carlucci, Nello Panarese, Domenico Laforgia, Universita degli Studi di Lecce*
10:00 a.m.	***2007-01-0665***	***Research of the DI Diesel Spray Characteristics at High Temperature and High Pressure Ambient*** *Hayato Yamashita, Takashi Suzuki, Hiroshi Matsuoka, Nippon Soken Inc.; Makoto Mashida, DENSO Corp.; Koji Kitano, Toyota Motor Corp.*
10:30 a.m.	***2007-01-0666***	***Determination of Diesel Spray Axial Velocity Using X-Ray Radiography*** *Alan Kastengren, Christopher F. Powell, Argonne National Laboratory; Thomas Riedel, Robert Bosch GmbH; Seong-Kyun Cheong, Yujie Wang, Kyoung-Su Im, Xin Liu, Jin Wang, Argonne National Laboratory*
11:00 a.m.	~~***2007-01-0667***~~ ***CANCELLED***	~~***High-Frequency Forced Excitation of High Pressure Nozzle Flows for Improving Atomization and Entrainment Characteristics***~~ *Chia-Fon F. Lee, Univ. of Illinois at Urbana-Champaign*

The papers in this session are available in a single publication, SP-2083, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Tuesday, April 17

SI and CI Engine Cold Start and Transient Emissions and Control

Session Code: ***PFL31***

Room D3-22/23 ***Session Time:*** ***1:30 p.m.***

This session focuses on the critical physical processes that occur during SI and CI engine cold start and transient operating conditions that dominate vehicle emissions performance as well as the hardware and controls strategies used to improve their performance.

Organizers - *John Batteh, Eric W. Curtis, Ford Motor Co.; Ouafae El Ganaoui-Mourlan, PSA Peugeot Citroen; Hamid B. Servati, Servotech Engineering Inc.*

Chairpersons - *John Batteh, Ford Motor Co.; Wai K. Cheng, Massachusetts Institute of Technology; Ouafae El Ganaoui-Mourlan, PSA Peugeot Citroen*

Time	Paper No.	Title
1:30 p.m.	2007-01-0934	**Lower Temperature Limits for Cold Starting of Diesel Engine with a Common Rail Fuel Injection System** *Lurun Zhong, Steve Gruenewald, Naeim A. Henein, Wayne State University; Walter Bryzik, US Army TARDEC*
2:00 p.m.	2007-01-0933	**Simulation-Based Cold-Start Control Strategy for A Diesel Engine with Common Rail Fuel System at Different Ambient Temperatures** *Lurun Zhong, Naeim A. Henein, Wayne State University; Walter Bryzik, US Army TARDEC*
2:30 p.m.	2007-01-0929	**HC Adsorber System for SULEVs of Large Volume Displacement** *Keisuke Sano, Toyota; Takashi Kawai, Toyota Technical Center USA Inc.; Satoshi Yoshizaki, Yasunori Iwamoto, Toyota Motor Corp.*
3:00 p.m.	2007-01-0935	**Impact of Ultra Low Thermal Inertia Manifolds on Emission Performance** *Vincent Leroy, Faurecia Exhaust Systems Inc.; Gianluca Montenegro, Politecnico di Milano; Emmanuel Jean, Faurecia Exhaust Systems Inc.; Angelo Onorati, Politecnico di Milano; Mats Laurell, Volvo Car Corp.*
3:30 p.m.		**BREAK**
3:45 p.m.	2007-01-0931	**Numerical Modeling of the Dynamic Transport of Multi-Component Exhaust Gases in Oxygen Sensors** *Stephan Christian Goll, Manfred Piesche, Universitat Stuttgart; Sascha Klett, Marcus Scheffel, Thomas Moser, Robert Bosch GmbH*
4:15 p.m.	2007-01-0932	**Misfiring Characteristics, Transient HC Emissions and Fuel Transport in the Intake Port during Cold Start in an LPG Engine** *Liguang Li, Zhijun Wu, Tongji Univ.; Zhimin Liu, Gong Li, Dongping Qiu, Shanghai Jiaotong Univ.; Baoqing Deng, Chang-Ming Gong, Jilin Univ.*

The papers in this session are available in a single publication, SP-2092, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Tuesday, April 17

New SI Engine and Component Design (Part 1 of 2)

Session Code: ***PFL34***

Room D3-24/25 ***Session Time:*** ***9:00 a.m.***

This session is comprised of presentations touching on a variety of technical topics relative to design, verification, flow modeling, thermodynamic analysis, valve train development, variable flow turbo-chargers, noise prediction, load and stress analysis, and applications for race engines.

Organizers - *Jeffrey D. Naber, Michigan Technological Univ.; Steven L. Plee, Motorola Inc.; James E. Smith, West Virginia Univ.*

Chairpersons - *Jeffrey D. Naber, Michigan Technological Univ.; Steven L. Plee, Continental Automotive Systems*

Time	Paper No.	Title
9:00 a.m.	2007-01-0258	**Dynamic Load and Stress Analysis of a Crankshaft** *Farzin H. Montazersadgh; Ali Fatemi, Univ. of Toledo*
9:30 a.m.	2007-01-0252	**An Overexpanded Two-Stroke Constant-Pressure Cycle for Developing Fuel Efficient and Low Emission Engines** *Pao C. Pien*

10:00 a.m.	***2007-01-0265***	***Design and Analysis of a Lightweight Crankshaft for a Racing Motorcycle Engine***
		Naji Zuhdi, PETRONAS; Phil Carden, Ricardo UK, Ltd.; David Bell, Ricardo Software
10:30 a.m.	***2007-01-0264***	***Design and Development of the Valve Train for a Racing Motorcycle Engine***
		Phil Carden, Ken Pendlebury, Ricardo UK, Ltd.; Naji Zuhdi, PETRONAS; Andrew Whitehead, Del West USA
11:00 a.m.	***2007-01-0266***	***Crankcase Flow Modeling for a Racing Motorcycle Engine***
		Thomas Paul Deighan, Ricardo Consulting Engineers, Ltd.; Naji Zuhdi, Petronas
11:30 a.m.	***2007-01-0256***	***Experimental Investigation of Dielectrics for use in Quarter Wave Coaxial Resonators***
		Andrew Lowery, Franz A. Pertl, James E. Smith, West Virginia Univ.

The papers in this session are available in a single publication, SP-2093, and also individually.

Planned by Lubricants and Powertrain Systems Committee / Powertrain Fuels and Lubricants Activity

Tuesday, April 17

New SI Engine and Component Design (Part 2 of 2)

Session Code: ***PFL34***

Room D3-24/25 ***Session Time:*** ***1:30 p.m.***

This session is comprised of presentations touching on a variety of technical topics relative to design, verification, flow modeling, thermodynamic analysis, valve train development, variable flow turbo-chargers, noise prediction, load and stress analysis, and applications for race engines.

Organizers - *Jeffrey D. Naber, Michigan Technological Univ.; Steven L. Plee, Motorola Inc.; James E. Smith, West Virginia Univ.*

Chairpersons - *Jeffrey D. Naber, Michigan Technological Univ.; Steven L. Plee, Continental Automotive Systems*

Time	***Paper No.***	***Title***
1:30 p.m.	***2007-01-0257***	***Study on Maximizing Exergy in Automotive Engines***
		Tsuneo Endo, Shogo Kawajiri, Yoichi Kojima, Kazuya Takahashi, Tsuyoshi Baba, Shigeru Ibaraki, Tsutomu Takahashi, Masashi Shinohara, Honda R&D Co., Ltd.
2:00 p.m.	***2007-01-0263***	***Development of a 4-Cylinder Gasoline Engine with a Variable Flow Turbo-charger***
		Nobuhiro Ito, Tohru Ohta, Ryuji Kono, Satoshi Arikawa, Takaki Matsumoto, Honda R&D Co., Ltd.
2:30 p.m.	***2007-01-0261***	***Direct Comparison of an Engine Working under Otto, Miller and Diesel cycles: Thermodynamic Analysis and Real Engine Performance***
		Bernardo Ribeiro, Jorge Martins, Universidade do Minho
3:00 p.m.	***2007-01-0259***	***Development of 2.0L Turbocharged DISI Engine for Downsizing Application***
		Donghee Han, Seung Kook Han, Bong-Hoon Han, Woo Tae Kim, Hyundai Motor Co.
3:30 p.m.		***BREAK***

3:45 p.m.	***2007-01-0260***	***Assembled Camshaft with Integrated Oil Mist Separation***
		Torsten Schellhase, Mahle Ventiltrieb GmbH; Hartmut Sauter, Stefan Ruppel, Mahle Filtersysteme GmbH
4:15 p.m.	***2007-01-0251***	***Design and Verification of Piston-Train Cam Linkage Mechanism***
		Hsin-Pao Chen, Ting-Hao Cheng, Prof. Der-Min Tsay, PhD, National Sun Yat-Sen Univ., Taiwan; M.J. Yan, PhD, GENWY Power Co., Ltd, Taiwan
	2007-01-0253	***Radiated Noise Prediction of Air Induction Systems Using Filter Seal Modeling and Coupled Acoustic-Structural Simulation Techniques (Written Only -- No Oral Presentation)***
		Hong Su, Visteon Corp.
	2007-01-0267	***Bulkhead Loading Calculation of an Aluminum Engine Block Coupled with a Rotating Crankshaft through Elastohydrodynamic Bearings (Written Only -- No Oral Presentation)***
		Isaac Du, GM Powertrain; Fanghui Shi, General Motors Corp.

The papers in this session are available in a single publication, SP-2093, and also individually.

Planned by Lubricants and Powertrain Systems Committee / Powertrain Fuels and Lubricants Activity

Tuesday, April 17

Modeling of SI and Diesel Engines (Part 3 of 7) - Engine Combustion, Diesel and SI

Session Code: ***PFL37***

Room D3-26/27 ***Session Time:*** ***9:00 a.m.***

Engine Combustion, Diesel and SI

Organizers - *Thomas Morel, Gamma Technologies Inc.; Otmar Scharrer, Porsche Engineering Group GMBH*

Chairpersons - *Otmar Scharrer, Porsche Engineering Group GMBH*

Assistant Chairpersons - *Syed Wahiduzzaman, Gamma Technologies Inc.*

Time	***Paper No.***	***Title***
9:00 a.m.	***2007-01-0671***	***Evaluation of Various Rich Combustion Techniques for Diesel Engines Using Modeling***
		Dimitrios Theofanis Hountalas, George Maragiannis, National Technical Univ. of Athens; Charalampos Arapatsakos, Democritus Univ. of Thrace
9:30 a.m.	***2007-01-0673***	***A Phenomenological Engine Model for Direct Injection of Liquid Fuels, Spray Penetration, Vaporization, Ignition Delay, and Combustion***
		Robert M. Siewert, GM R&D Center
10:00 a.m.	***2007-01-0670***	***A DoE Analysis on the Effects of Compression Ratio, Injection Timing, Injector Nozzle Hole Size and Number on Performance and Emissions in a Diesel Marine Engine***
		F. Millo, E. Pautasso, Politecnico di Torino; D. Delneri, M. Troberg, Wartsila S.p.A.
10:30 a.m.	***2007-01-0674***	***Novel Method of Setting Initial Conditions for Multi-Zone HCCI Combustion Modeling***
		Paitoon Kongsereeparp, M. David Checkel, Univ. of Alberta
11:00 a.m.	***2007-01-0672***	***Modeling the Effect of Mixture Composition on Cyclic Variability***
		Pouria Mehrani, Harry C. Watson, Univ. of Melbourne

The papers in this session are available in a single publication, SP-2079, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Tuesday, April 17

Modeling of SI and Diesel Engines (Part 4 of 7) - Engine Combustion, SI Engines

Session Code: ***PFL37***

Room D3-26/27 ***Session Time:*** ***1:30 p.m.***

Engine Combustion, SI Engines

Organizers - *Thomas Morel, Gamma Technologies Inc.*

Chairpersons - *Wen Dai, Edward C. Hernandez, Ford Motor Co.*

Time	Paper No.	Title
1:30 p.m.	***2007-01-0936***	***Calculating the Properties of User-Defined Working Fluids for Real Working-Process Simulations*** *Michael Grill, Andreas Schmid, Marco Chiodi, Hans-Juergen Berner, Michael Bargende, FKFS*
2:00 p.m.	***2007-01-0937***	***Correlation Between Instantaneous Pattern of Intake Air Motion And Combustion Behaviour in a S.I. Turbocharged Engine*** *G. Formisano, G. Lucignano, L. Maresca, C. Polichetti, L. Strazzullo, ELASIS S.C.p.A., Italy*
2:30 p.m.	***2007-01-0939***	***Study of Cyclic Variation in an SI Engine Using Quasi-Dimensional Combustion Model*** *E. Abdi Aghdam, A. A. Burluka, Timothy Hattrell, K. Liu, C. G W Sheppard, Univ. of Leeds; J. Neumeister, N. Crundwell, Mahle Powertrain, Ltd.*
3:00 p.m.	***2007-01-0940***	***Ignition Simulation and Visualization for Spark Plug Electrode Design*** *Hiroshi Yorita, Shinichi Okabe, NIPPON SOKEN, INC; Masamichi Shibata, Hiroya Ishiguro, DENSO Corp.*
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-0942***	***Phenomenological Modeling of Low-Temperature Advanced Low Pilot-Ignited Natural Gas Combustion*** *Sundar Rajan Krishnan, Argonne National Laboratory; Kalyan Kumar Srinivasan, Mississippi State Univ.; Kenneth Clark Midkiff, Univ. of Alabama*
4:15 p.m.	***2007-01-0938***	***Development and Experimental Validation of a Combustion Model with Detailed Chemistry for Knock Predictions*** *Gianluca D'Errico, Tommaso Lucchini, Angelo Onorati, Marco Mehl, T. Faravelli, Politecnico di Milano; Simona Silvia Merola, Bianca Maria Vaglieco, Istituto Motori CNR*

The papers in this session are available in a single publication, SP-2079, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Tuesday, April 17

Advanced Hybrid Vehicle Powertrains (Part 3 of 6) Hybrid Testing and Simulation Studies

Session Code: ***PFL14***

Room D3-28 ***Session Time:*** ***9:00 a.m.***

Papers in this session discuss hybrid performance metrics, laboratory testing and testing artifacts, and improved methods for hybrid simulation algorithms.

Organizers - *Michael Duoba, Argonne National Laboratory; Matthew E. Fleming, Ford Motor Co.; Mark A. Theobald, GM Powertrain; S. R. Weerasinghe, University of Sussex*

Chairpersons - *Mark A. Theobald, GM Powertrain*

Time	Paper No.	Title
9:00 a.m.	***2007-01-0281***	***Impact of Drive Cycle Aggressiveness and Speed on HEVs Fuel Consumption Sensitivity***
		Phillip B. Sharer, Argonne National Laboratory
9:30 a.m.	***2007-01-0287***	***Defining Performance Metrics for Hybrid Electric Vehicles***
		James Marco, Cranfield University; Nicholas Vaughan, Cranfield Univ.
10:00 a.m.	***2007-01-0280***	***Analyzing the Uncertainty in the Fuel Economy Prediction for the EPA MOVES Binning Methodology***
		Jason Chonghoon Kwon, Argonne National Laboratory
10:30 a.m.	***2007-01-0291***	***Analysis of Power-Split HEV Control Strategies Using Data from Several Vehicles***
		Michael Duoba, Henning Lohse-Busch, Richard W. Carlson, Theodore Peter Bohn, Stephen D. Gurski, Argonne National Laboratory
11:00 a.m.	***2007-01-1771***	***Three Types of Simulation Algorithms for Evaluating the HEV Fuel Efficiency***
		Kukhyun Ahn, Seoul National Univ.; Sungtae Cho, Hyundai Motor Company; Suk Won Cha, Jang Moo Lee, Seoul National Univ.
	2007-01-0304	***Improving System Design of a Hybrid Powertrain Using Stochastic Drive Cycles and Dynamic Programming (Written Only -- No Oral Presentation)***
		Mattias Asbogard, Volvo Car Corporation; Lars Johannesson, David Angervall, Chalmers University of Technology; Peter Johansson, Royal Institute of Technology

The papers in this session are available in a single publication, SP-2101, and also individually.

Planned by Advanced Power Sources Committeee / Powertrain Fuels and Lubricants Activity

Tuesday, April 17

Advanced Hybrid Vehicle Powertrains (Part 4 of 6) Plug-In Hybrid Vehicles and Batteries

Session Code: ***PFL14***

Room D3-28 ***Session Time:*** ***1:30 p.m.***

Papers in this session discuss modeling, simulation, and testing of plug-in hybrid vehicles. Special attention is paid to energy management strategies, battery modeling, and component selection for these cutting-edge vehicles.

Organizers - *Michael Duoba, Argonne National Laboratory; Matthew E. Fleming, Ford Motor Co.; Mark A. Theobald, GM Powertrain; S. R. Weerasinghe, University of Sussex*

Chairpersons - *Matthew E. Fleming, Ford Motor Co.*

Time	Paper No.	Title
1:30 p.m.	***2007-01-0283***	***Testing and Analysis of Three Plug-in Hybrid Electric Vehicles***
		Richard W. Carlson, Argonne National Laboratory

2:00 p.m.	***2007-01-0295***	***Midsize and SUV Vehicle Simulation Results for Plug-In HEV Component Requirements***
		Phillip B. Sharer, Aymeric P. Rousseau, Sylvain Pagerit, Paul A. Nelson, Argonne National Laboratory
2:30 p.m.	***2007-01-0297***	***Modeling of a Plug-in Series Hybrid Powertrain for USPS Carrier Route Vehicle***
		Chunting (Chris) Mi, John Longnecker, Robert Myers, Univ. of Michigan-Dearborn
3:00 p.m.	***2007-01-0301***	***A Simplified Battery Model for Hybrid Vehicle Technology Assessment***
		Steven Boyd, Jeongwoo Lee, Douglas J. Nelson, Virginia Tech.
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-0292***	***Platform Engineering Applied to Plug-In Hybrid Electric Vehicles***
		Anthony J. Markel, National Renewable Energy Laboratory
4:15 p.m.	***2007-01-0290***	***Energy Management Strategies for Plug-In Hybrid Electric Vehicles***
		Jeffrey Gonder, Tony Markel, National Renewable Energy Laboratory
4:45 p.m.	***2007-01-0279***	***The Development of an Ultra Low Carbon Passenger Vehicle Incorporating a Unique Transmission Concept***
		Neil Clifford Cheeseman, Zytek Systems, Ltd.

The papers in this session are available in a single publication, SP-2101, and also individually.

Planned by Advanced Power Sources Committeee / Powertrain Fuels and Lubricants Activity

Tuesday, April 17

Structural Crashworthiness and Occupant Safety (Part 1 of 2)

Session Code: ***B32***

Room M2-29 ***Session Time:*** ***9:00 a.m.***

The Structural Crashworthiness and Occupant Protection sessions present an overview of diverse topics including: analytical and numerical approaches in rollover, roof strength, side impact, and sensor investigations.

Organizers - *Saeed D. Barbat, Jamel E. Belwafa, Ford Motor Co.*

Chairpersons - *Saeed D. Barbat, Jamel E. Belwafa, Ford Motor Co.*

Time	***Paper No.***	***Title***
9:00 a.m.	***2007-01-0676***	***Rollover Severity and Occupant Protection - A Review of NASS/CDS Data***
		Donald D. Parker, Rose Ray, Tara Moore, Richard Keefer, Exponent Inc.
9:30 a.m.	***2007-01-0677***	***Simulating Neck Injury in Frontal Impact using LS-DYNA***
		Joseph Z. Wu, Deneane Hart, Tuan Ngo, Triet Cam, General Motors Corp.
10:00 a.m.	***2007-01-0678***	***Intrusion in Side Impact Crashes***
		Deena Patel, Marc Ross, Univ. of Michigan
10:30 a.m.	***2007-01-0682***	***Modeling of Automotive Fuel Tanks Using Smoothed Particle Hydrodynamics***
		Nabih E. Bedewi, Tarek Omar, Advanced Research & Technology Corp.
11:00 a.m.	***2007-01-0686***	***Vehicle Rollover Sensor Test Modeling***
		Robert W. McCoy, Clifford C. Chou, Ford Motor Co.; R. van de Velde, D. Twisk, C. van Schie, TNO Automotive Safety Solutions

The papers in this session are available in a single publication, SP-2117, and also individually.

Planned by Occupant Protection Committee / Automobile Body Activity

Tuesday, April 17

Structural Crashworthiness and Occupant Safety (Part 2 of 2)

Session Code: ***B32***

Room M2-29 ***Session Time:*** ***1:30 p.m.***

The Structural Crashworthiness and Occupant Protection sessions present an overview of diverse topics including: analytical and numerical approaches in rollover, roof strength, side impact, and sensor investigations.

Organizers - *Jamel E. Belwafa, Rouaa I. Nakhleh, Ford Motor Co.; Donald D. Parker, Exponent Inc.*

Chairpersons - *Jamel E. Belwafa, Rouaa I. Nakhleh, Ford Motor Co.; Donald D. Parker, Exponent Inc.*

Time	Paper No.	Title
1:30 p.m.	***2007-01-0675***	***Application of Tailor Rolled Blank in Vehicle Front End for Frontal Impact***
		Ren-Jye Yang, Yan Fu, Guosong Li, Ford Motor Co.
2:00 p.m.	***2007-01-0679***	***Crash Safety of CNG Retrofitted Vehicles ¿ The Consequences for Emergency Response Services***
		Markus Egelhaaf, Peter Rücker, Alexander Berg, DEKRA Automobil GmbH
2:30 p.m.	***2007-01-0685***	***Axiomatic Design of Automotive Roof Structures***
		Stephen A. Batzer, Robert Burgess, Engineering Institute; Christopher A. Brown, Worcester Polytechnic Institute
	2007-01-0681	***Assessment Tool Development for Rollover CAE Signals Evaluation (Written Only -- No Oral Presentation)***
		Jerry Le, Clifford C. Chou, Ford Motor Co.
	2007-01-0687	***Numerical Analysis for Evaluating the Cumulative Impact Damage of Automotive Bumpers (Written Only -- No Oral Presentation)***
		Heon Young Kim, Jong Gil Choi, Jung Min Kim, Kangwon National Univ.; Dae Yul Ha, Kang Wook Lee, Tae Jung Yeo, Hyundai Mobis

The papers in this session are available in a single publication, SP-2117, and also individually.

Planned by Occupant Protection Committee / Automobile Body Activity

Tuesday, April 17

Diesel Exhaust Emission Control (Part 5 of 10) HC-DeNOx

Session Code: ***PFL8***

Room M2-30 ***Session Time:*** ***1:30 p.m.***

This session focuses on NOx control technologies based around the conversion of NOx using hydrocarbon (HC) species. Presentations will cover systems based on NOx adsorber and HC SCR strategies, as well as methodologies to generate the most appropriate HC species to maximise performance. In addition, new systems based on the combination of NOx adsorbers with ammonia SCR catalysts will be presented.

Organizers - *Andrew P. Walker, Johnson Matthey Inc.; Matthew J. Thornton, National Renewable Energy Laboratory; Kevin F. Brown, Engine Control Systems*

Time	Paper No.	Title

1:30 p.m.	***2007-01-1238***	***Performance of a Non-Catalytic Syngas Generator for LNT and DPF Regeneration***
		Erik Johannes, NxtGen Emission Controls Inc.; Xuantian Li, Paul Towgood, Nxtgen Emission Controls Inc.
2:00 p.m.	***2007-01-1239***	***Ammonia on a LNT: Avoid the Formation or Take Advantage of It***
		Stefan Hackenberg, Marco Ranalli, ArvinMeritor Emissions Technologies GmbH
2:30 p.m.	***2007-01-1240***	***An Ethanol SCR for NOx Purification: Performance Evaluation on Engine Bench and Demonstration on Bus***
		HongYI Dong, Tsinghua Univ.
3:00 p.m.	***2007-01-1241***	***Ceria Doped Ba-Alumina Oxides for Durable NOx-Storage Catalysts Efficient at Low Temperature***
		V. Belliere-Baca, V. Harle, C. Pitois, E. Rohart, Rhodia Research & Technologies
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-1242***	***The Effect of an External Fuel Injection on the Control of LNT System; The Diesel NOx Reduction System***
		Gun-Woo Nam, Jin Woo Park, Jin-ha Lee, Gwonkoo Yeo, Hyundai Motor Company
4:15 p.m.	***2007-01-1243***	***Examination of Conversion of C3H8 Into C3H6 By Electrical Discharge Plasma for Lean-Burn Engines***
		Masato Kurahashi, Sho Shiraga, Minoru Sato, Mitsubishi Electric Corp.
4:45 p.m.	***2007-01-1244***	***Calibration of a LNT-SCR Diesel Aftertreatment System***
		Rachel Snow, Giovanni Cavataio, Douglas Dobson, Cliff Montreuil, Robert H. Hammerle, Ford Motor Co.

The papers in this session are available in a single publication, SP-2080, and also individually.

Planned by Exhaust Aftertreatment and Emissions Committee / Powertrain Fuels and Lubricants Activity

Tuesday, April 17

Emissions Measurement and Testing (Part 3 of 6)

Session Code: ***PFL3***

Room M3-31 ***Session Time:*** ***9:00 a.m.***

Papers in the NOx measurement techniques / studies refer to the increased interest in NOx emissions development and related emission measurement issues.

Organizers - *Alberto Ayala, California Air Resources Board; Tony R. Collier, Ford Motor Co.; Allen B. Duncan, US Environmental Protection Agency; Leslie Hill, Horiba, Ltd.; Greg J. Smallwood, National Research Council Canada*

Chairpersons - *Leslie Hill, Horiba, Ltd.; Greg J. Smallwood, National Research Council Canada*

Time	***Paper No.***	***Title***
9:00 a.m.	***2007-01-0319***	***Significance of Fuel Sulfur Content and Dilution Conditions on Particle Emissions from a Heavily-Used Diesel Engine During Transient Operation***
		Z. Gerald Liu, Victoria N. Vasys, Thaddeus Swor, Cummins; David B. Kittelson, Univ. of Minnesota

9:30 a.m.	***2007-01-0320***	***Detailed Diesel Exhaust Particulate Characterization and Real-Time DPF Filtration Efficiency Measurements During PM Filling Process***
		Ekathai Wirojsakunchai, Eric Schroeder, Niklas Schmidt, Christopher P. Kolodziej, David Foster, Thatcher Root, Univ. of Wisconsin - Madison; Terunao Kawai, National Traffic Safety & Enviro Lab.; Toshiyuki Suga, Honda R&D Americas Inc.; Tim Nevius, Takeshi Kusaka, Horiba Instruments Inc.
10:00 a.m.	***2007-01-0321***	***Diesel NO/NO2/NOx Emissions - New Experiences and Challenges***
		J. Czerwinski, J-L Peterman, Pierre Comte, Univ. of Applied Sciences - Biel; J. Lemaire, AEEDA; A. Mayer, TTM
10:30 a.m.	***2007-01-0322***	***A Soot Generator for DPF Qualification Studies***
		Sandip D. Shah, Douglas A. Dobson, Ford Motor Company
11:00 a.m.	***2007-01-0323***	***Measuring the Electrostatic Charge on a Filter***
		Richard E. Chase, Diane Schamp, Ford Motor Co.
11:30 a.m.	***2007-01-0324***	***Development of an Intake Flow Based Model Calculating Real Time Exhaust Flow by Accounting for Filling and Emptying of the Engine Manifolds***
		Kay Steigerwald, Barbara Zelenka, Gunter Hohenberg, Univ. of Technology Darmstadt; William M. Silvis, AVL North America Inc.

The papers in this session are available in a single publication, SP-2089, and also individually.

Planned by Exhaust Aftertreatment and Emissions Committee / Powertrain Fuels and Lubricants Activity

Tuesday, April 17

Emissions Measurement and Testing (Part 4 of 6)

Session Code: ***PFL3***

Room M3-31 ***Session Time:*** ***1:30 p.m.***

Detailed characterisation techniques presents a number of papers where the emissions (gaseous and particulate) have been assessed in great detail using a variety of chemical and physical tools.

Organizers - *Alberto Ayala, California Air Resources Board; Tony R. Collier, Ford Motor Co.; Allen B. Duncan, US Environmental Protection Agency; Leslie Hill, Horiba, Ltd.; Greg J. Smallwood, National Research Council Canada*

Chairpersons - *Leslie Hill, Horiba, Ltd.; Greg J. Smallwood, National Research Council Canada*

Time	***Paper No.***	***Title***
1:30 p.m.	***2007-01-0325***	***Trade-Offs in Highly Dynamical Transient Simulation on Engine Test Benches***
		Engelbert Gruenbacher, Linz Center of Mechatronics; Peter Langthaler, Luigi Del Re, Johannes Kepler University Linz; Harald Nonn, Martin Schmidt, Michael Paulweber, AVL List GmbH
2:00 p.m.	***2007-01-0328***	***New Modeling for Reliable Evaluation of Parameter Variability Effects on Vehicle Fuel Consumption***
		Andrea Emilio Catania, Stefano D'Ambrosio, Politecnico di Torino; G. M. Guenna, Diego Petrolo, Luigi Pilo, Luigi Strazzullo, Fiat Powertrain Technologies
2:30 p.m.	***2007-01-0330***	***NOx Measurement Errors in Ammonia-Containing Exhaust***
		John Hoard, Rachel Snow, Lifeng Xu, Christine Gierczak, Robert Hammerle, Cliff Montreuil, S. Iskander Farooq, Ford Motor Co.

3:00 p.m.	***2007-01-0331***	***Measuring NOx in the Presence of Ammonia***
		Sandip D. Shah, Adolfo Mauti, Joel F. O. Richert, Michael J. Loos, Richard E. Chase, Ford Motor Company
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-0332***	***The Oxidation of NO to Yield NO2 in Emissions Testing Sample Bags***
		Sandip D. Shah, Adolfo Mauti, Joel F. O. Richert, Richard E. Chase, Ford Motor Company
4:15 p.m.	***2007-01-0333***	***Correlating Dynamic Pressure Signal Features to Diesel Particulate Filter Load***
		Patrick Cunningham, Peter Meckl, Chintan Shah, Purdue Univ.

The papers in this session are available in a single publication, SP-2089, and also individually.

Planned by Exhaust Aftertreatment and Emissions Committee / Powertrain Fuels and Lubricants Activity

Tuesday, April 17

Applications of Fuel Cells in Vehicles (Part 1 of 2)

Session Code: ***PFL33***

Room M3-32 ***Session Time:*** ***9:00 a.m.***

This fuel cell session will discuss everything from membrane poisonings to hydrogen storage tanks.

Organizers - *Huei Peng, Univ. of Michigan*

Chairpersons - *Theodore Peter Bohn, Argonne National Laboratory*

Time	***Paper No.***	***Title***
9:00 a.m.	***2007-01-0696***	***Numerical Multiphase Flow Model to Study Channel Flow Dynamics of PEM Fuel Cell***
		Amirreza Golpaygan; Nasser Ashgriz
9:30 a.m.	***2007-01-0688***	***Thermal Behavior in Hydrogen Storage Tank for Fuel Cell Vehicle on Fast Filling***
		Ryuichi Hirotani, Japan Automobile Research Institute
10:00 a.m.	***2007-01-0690***	***Numerical Study of the Thermal Behavior on Fast Filling of Compressed Gaseous Hydrogen Tanks***
		Yuichi Itoh, Japan Automobile Research Institute
10:30 a.m.	***2007-01-0697***	***Effect of Cross Flow on Performance of a PEM Fuel Cell***
		Jaewan Park, Univ. of Waterloo
11:00 a.m.	***2007-01-0698***	***A Study Regarding Effects of Proton Exchange Membrane Fuel Cell Poisoning Due to Impurities on Fuel Cell Performance***
		Kazuyuki Narusawa, Ministry of Transport Japan

The papers in this session are available in a single publication, SP-2098, and also individually.

Planned by Advanced Power Sources Committeee / Powertrain Fuels and Lubricants Activity

Tuesday, April 17

Applications of Fuel Cells in Vehicles (Part 2 of 2)

Session Code: ***PFL33***

Room M3-32 ***Session Time:*** ***1:30 p.m.***

This fuel cell session will discuss everything from membrane poisonings to hydrogen storage tanks.

Organizers - *Huei Peng, Univ. of Michigan*

Chairpersons - *Theodore Peter Bohn, Argonne National Laboratory*

Time	Paper No.	Title
1:30 p.m.	***2007-01-0692***	***Multi-Fuel Fuel Processor and PEM Fuel Cell System for Vehicles*** *Brian Bowers, Jian Zhao, Michael Ruffo, Druva Dattatraya, Rafey Khan, Pierre-Francois Quet, Virginie Sweetland, Eric Darby, Yanlong Shi, Yakov Dorfman, Nathan Dushman, Antonino Toro, Iacopo Alberti, Amedeo Conti, Nuvera Fuel Cells Inc.; Jean-Christophe Beziat, Fabien Boudjemaa, Renault SAS*
2:00 p.m.	***2007-01-0699***	***Design, Testing, and Demonstration of a Hybrid Fuel Cell Powered APU/TRU System*** *Harry A. Dwyer, Univ. of California-Davis*
2:30 p.m.	***2007-01-0695***	***Compressed Hydrogen System Pressure Selection ¿ Determining the Optimum Hydrogen Fueling Pressure*** *Joseph P. Cohen, Air Products & Chemicals Inc.*
3:00 p.m.	***2007-01-0691***	***Ambient Temperature Pressure Cycling Test of Compressed Hydrogen Tanks for Vehicles ¿ Influence of Maximum Pressure on Tank Fatigue*** *Jun-Ichi Tomioka, Japan Automobile Research Institute*
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-0689***	***Technology Platform Hylite for Comparing Drive Technologies of the Future*** *Horst Friedrich, Institute Of Vehicle Concepts*

The papers in this session are available in a single publication, SP-2098, and also individually.

Planned by Advanced Power Sources Committeee / Powertrain Fuels and Lubricants Activity

Tuesday, April 17

Testing and Instrumentation

Session Code: ***AE20***

Room O2-33 ***Session Time:*** ***9:00 a.m.***

The function of testing is undergoing rapid changes. Whereas simulation & predictions are gaining importance physical testing is also required in certain cases to validate the simulation. This session provides a mix of both, where authors will present results of physical tests. Also there will be presentations on the simulation strategies & spractices. Finally authors will also present various statistical tools & techniques for instrumentation & data management.

Organizers - *Anand Vijay Kulkarni, Tata Motors, Ltd.; Tom Sloane, PACCAR Technical Center*

Time	Paper No.	Title
9:00 a.m.	***2007-01-0966***	***Experimental Measurement of the Environmental Impact of a Euro IV Vehicle in its Urban Use*** *Fernando Ortenzi, CTL, Università di Roma "La Sapienza"; Roberto Ragona, Centro Ricerche Enea Casaccia; Federico Villatico Campbell, Fabrizio Zuccari, CIRPS, Università di Roma "La Sapienza"*

9:30 a.m.	***2007-01-0964***	***Development of an Engine Torquemeter for In-Vehicle Application and Parametric Study on Fuel Consumption Contribution***
		Kyoung-Pyo Ha, Jin Kook Kong, Woo Tae Kim, Hyundai Motor Co.
10:00 a.m.	***2007-01-0960***	***Non-Intrusive Engine Speed Sensor***
		Elias Taye, Thaddeus Schroeder, Delphi Corp.
10:30 a.m.	***2007-01-0965***	***Hardware In the Loop Validation of the PIAGGIO MP3***
		Ferdinando Ferrara, F. Di Genova, ELASIS; Massimiliano De Manes, Giancarlo Di Mare, Elasis SCPA Cr Auto; M. Loele, ELASIS; V. Cioffi, Elasis SCPA Cr Auto; Antonello Caraceni, ELASIS; Maurizio Marcacci, Luigi Baracchino, L. Bernardi, Paolo Bruttini, E. Ruggiero, Piaggio & C SpA
11:00 a.m.	***2007-01-0962***	***Off-the-Shelf Technologies and Techniques Enabling Large Scale Data Management***
		Chris Defilippo, National Instruments
11:30 a.m.	***2007-01-0956***	***Load Durability Performance of Small-size Power SMD Relays***
		Takatoshi Takikawa, AutoNetworks Technologies; Masao Shibata, Toyota Motor Corporation

The papers in this session are available in a single publication, SP-2131, and also individually.

Planned by Testing and Instrumentation Committee / Automobile Electronic Activity

Tuesday, April 17

Virtual Engineering

Session Code: ***AE29***

Room O2-33 ***Session Time:*** ***1:30 p.m.***

This session presents research work in the development of new methodologies to simulate real world environments for product development and testing. The session also includes technologies like computer simulation utilized in the absence of physical tests.

Organizers - *Bryan L. Dodson, Visteon Corp.; Vijit Jayasheela, Kohler Co.; Don P. Lynch, SKF USA Inc.*

Assistant Chairpersons - *Shawn Patrick Capser, Visteon Corp.; Vijit Jayasheela, Kohler Co.; Michael A. Stankiewicz, Visteon Corp.*

Time	***Paper No.***	***Title***
1:30 p.m.	***2007-01-0947***	***Development of a Vehicle Animation Tool Using MATLAB Virtual Reality Toolbox***
		Mahesh Madurai Kumar, Univ. of Michigan - Ann Arbor; Taehyun Shim, Univ. of Michigan-Dearborn; Jahan Asgari, Ford Motor Co.
2:00 p.m.	***2007-01-0951***	***Conditions for Significant Efficiency Improvement in the Product Development Chain by the Application of Integrated Virtual Engineering***
		Christoph Goettlicher, Anthony A. Trecapelli, General Motors
2:30 p.m.	***2007-01-0949***	***Development of Durability Analysis Automation System (DAAS)***
		Ja-suk Koo, Yeon-gyoo Lee, Jae-seock Choi, Hyundai Mobis; Dohng-Goock Choo, MSC Software
3:00 p.m.	***2007-01-0943***	***Electromagnetic Field Analysis for the Smart Key Antenna***
		Yuji Okada, Hiroyuki Tanaka, Aisin seiki Co.Ltd; Kiyoshi Yamane, Aisin Seiki Co., Ltd.
3:30 p.m.		***BREAK***

3:45 p.m.	***2007-01-0945***	***Development of a Vehicle Simulator Based Testing Method for Telematics Software Development***
		Moon Sik Kim, Korea Automotive Technology Institute
4:15 p.m.	***2007-01-1779***	***Prediction of Local Heat Transfer Characteristics in an SI Engine Combustion Chamber***
		Payman Abbasi Atibeh
4:45 p.m.	***2007-01-0946***	***Development of a Virtual Reality Based Vehicle Simulator System for Test and Development of ASV, Telematics and ITS***
		Si-bok Yu, Katech; Soo-Young Lee, Moon Sik Kim, Korea Automotive Technology Institute
	2007-01-0950	***Numerical Methodology for Evaluating Side Impact Effects in Rally Car (Written Only -- No Oral Presentation)***
		Carlo Rosso, Cristiana Delprete, Elvio Bonisoli, Politecnico di Torino

The papers in this session are available in a single publication, SP-2072, and also individually.

Planned by Accelerated Testing Conference General Committee / General Planning Committees (Natl. Mtgs); Testing Instrumentation Committee / Automobile Electronic Activity; Computer Applications Committee / Automobile Electroni

Tuesday, April 17

Career Development Session

Session Code: ***CONG7***

Room O2-37 ***Session Time:*** ***1:30 p.m.***

Organizers - *Tracy L. Fedkoe, SAE International*

Time	***Paper No.***	***Title***
1:30 p.m.	***ORAL ONLY***	***Making the Most of your Technical Experience in the Job Search***
		John G. Baylis, Toyota Technical Center USA Inc.
2:00 p.m.	***ORAL ONLY***	***Hiring Trends in the Automotive Industry***
		Douglas A. Scott, The Mergis Group
2:30 p.m.	***ORAL ONLY***	***Generational Gaps in the Workplace***
		Eric Kropp, Cummins, Inc.

Tuesday, April 17

IMechE Lecture "Educate or Die"

Session Code: ***CONG500***

Room O2-37 ***Session Time:*** ***3:45 p.m.***

Dr. John Lowe, Chairman of the Automobile Division of the Institute of Mechanical Engineers (IMechE) will address the unending need for education. Today's challenges of climate change, over-population, resource depletion, social tensions and others are inter-related, and in the end, depend on how well people understand and their ability to take action. Education is the fundamental key to equipping future generations to tackle these and other issues. Dr. Lowe will make reference to the excellent efforts underway and share with you suggestions to make the prospects better for those who will inherit our living space on this planet -- including our children and families.

Chairpersons - *Craig J. Hoff, Kettering Univ.*

Presenters - *John Lowe, IMechE*

Tuesday, April 17

Engineering Education

Session Code: ***B35***

Room O2-37 ***Session Time:*** ***4:45 p.m.***

Papers in this session discuss the evaluation of education programs focused on the development of today's engineers.

Organizers - *Craig J. Hoff, Kettering Univ.*

Time	Paper No.	Title
4:45 p.m.	***2007-01-1051***	***An Evaluation of Formula SAE in the Context of the UK Engineering Education: Culture, Money and Space*** *Paul W. Wickenden, Richard K. Stobart, Univ. of Sussex*

Planned by Faculty Advisors Committee / Engineering Education Board

Tuesday, April 17

Safety Test Methodology (Part 1 of 2)

Session Code: ***B31***

Room O2-38 ***Session Time:*** ***9:00 a.m.***

The Safety Test Methodology session presents papers in advancement of testing and modeling of automotive safety. Presentations are divided into two parts: Morning Session (Part A) deals with lower extremities pertaining to injury prediction using acceleration and development of a legform impact test device, modeled-based design study of new HMI concept, and design and development of a calibration rig; Afternoon Session (Part B) covers (1) image analysis, chest lateral deflection measurement, interior head impact analysis, WorldSID 5th dummy development, and study of kinematics of belted occupants in rollover, and (2) sled component side impact test methodologies.

Organizers - *Clifford C. Chou, Ford Motor Co.; P. Michael Miller, MGA Research Corp.*

Chairpersons - *P. Michael Miller, MGA Research Corp.*

Time	Paper No.	Title
9:00 a.m.	***2007-01-0703***	***Overview of Federal Motor Vehicle Safety Standard (FMVSS) 202A - Head Restraints: Methodology and Equipment for the Dynamic Test*** *Helen A. Kaleto, Herman W. Mangum, Peng Lee, Melanie Schick, MGA Research Corp.*
9:30 a.m.	***2007-01-0704***	***Using Forefoot Acceleration to Predict Forefoot Trauma in Frontal Crashes*** *Murat Buyuk, Demet Ozkan, Richard M. Morgan, Kennerly H. Digges, George Washington Univ.*
10:00 a.m.	***2007-01-0700***	***Development of a Biofidelic 'Legform' Impact Test Device*** *John Davis, Peter J. Schuster, California Polytechnic State Univ.*
11:00 a.m.	***2007-01-0708***	***Stiff Versus Yielding Seats: Analysis of Matched Rear Impact Tests*** *David C. Viano, Chantal S. Parenteau, ProBiomechanics LLC; Priya Prasad, Roger Burnett, Ford Motor Co.*
11:30 a.m.	***2007-01-0705***	***Measurement Error in Lateral Thoracic Deflection and Deflection Rate due to Oblique Loading*** *Matthew L. Brumbelow, David S. Zuby, Insurance Institute for Highway Safety*
	2007-01-0702	***Model-Based Design Study and Evaluation of New HMI Concepts for Vehicle Multimedia, Climate Control and Navigation Systems (Written Only -- No Oral Presentation)*** *Paul F. Smith, The MathWorks Inc.; Jie Chen, Hongxing Hu, Panasonic Electronic Devices Corp. of America*

The papers in this session are available in a single publication, SP-2123, and also individually.

Planned by Occupant Protection Committee / Automobile Body Activity

Tuesday, April 17

Safety Test Methodology (Part 2 of 2)

Session Code: ***B31***

Room O2-38 ***Session Time:*** ***1:30 p.m.***

The Safety Test Methodology session presents papers in advancement of testing and modeling of automotive safety. Presentations are divided into two parts: Morning Session (Part A) deals with lower extremities pertaining to injury prediction using acceleration and development of a legform impact test device, modeled-based design study of new HMI concept, and design and development of a calibration rig; Afternoon Session (Part B) covers (1) image analysis, chest lateral deflection measurement, interior head impact analysis, WorldSID 5th dummy development, and study of kinematics of belted occupants in rollover, and (2) sled component side impact test methodologies.

Organizers - *Clifford C. Chou, Ford Motor Co.; P. Michael Miller, MGA Research Corp.*

Chairpersons - *Douglas J. Stein, Autoliv ASP*

Time	Paper No.	Title
1:30 p.m.	***2007-01-0706***	***Instrument-Panel Head Form Impact Test : Effects of Different Impactors & Test Methodologies***
		Mukesh Sharma, Maruti Udyog Ltd.; Rachit Pandey, Ashok Gupta, Maruti Udyog, Ltd.
2:00 p.m.	***2007-01-0701***	***WorldSID 5th Percentile Prototype Dummy Development***
		Zhenwen J. Wang, Bernard W. Been, Andy S. Barnes, Mark J. Burleigh, Arie Schmidt, Martin Dotinga, Michiel Van Ratingen, First Technology Safety Systems Inc.
2:30 p.m.	***2007-01-0710***	***A Dynamic Sled-to-Sled Test Methodology for Simulating Dummy Responses in Side Impact***
		K. Aekbote, J. Sobick, L. Zhao, J.E. Abramczyk, M. Maltarich, M. Stiyer, T. Bailey, Ford Motor Co.
3:00 p.m.	***2007-01-0709***	***A Study of Kinematics of Occupants Restrained with Seat Belt Systems in Component Rollover Tests***
		Robert W. McCoy, Ford Motor Co.; Clifford C. Chou, Ford Motor Co. (retired)
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-0707***	***Using Driving Simulators to Expand Moose Perception Data: Some Results and Validity Issues***
		Pierre Desroches, Andrew Varden, Blair Nonnecke, Lana Trick, Univ. of Guelph
	2007-01-0711	***Developing a Sled Test from Crash Test Data (Written Only -- No Oral Presentation)***
		Brian Smyth, James Smith, Exponent Inc.
	2007-01-0712	***Simulation of Outer Door Handle and Latch Responses in Side Impact Using Component Test Methodology (Written Only -- No Oral Presentation)***
		K. Aekbote, R. Craig, M. Maltarich, T. Bailey, Ford Motor Co.

The papers in this session are available in a single publication, SP-2123, and also individually.

Planned by Occupant Protection Committee / Automobile Body Activity

Tuesday, April 17

Accident Reconstruction (Part 1 of 4)

Session Code: ***B24***

Room O2-44 ***Session Time:*** ***9:00 a.m.***

Accident Reconstruction tools, techniques and analysis based on the latest use of technology. Rollovers, all types of impacts and statistical analysis will be covered. Evaluation of vehicles and data will also be discussed.

Organizers - *Michael S. Varat, Stein E. Husher, KEVA Engineering; Raymond M. Brach, Univ. of Notre Dame; Matthew Brach, Brach Engineering*

Time	Paper No.	Title
9:00 a.m.	***2007-01-0719***	***Forensic Seat Belt Evidence as an Indicator of Impact Angle***
		Hans W. Hauschild, VSW; Stephen Syson, Syson-Hille & Associates
9:30 a.m.	***2007-01-0724***	***Pulse Shape and Duration in Frontal Crashes***
		Charles Y. Warner, Collision Safety Engineering, LC; Mark Warner, Charles Crosby, Collision Safety Engineering LC; Michael Armstrong, Georgia Tech. Univ.
10:00 a.m.	***2007-01-0729***	***Accident Reconstruction Based on EDR Records ¿ Simulation and Experimental Study***
		Zbigniew Lozia, Marek Guzek, Warsaw Univ. of Technology; Wieslaw Pieniazek, Cracow Univ. of Technology
10:30 a.m.	***2007-01-0728***	***Bumper Paint Damage in Low Speed Impacts***
		Bryce O. Anderson, AEC; Tyler A. Kress, John C. Hungerford, Steve Richards, Lee D. Han, Ken Kirby, Univ. of Tennessee - Knoxville
11:00 a.m.	***2007-01-0737***	***Residual Crush Energy Partitioning, Normal and Tangential Energy Losses***
		Raymond M. Brach, Brach Engineering; Kevin Welsh, Struble-Welsh Engineering Inc.; Matthew Brach, Brach Engineering
11:30 a.m.	***2007-01-0730***	***Quantifying the Uncertainty in the Coefficient of Restitution Obtained with Accelerometer Data from a Crash Test***
		Nathan A. Rose, Gray Beauchamp, William Bortles, Kineticorp LLC

The papers in this session are available in a single publication, SP-2063, and also individually.

Planned by Occupant Protection Committee / Automobile Body Activity

Tuesday, April 17

Accident Reconstruction (Part 2 of 4)

Session Code: ***B24***

Room O2-44 ***Session Time:*** ***1:30 p.m.***

Accident Reconstruction tools, techniques and analysis based on the latest use of technology. Rollovers, all types of impacts and statistical analysis will be covered. Evaluation of vehicles and data will also be discussed.

Organizers - *Michael S. Varat, Stein E. Husher, KEVA Engineering; Raymond M. Brach, Univ. of Notre Dame; Matthew Brach, Brach Engineering*

Time	Paper No.	Title
1:30 p.m.	***2007-01-0713***	***The Practical Application of Finite Difference Analysis in Accident Reconstruction***
		Albert G. Fonda, Fonda Engineering Associates

2:00 p.m.	***2007-01-0715***	***Uncertainty Analysis of the Preimpact Phase of a Pedestrian Collision***
		Wojciech Wach, Jan Unarski, Inst. of Forensic Research
2:30 p.m.	***2007-01-0741***	***Considerations for Applying and Interpreting Monte Carlo Simulation Analyses in Accident Reconstruction***
		Jeffrey Ball, David Danaher, Richard Ziernicki, Knott Laboratory LLC
3:00 p.m.	***2007-01-0726***	***Factors Influencing Roof-to-Ground Impact Severity: Video Analysis and Analytical Modeling***
		Nathan A. Rose, Gray Beauchamp, Stephen Fenton, Kineticorp LLC
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-0732***	***Vehicle Linear and Rotational Acceleration, Velocity and Displacement during Staged Rollover Collisions***
		Orion P. Keifer, Wesley Richardson, Applications Engineering Group Inc.; Peter Layson, Application Engineering Inc.; Bradley Reckamp, Thomas Heilmann, Applications Engineering Group Inc.
4:15 p.m.	***2007-01-0742***	***Trajectory Model of Occupants Ejected in Rollover Crashes***
		James Funk, BRC; Peter Luepke, Exponent Inc.

The papers in this session are available in a single publication, SP-2063, and also individually.

Planned by Occupant Protection Committee / Automobile Body Activity

Tuesday, April 17

Automobile Electronics and Systems Reliability (Part 1 of 2)

Session Code: ***AE22***

Room O3-45 ***Session Time:*** ***9:00 a.m.***

Session AE22 is a two-part session focusing on practical reliability and robustness engineering methods. The session is of special interest to electrical and electronic design, reliability and test engineers and managers. Part 1 presents seven diverse technical papers illustrating the application of several unique hands-on, state-of-art reliability practices. The topics range from the component level (MOSFETs and power ICs) to the vehicle system level (hybrid vehicle power systems). Authors from Asia, North America and Europe provide an international perspective from the OEM and supply chain working environments. The authors will share their expert knowledge of modeling, simulation and robust design techniques as applied to the achievement of high reliability in today's competitive, fast-moving global automotive industry.

Organizers - *Jack Stein, TCV Systems Corp.*

Moderators - *Helmut W. Keller, Keller Consulting Engineering Services; Roger E. Rickey, R E Rickey & Associates Inc.*

Time	***Paper No.***	***Title***
9:00 a.m.	***2007-01-1589***	***Comprehensive Modeling of Automotive Ignition Systems***
		Rodolfo Palma, R.C. Stevenson, Visteon Corp.; C.S. Yang, S.K. Park, C. Mi, Univ. of Michigan-Dearborn
9:30 a.m.	***2007-01-1590***	***Customized Power MOSFETs for Automotive Application***
		Shoji Mizuno, DENSO CORPORATION; Takaaki Aoki, Yukio Tsuzuki, Mikimasa Suzuki, DENSO Corp.
10:00 a.m.	***2007-01-1591***	***Simulation Tool Chain for the Estimation of EMC Characteristics of ECU Modules***
		Karsten Schoenherr, P. Feuerstack, Robert Bosch GmbH; Andre Jennert, B. Kelly, J. Dullere, Synopsys Inc.
10:30 a.m.	***2007-01-1592***	***Modeling and Simulation of Hybrid Electric Vehicle Power Systems***
		Min Zhang, Synopsys Inc.

11:00 a.m.	***2007-01-1595***	***Mixed Signal Power IC for Automotive Electronics***
		Yoshiaki Nakayama, DENSO CORPORATION; Satoshi Shiraki, Yasushi Higuchi, Shoji Miura, DENSO Corp.
11:30 a.m.	***2007-01-1594***	***A Quantitative Study for Critical Factors of Automotive Battery Durability***
		Chang Hyuck Park, Hyundai Motor Company; Jung Ho Yoon, Jang Don Choi, Hyundai Motor Co. & KIA Motors Corp.
12:00 p.m.	***2007-01-1593***	***A New High-Reliable Thick Film System for Automotive Use***
		Rikiya Kamimura, MAsashi Totokawa, Tohru Nomura, Yoshihiko Shiraishi, DENSO Corp.; Takashi Kitagaki, Hiroshi Shibata, DuPont K K

The papers in this session are available in a single publication, SP-2088, and also individually.

Planned by Electrical and Electronic Systems Committee / Automobile Electronic Activity

Tuesday, April 17

Automobile Electronics and Systems Reliability (Part 2 of 2)

Session Code: ***AE22***

Room O3-45 ***Session Time:*** ***2:00 p.m.***

Session AE22 is a two-part session focusing on practical reliability and robustness engineering methods. The session is of special interest to electrical and electronic design, reliability and test engineers and managers. In Part 2 of this session, panelists representing major OEMs, ECU/module, and semiconductor component suppliers will discuss the results of an unprecedented international effort to develop and implement Robustness Validation around the world and throughout the full electronics supply chain. After introductory presentations from each panelist, attendees will be invited to participate in an open Q&A session with the experts.

Organizers - *Jack Stein, TCV Systems Corp.*

Time	***Paper No.***	***Title***

2:00 p.m. ***Panel*** ***Robustness Validation-Transforming the Electronics Reliability Qualification Process: Are You Ahead of or Behind the Curve?***

In 2005, the SAE Automotive Electronic Systems Reliability Committee joined forces German Association of Electronics Manufacturer's (ZVEI), the Automotive Electronics (AEC) and JSAE (Japan SAE) to develop an improved approach to IC qualification. was to transform "standard" industry practice by implementing a modernized qualifica approach which would enable engineers to design-in and demonstrating ultra-high re while ultimately reducing the cost and time required for qualification. The working gro formed for this unprecendented transformation effort have consisted of over 100 engi managers affiliated with 7 OEM's and more than 20 Tier 1 and semiconductor supplie companies worldwide. Today, a completely revised SAE Recommended Practice J18 "Handbook for Robustness Validation of Semiconductor Devices in Automotive Appli has been completed. The revision of SAE J1211, "Handbook for Robustness Validat ECU's in Automotive Applications," is well under way, while a third effort, aimed at sy software qualification, is already being initiated. Congress attendees are invited to le the status of the Robustness Validation implementation activities and participate in a exchange with the Robustness Validation joint international task force leadership and group panel members.

Assistant Chairpersons - *Jack Stein, Automotive Electronic Systems Corp.; Rolf Winters, ZVEI*
Moderators -
Panelists - *Helmut W. Keller, Keller Consulting Engineering Services; Roger E. Rickey, R E Rickey & Associates Inc. Dustin S. Aldridge, Dustin S. Aldridge, Delphi Corp.; Colman S. Byrne, Kostal Ireland Gmbh; Dennis Craggs, DaimlerChrysler Corp.; Keith M. Hodgson, Ford Electronics; Robert Knoell, James W. Liddy, Visteon Corp.; Kirk Thomas Olund, Fairchild Semiconductor Corp.; Alexander J. Porter, Intertek ETL SEMKO; Andreas Preussger, Semiconductor Products Sector*

3:30 p.m. ***BREAK***

3:45 p.m. ***Panel*** ***Robustness Validation-Transforming the Electronics Reliability Qualification Process: Are You Ahead of or Behind the Curve?***

Assistant Chairpersons - *Jack Stein, TCV Systems Corp.; Rolf Winters, ZVEI*
Moderators -
Panelists - *Helmut W. Keller, Keller Consulting Engineering Services; Roger E. Rickey, R E Rickey & Associates Inc. Dustin S. Aldridge, Dustin S. Aldridge, Delphi Corp.; Colman S. Byrne, Kostal Ireland Gmbh; Dennis Craggs, DaimlerChrysler Corp.; Keith M. Hodgson, Ford Electronics; Robert Knoell, James W. Liddy, Visteon Corp.; Kirk Thomas Olund, Fairchild Semiconductor Corp.; Alexander J. Porter, Intertek ETL SEMKO; Andreas Preussger, Semiconductor Products Sector*

Planned by Electrical and Electronic Systems Committee / Automobile Electronic Activity

Tuesday, April 17

Rear Impact, Rollover and Side Impact (Part 3 of 3): Side Impact

Session Code: ***B30***

Room O3-46 ***Session Time:*** ***9:00 a.m.***

Occupant protection in automotive collisions is a multi-modal activity. The technical session "Rear Impact, Rollover and Side Impact" focuses on three impact modes, each requiring unique countermeasures designed to address specific occupant injury paradigms.

Rollover: While rollovers represent a relatively small number of the total collisions on the roadway, they are accompanied by the highest risk of serious-to-fatal occupant injury. Analysis of field data, injury assessment techniques, analysis of experimental rollover test data, occupant containment and countermeasure design are all topics presented in this session.

Rear Impact: Frequent minor-to-moderate injury continues to drive injury-mitigating research and countermeasure design activity for this impact configuration. Continued research into rear occupant protection with a focus on seat and head restraint design and human response to rear-end impacts are presented. Techniques of mathematical modeling and countermeasure optimization are also presented.

Side Impact: Occupant protection in side impacts continues to be a unique design challenge for safety engineers. Techniques of restraint optimization through mathematical modeling are presented with a focus on smaller stature occupants such as female and child near-side occupants as well as far-side occupants.

Organizers - *Charles J. Griswold, C J Griswold Inc.; Alan W. Thebert, Engineering Research/Analysis; Warren N. Hardy, Wayne State Univ.; David E. Raymond*

Chairpersons - *Warren N. Hardy, Wayne State Univ.; Guy S. Nusholtz, DaimlerChrysler AG; David Raymond, Vector Scientific Inc.*

Time	Paper No.	Title
9:00 a.m.	***2007-01-0368***	***Analysis of Neck Tension Force in IIHS Rear Impact Test*** *Weigang Chen, James Cheng, Ford Motor Co.; Jeff Vinton, Ford Product Development; Jeffrey Laya, Ford Motor Co.*
9:30 a.m.	***2007-01-0371***	***Benefits of Active Head Restraints for Compliance to Rear Impact Test Requirements*** *Gerald S. Locke, Arjun Yetukuri, Lear Corp.*
10:00 a.m.	***2007-01-0378***	***Neck Injury Prevention in Low Speed Rear Impact*** *Tzu-Chen Weng, Yan Fu, Ford Motor Co.*
10:30 a.m.	***2007-01-0363***	***Far-Side Impact Vehilce Simulations with MADYMO*** *Brian Alonso, Kennerly Digges, Richard Morgan, George Washington Univ.*
11:00 a.m.	***2007-01-0365***	***Evaluation and Improvement of Side Impact Occupant Safety using Optimization and Stochastic Analysis*** *Nelis Rutjes, Edwin Hassel, Riender Happee, TNO Automotive Safety Solutions; Hans Cappon, TNO Science & Industry*

The papers in this session are available in a single publication, SP-2117, and also individually.

Planned by Occupant Protection Committee / Automobile Body Activity

Tuesday, April 17

Pedestrian Safety

Session Code: ***B29***

Room O3-46 ***Session Time:*** ***1:30 p.m.***

This session focuses on everything related to pedestrian safety. The topics of the presentations include but are not limited to the biomechanics of pedestrian impact, development of test devices and countermeasures for pedestrian protection, and epidemiology of pedestrian injury. The session should be of interest for everyone within the fields of pedestrian safety and biomechanics.

Organizers - *B. Johan Ivarsson, Univ. of Virginia; Dominique Cesari, INRETS*

Time	Paper No.	Title
1:30 p.m.	***2007-01-0754***	***Real Time Simulation of Virtual Pedestrians for Development of Pedestrian Detection Systems*** *Larry Cathey, Reid Steiger, Chris Wallis, Mike Lopez, Michael Blommer, Ford Motor Co.*

2:00 p.m.	***2007-01-0755***	***Finite Element Analysis of Pedestrian Lower Extremity Injuries in Car-to-Pedestrian Impacts***
		Sadayuki Kuwahara, Toshio Hosokawa, DENSO Corp.; Keita Okada, Koji Mizuno, Nagoya Univ.
2:30 p.m.	***2007-01-0756***	***Investigating Pedestrian Kinematics with the Polar-II Finite Element Model***
		Jaeho Shin, Costin Untaroiu, Jason Kerrigan, Jeff Crandall, Damien Subit, Univ. of Virginia; Yukou Takahashi, Akihiko Akiyama, Yuji Kikuchi, Honda R&D Co., Ltd.; Douglas Longhitano, Honda R&D Americas Inc.
3:00 p.m.	***2007-01-0758***	***The Experimental Study of the Air Flow Produced by Road Vehicles and its Potential Destabilizing Effect on Nearby Pedestrians***
		Mark Strauss, Louis Inendino, Ruhl Forensic Inc.; James Carnahan, Univ. of Illinois
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-0757***	***Biofidelity Improvements to the Polar-II Pedestrian Dummy Lower Extremity***
		Dipan Bose; Damien Subit, Johan Ivarsson, Jeff Crandall, Univ. of Virginia; Yukou Takahashi, Yuji Kikuchi, Akihiko Akiyama, Honda R&D Co., Ltd.
	2007-01-0759	***Optimization of Head Impact Waveform to Minimize HIC (Written Only -- No Oral Presentation)***
		Jianping Wu, Brian Beaudet, DaimlerChrysler Corp.

The papers in this session are available in a single publication, SP-2114, and also individually.

Planned by Occupant Protection Committee / Automobile Body Activity

Tuesday, April 17

Accelerated Testing and Vehicle Reliability

Session Code: ***AE27***

Room Safety/Testing Pavilion (on the exhibi ***Session Time:*** ***9:00 a.m.***

This session presents papers in the application of Reliability Tools and Techniques for new product development and product failure analysis. It also captures the use and application of latest reliability models for the development of Reliability Tests to simulate product life based on customer usage, use & abuse and, environmental profiles.

Organizers - *Bryan L. Dodson, Visteon Corp.; Vijit Jayasheela, Kohler Co.; Paul Stanley Zalucha, Visteon Corp.*

Assistant Chairpersons - *Graham S. Duthie, Andersen Corp.; Mark Ripple, BBK, Ltd.*

Time	***Paper No.***	***Title***
9:00 a.m.	***2007-01-0632***	***Effect of Weld Geometry and HAZ Softening on Fatigue Performance of DP780 GMAW Lap Joint***
		Ramakrishna P. Koganti, Sergio Angotti, Armando M. Joaquin, Ford Motor Co.; Chonghua Jiang, AET Integration Inc.
9:30 a.m.	***2007-01-0944***	***A Study of Wear in Engine Exhaust Valve Depending on Valve Materials Using a Laboratory Simulator***
		Keyoung Jin Chun, Yang Soo Kim, Jaesoo Hong, Jae Hak Kim, Korea Institute of Industrial Technology
10:00 a.m.	***2007-01-0630***	***Fatigue Prediction for Wireform Supports: A Mathematical Review of NVH Performance***
		Gregory Phillip Ruhlander, Dura Automotive Systems Inc.

10:30 a.m.	***2007-01-0633***	***A Study of Durability Problems and Solutions for Vehicle Hub Bearing***
		Byunghoon Min, Hyundai Motor Co.
11:00 a.m.	***2007-01-0634***	***Effects of Materials Stack-ups on Fatigue Performance of DP780 and Aluminized Coated Boron Steel GMAW Lap Joint***
		Ramakrishna P. Koganti, Ford Motor Co.
11:30 a.m.	***2007-01-0635***	***Accelerated Life Test to Predict Fatigue Life of Small Manual Steering Gearbox***
		Hari Srinivas Babu Aggarapu; Swapnil Rangrao Salunkhe, Tata Motors, Ltd.
12:00 p.m.	***2007-01-0637***	***High Temperature Application Accelerated Cycle Life Test for 12 Volt Lead-Acid SLI Automotive Storage Batteries***
		Robert G. Gruenstern, Eric Marvin Taylor, Johnson Controls Inc.
	2007-01-0638	***Transient Dynamic Analysis of Suspension System for Component Fatigue Life Estimation (Written Only -- No Oral Presentation)***
		Jaychandar Muthu, Ramarajan Ilankamban, Jyoti Mukherjee, Oskar Rozalski, Ford Motor Co.

The papers in this session are available in a single publication, SP-2062, and also individually.

Planned by Accelerated Testing Conference General Committee / General Planning Committees (Natl. Mtgs)

Tuesday, April 17

AHSS Development for Automotive Applications

Session Code: ***M29-12***

Room TBD ***Session Time:*** ***9:30 a.m.***

Panelists - *David K. Matlock, John G. Speer, Colorado School of Mines*

Tuesday, April 17

Workshop on Advanced High Strength Steels (AHSS) Development and Automotive Applications (Part 1 of 2)

Session Code: ***M29***

Room W1-51 ***Session Time:*** ***9:00 a.m.***

The main aim is to provide the materials application engineers and design engineers in the automotive community with a comprehensive overview of the AHSS, their utility and manufacturability, and their performance and applications in automotive structures. Hence, the emphasis will be more on the knowledge gained than on the challenges ahead. The presentation will cover four broad themes (tentative and somewhat overlapping), namely AHSS Materials Development, Materials Selection, Manufacturing, Vehicle/Component Design Applications.

Organizers - *Raj Mohan Iyengar, Severstal North America Inc.*

Chairpersons - *Donald L. Jordan, Ford Motor Co.; Raj Mohan Iyengar, Severstal North America Inc.*

Time	***Paper No.***	***Title***
9:00 a.m.	***ORAL ONLY***	***Keynote Address: Challenge of Introducing Advanced High Strength Steel in Car Bodies***
		Bruno Barthelemy, Ford Motor Co.
9:30 a.m.	***Panel***	***AHSS Development for Automotive Applications***
		Panelists - *David K. Matlock, John G. Speer, Colorado School of Mines*

9:45 a.m.	***Panel***	***Forming Parts from Dual Phase Steel*** ***Panelists -*** *James R. Fekete, Gary Telleck, Ken Schmid, David J. Meuleman, General Motors Corp.*
10:00 a.m.	***Panel***	***Challenges of AHSS in Manufacturing and Laser Applications as the Proven Solutions*** ***Panelists -*** *Klaus Loeffler, Trumpf Inc.*
10:15 a.m.	***Panel***	***Advances in Hydroforming of AHSS Components*** ***Panelists -*** *Harjinder Singh, Schuler Hydroforming Inc.*
10:30 a.m.	***Panel***	***Hot-Stamped Boron Steels for Automotive Applications*** ***Panelists -*** *Bruce G. Fedewa, Gestamp Hardtech; Raj Mohan Iyengar, Severstal North America Inc.*
10:45 a.m.	***Panel***	***New Tool Steels for Hot Stamping and Cutting of AHSS and UHSS Sheets*** ***Panelists -*** *Isaac Valls, ROVALMA S.A.*
11:00 a.m.	***Panel***	***Determination of Thermal and Mechanical Material Properties for Hot Stamping Processes of Ultra High Strength Steels*** ***Panelists -*** *M. Geiger, Jürgen Lechler, Marion Merklein, Lehrstuhl fur Fertigungstechnologie*
11:15 a.m.	***Panel***	***Failure Mechanisms and Prediction in Stamping Advanced High Strength Steels*** ***Panelists -*** *Z. Cedric Xia, Ford Motor Co.*

Planned by Ferrous Committee / Materials Engineering Activity

Tuesday, April 17

Workshop on Advanced High Strength Steels (AHSS) Development and Automotive Applications (Part 2 of 2)

Session Code: ***M29***

Room W1-51 ***Session Time:*** ***1:30 p.m.***

The main aim is to provide the materials application engineers and design engineers in the automotive community with a comprehensive overview of the AHSS, their utility and manufacturability, and their performance and applications in automotive structures. Hence, the emphasis will be more on the knowledge gained than on the challenges ahead. The presentation will cover four broad themes (tentative and somewhat overlapping), namely AHSS Materials Development, Materials Selection, Manufacturing, Vehicle/Component Design Applications.

Organizers - *Raj Mohan Iyengar, Severstal North America Inc.*

Chairpersons - *Jason J. Coryell, General Motors Corp.; Armando M. Joaquin, Ford Motor Co.; Jon Powers, Severstal North America Inc.; J. P. Singh, DaimlerChrysler Corp.*

Time	***Paper No.***	***Title***
1:30 p.m.	***2007-01-0790***	***Tensile Deformation and Fracture of Press Hardened Boron Steel Using Digital Image Correlation*** *Vesna Savic, Louis Hector, Jr., General Motors Corp.*

2:00 p.m.	***2007-01-0793***	***Effects of Manufacturing Processes and In-Service Temperature Variations on the Properties of TRIP Steels*** *Xin Sun, Elizabeth Stephens, Moe A. Khaleel, Pacific Northwest National Labs*
2:30 p.m.	***2007-01-0792***	***Experimental Characterization of the Strain Rate and Stress State Effects on a TRIP Assisted Multiphase Steel*** *Wael Dabboussi, Jinbo Qu, James Nemes, Stephen Yue, McGill Univ.*
3:00 p.m.	***2007-01-0791***	***Failure Mode Characterization of AHSS in Automotive Seat Structure Assemblies*** *Radesh Vangipuram, Ford Motor Co.*
3:30 p.m.		***BREAK***
3:45 p.m.	***Panel*** ***CANCELLED***	***Lab Advancements in the Representation of the Strain-Rate Behavior of Steel in the Finite-Element Workshop*** ***Panelists -*** *David J. Meuleman, General Motors Corp.*
3:45 p.m.	***Panel***	***Weldability and Performance of Advanced High-Strength Steels (AHSS) in Automotive Structures*** ***Panelists -*** *Zhili Feng, Oak Ridge National Laboratory*
4:00 p.m.	***Panel***	***Fatigue of Advanced High Strength Steels and Welds of AHSS*** ***Panelists -*** *John J. Bonnen, Ford Motor Co.*
4:15 p.m.	***Panel***	***Characterization and Modeling of Strain Rate Effects of High Strength Steel During Impact*** ***Panelists -*** *Srdjan Simunovic, J. Michael Starbuck, Phani. V. V. K. Nukala, Oak Ridge National Laboratory*
4:30 p.m.	***Panel***	***Applications of Computer-Aided Engineering Methods in Designing Light-Weight AHSS Components*** ***Panelists -*** *Srinivasan Laxman, Raj Mohan Iyengar, Severstal North America Inc.*
	2007-01-0794	***Structural Optimization: Achieving a Robust and Light-Weight Design of Automotive Components (Written Only -- No Oral Presentation)*** *Srinivasan Laxman, Raj Mohan Iyengar, Severstal NA Inc.*
	2007-01-0796	***Boron Steels for Superior Durability in Automotive Structures (Written Only -- No Oral Presentation)*** *Srinivasan Laxman, Raj Mohan Iyengar, Severstal NA Inc.; Nigel Brownbill, Kurt Knop, Mark Anthony Amaya, DaimlerChrysler Corp.*

The papers in this session are available in a single publication, SP-2103, and also individually.

Planned by Ferrous Committee / Materials Engineering Activity

Tuesday, April 17

Magnesium Technologies (Part 1 of 3)

Session Code: ***M3***

Room W1-52 ***Session Time:*** ***9:00 a.m.***

Research and development of magnesium alloys for automotive applications have received renewed interest in recent years. This is particularly shown in both the quantity and the quality of Mg-related technical papers submitted to SAE for this congress. In this Magnesium Technologies session, we have selected some of the top-notch submissions from various areas, including fundamental studies of new high-temperature alloys, electrochemistry of creep-resistant alloys, new joining technologies, newly developed Mg composite materials, a new process for making Mg wheels, as well as FEA simulation of bolt-loading. Mg alloys are seen to have great future in enhancing fuel efficiency and improving vehicle performance, and this is detailed in a USAMP paper on the future development plan for Mg, Vision 2020.

Organizers - *Zi-Kui Liu, Pennsylvania State Univ.; Bob R. Powell, General Motors Corp.; Wenyue Zheng, CANMET*

Time	***Paper No.***	***Title***
9:00 a.m.	***2007-01-1024***	***Thermodynamics and Its Applications through First-Principles Calculations and CALPHAD Modeling***
		Zi-Kui Liu, Pennsylvania State Univ.
9:30 a.m.	***2007-01-1025***	***The Mg-Al-Ca Alloy System for Structural Applications at Elevated Temperatures***
		Akane Suzuki, Nicholas Saddock, Jessica TerBush, J. Wayne Jones, Tresa Pollock, Univ. of Michigan; Bob Powell, General Motors Corp.
10:00 a.m.	***2007-01-1027***	***Permanent Mold Casting and Creep Behavior of Mg - 4 Al - 4 X: (Ca, Ce, La, and Sr) Alloys***
		Nicholas D. Saddock, Akane Suzuki, Jessica TerBush, Univ. of Michigan; Jake Zindel, John Allison, Ford Motor Co.; Tresa Pollock, J. Wayne Jones, Univ. of Michigan
10:30 a.m.	***ORAL ONLY***	***Microstructure, Creep and Bolt Load Retention of Die-Cast Magnesium Alloys***
		Jessica TerBush, Akane Suzuki, Vineet Hingwe, Chris Torbet, Tresa Pollock, J. Wayne Jones, Univ. of Michigan
11:00 a.m.	***2007-01-1032***	***Finite Element Simulation of Bolted Joints and Magnesium Bolt-load Retention Behaviour***
		Guowu Shen, Su Xu, CANMET
11:30 a.m.	***2007-01-1028***	***Magnesium Matrix Composites for Elevated Temperature Applications***
		Jason Lo, Raul Santos, CANMET

The papers in this session are available in a single publication, SP-2108, and also individually.

Planned by Non-Ferrous Committee / Materials Engineering Activity

Tuesday, April 17

Magnesium Technologies (Part 2 of 3)

Session Code: ***M3***

Room W1-52 ***Session Time:*** ***1:30 p.m.***

Research and development of magnesium alloys for automotive applications have received renewed interest in recent years. This is particularly shown in both the quantity and the quality of Mg-related technical papers submitted to SAE for this congress. In this Magnesium Technologies session, we have selected some of the top-notch submissions from various areas, including fundamental studies of new high-temperature alloys, electrochemistry of creep-resistant alloys, new joining technologies, newly developed Mg composite materials, a new process for making Mg wheels, as well as FEA simulation of bolt-loading. Mg alloys are seen to have great future in enhancing fuel efficiency and improving vehicle performance, and this is detailed in a USAMP paper on the future development plan for Mg, Vision 2020.

Organizers - *Zi-Kui Liu, Pennsylvania State Univ.; Bob R. Powell, General Motors Corp.; Wenyue Zheng, CANMET*

Time	***Paper No.***	***Title***

1:30 p.m.	***ORAL ONLY***	***The USAMP Magnesium Powertrain Cast Components Project: Casting and Testing the Magnesium Intensive Engine***
		Joy Adair Hines, Ford Motor Co.
2:00 p.m.	***2007-01-1035***	***Design and Production of Mg Wheels in China***
		Siyuan Long, S. Xu, F. E. Li, J. Zha, Chongqing Univ.
2:30 p.m.	***2007-01-1023***	***Examination of the Corrosion Behavior of Creep-Resistant Magnesium Alloys in an Aqueous Environment***
		Brian Joseph Schneider, Robert C. McCune, Mark Ricketts, Joy Adair Hines, Ford Motor Co.
3:00 p.m.	***2007-01-1034***	***Design Guidelines for Components Die Cast in Creep-Resistant Magnesium Alloys MRI153M and MRI230D***
		N. Moscovitch, German Gertsberg, N. Nagar, Nick Fantetti, Boris Bronfin, Dead Sea Magnesium, Ltd.
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-1031***	***Magnesium Powertrain Mount Brackets: New Application of Material Being used in this Sub-System for Vehicle Mass Reduction***
		Clayton Andrew Maas, Michael Champrenault, Paulstra CRC - Hutchinson; Jack Cunningham, General Motors - Chassis Engineering
4:15 p.m.	***2007-01-1030***	***Crystal Plasticity Modeling of the Slip Systems Activity in Mg Alloys at Higher Temperatures***
		Mohsen Shahi, James Nemes, McGill Univ.
4:45 p.m.	***2007-01-1026***	***Friction Stir Welding of Dissimilar Magnesium Alloys for Automotive Applications***
		Frank W. Hunt, Qi Yang, Harsha Badarinarayan, Kazutaka Okamoto, Diana Platt, Hitachi America, Ltd.

The papers in this session are available in a single publication, SP-2108, and also individually.

Planned by Non-Ferrous Committee / Materials Engineering Activity

Tuesday, April 17

Experiments in Automotive Engineering (Part 4 of 8) - Experimental and Applied Mechanics

Session Code: ***M19***

Room W1-54 A ***Session Time:*** ***9:00 a.m.***

Program Chairs - Lianxiang Yang, Oakland Univ.; Darryl Taylor, Kah Wah Long, DaimlerChrysler Corp.

The session 'Experiments in Automotive Engineering - Part 1, Experimental and Applied Mechanics' focuses on the application of experimental methods and applied mechanics in automotive engineering. The presentations address sensor and transducer design, as well as case studies of hybrid approaches using experimental, numerical and analytical techniques.

Organizers - *Kenneth Mark Citrin, DaimlerChrysler Corp.; Hong Tae Kang, Univ. of Michigan-Dearborn*

Time	***Paper No.***	***Title***
9:00 a.m.	***2007-01-0995***	***Prestrain Effect on Fatigue of DP600 Sheet Steel***
		Q. Le, Hong Tae Kang, Univ. of Michigan-Dearborn; Abolhassan K. Khosrovaneh, Chung-Yeh Sa, General Motors Corp.; Benda Yan, Arcelor Mittal Steel

9:30 a.m.	***2007-01-0996***	***Uniaxial Tension and Cyclic Deformation Behavior of Steel/Zinc Laminated Composites***
		Xu Ran, Changchun Univ.; X. J. Bao, Earthquake Bureau of Jilin Province; P. A. Wu, Z. Y. Cao, Jilin Univ.
10:00 a.m.	***2007-01-0997***	***Global Failure Criteria for SOFC Positive/Electrolyte/Negative (PEN) Structure***
		Wenning Liu, Xin Sun, Moe A. Khaleel, Pacific Northwest National Labs; Jianmin Qu, Georgia Inst. of Technology
10:30 a.m.	***2007-01-0998***	***Study on the Properties of Materials with Non-Smooth Surfaces Processed by Laser***
		L. Chen, Y. Zhao, H. Wu, Changchun Univ. of Technology
11:00 a.m.	***2007-01-0999***	***Identification of Damage Parameters Using Virtual Fields Method and Finite Element Model Updating***
		Li Li, Sunghan Lee, Faouzi Ghrib, Univ. of Windsor
11:30 a.m.	***2007-01-1000***	***Sound Radiation Efficiency Research of Engine Parts by the Discrete Calculation Method***
		Ge-Qun Shu, Xingyu Liang, Yang-jun Wang, Rui Han, Tianjin Univ.

The papers in this session are available in a single publication, SP-2094, and also individually.

Planned by Materials Modeling and Testing Committee / Materials Engineering Activity

Tuesday, April 17

Evaluation of Studies on Non-Deterministic Approaches (NDA) for Complex Systems Panel

Session Code: ***M23***

Room W1-54 A ***Session Time:*** ***1:30 p.m.***

Non-deterministic analysis and design projects should be carefully evaluated before the results and recommendations of these studies are used to make decisions. Developing a comprehensive and structured evaluation approach is critical for the success of NDA. This evaluation approach should examine if the nondeterministic study addressed all important issues, framed the problem properly, employed the most suitable methodologies, identified the sources of potential errors and verified and validated the results. The objective of the panel is to present the perspectives of experts from the industry, national labs and the academia on the evaluation of NDA's results for reliability-based design of complex systems and then let the audience discuss this issue. Specifically, the following topics could be discussed: How do we evaluate a complex reliability analysis results? Roles of peer and independent reviews; Roles of technical expertise and experience in the reliability evaluation; Human subjectivity role; Organizational aspects.

Organizers - *Dan M. Ghiocel, GP Technologies Inc.; Efstratios Nikolaidis, Univ. of Toledo*

Panelists - *Mary Fortier, General Motors Corp.; David J. Gorsich, US Army TACOM; Roger Logan, Lawrence Livermore National Lab.; Gene Rogers, Boeing Co.*

Planned by Materials Modeling and Testing Committee / Materials Engineering Activity

Tuesday, April 17

Reliability and Robust Design in Automotive Engineering (Part 5 of 14) - Part 5A - Design for Six Sigma

Session Code: ***M18***

Room W1-54 B ***Session Time:*** ***9:00 a.m.***

Program Chairs: Zissimos Mourelatos, Oakland Univ.; Yung-Li Lee, DaimlerChrysler; Efstratios Nikolaidis, Univ. of Toledo; Ren-Jye Yang, Ford Motor Co.; Yih-Chyun Sheu, General Motors Corp.

Design for Six Sigma (DFSS) is a powerful engineering process for designing robust, high quality products that consistently meet or exceed customers' expectations. This session will address new technical advances in DFSS and provide valuable insight into its application through the presentation of significant real-world case studies.

Organizers - *Yih-Chyun Sheu, General Motors Corp.; Richard T. Amori, Ford Motor Co.; Robert V. Lust, General Motors Corp.; Matthew Hu, ASI; Catherine Ling, General Motors Corp.*

Chairpersons - *Robert V. Lust, Gary Blair, General Motors Corp.; Wen X. Yuan, Beijing Hyundai Motor Co.*

Time	Paper No.	Title
9:00 a.m.	***ORAL ONLY***	***DFSS as a Corporate Strategy***
		Shin Taguchi, ASI Consulting LLC
9:30 a.m.	***2007-01-0797***	***Quality Loss Function - Common Methodology for Nominal-The-Best, Smaller-The-Better, and Larger-The-Better Cases***
		Naresh Sharma, Kenneth M. Ragsdell, Univ. of Missouri-Rolla
10:00 a.m.	***2007-01-0798***	***A Study on Optimization of the Multi-Function Drive Plate for High Performance Engine***
		Pilsung Jang, Jaehoon Oh, Sungwon Shin, Jinwoo Park, Gyuhwan Kim, Chunseok Jeon, Daeheung Moon, Hyundai Motor Co.
10:30 a.m.	***2007-01-0799***	***Innovative Six Sigma Design Using the Eigenvector Dimension-Reduction (EDR) Method***
		Lee Wells, Byeng Dong Youn, Zhimin Xi, Michigan Technological Univ.
11:00 a.m.	***2007-01-0800***	***Improving a Vehicle Theft Deterrent System's Communication Using Design for Six Sigma (DFSS)***
		William Anthony Biondo, Jill M. Griffin, General Motors Corp.
11:30 a.m.	***2007-01-0994***	***The Study of the Parameter of Roof Rack and Cross Bar for the Reduction of Wind Noise***
		DaeSeok Jeong, Changoan Woo, Wooyoun Geum, Hyundai Motor Co.

The papers in this session are available in a single publication, SP-2071 and SP-2119, and also individually.

Planned by Materials Modeling and Testing Committee / Materials Engineering Activity

Tuesday, April 17

Reliability and Robust Design in Automotive Engineering (Part 6 of 14) - Part 5B - Design for Six Sigma

Session Code: ***M18***

Room W1-54 B ***Session Time:*** ***1:30 p.m.***

Program Chairs: Zissimos Mourelatos, Oakland Univ.; Yung-Li Lee, DaimlerChrysler; Efstratios Nikolaidis, Univ. of Toledo; Ren-Jye Yang, Ford Motor Co.; Yih-Chyun Sheu, General Motors Corp.

Design for Six Sigma (DFSS) is a powerful engineering process for designing robust, high quality products that consistently meet or exceed customers' expectations. This session will address new technical advances in DFSS and provide valuable insight into its application through the presentation of significant real-world case studies.

Organizers - *Yih-Chyun Sheu, General Motors Corp.; Rick Amori, Ford Motor Co.; Robert V. Lust, General Motors Corp.; Matthew Hu, ASI; Catherine Ling, General Motors Corp.*

Chairpersons - *Rick Amori, Ford Motor Co.; Brian Timmermann, General Motors Corp.*

Time	Paper No.	Title
1:30 p.m.	***2007-01-0990***	***The Study for the Improvement of On-Center Feel with MTS Technique***
		Injin Hwang, Youngjin Hyun, Joonhong Park, Hyundai Motor Co.
2:00 p.m.	***2007-01-0991***	***DCOV Approach to Probability of Missed Message on High Speed CAN in Automotive Applications***
		Milos Milacic, Ford Motor Co.

2:30 p.m.	***2007-01-0992***	***Development of a Robust Design Approach for Occupant Protection Performance in Frontal Impact using Design for Six Sigma***
		Jun Hsu, Anwer Yasin, Ayako Kunihiro, Engineous Japan Inc.; Hiroshige Nagumo, Toumaru Tajima, Kousei Sugimoto, Nissan Motor Co., Ltd.
3:00 p.m.	***2007-01-0993***	***Simple, Closed-form Expressions Relating Long-term (Z Score) and Short-term (Defects per Opportunity) Variability***
		Steven W. Reagan, Ford Motor Co., Ltd.

The papers in this session are available in a single publication, SP-2071 and SP-2119, and also individually.

Planned by Materials Modeling and Testing Committee / Materials Engineering Activity

Tuesday, April 17

Fatigue Research and Applications (Part 3 of 3)

Session Code: ***M8***

Room W1-55 A ***Session Time:*** ***9:00 a.m.***

The second day of the Fatigue Research and Applications session covers the testing and analysis of fusion welds and bolted joints. This session is a mixture of presented papers and panel discussions. It is co-sponsored with the SAE Fatigue Design and Evaluation Committee.

Organizers - *John J. Bonnen, Ford Motor Co.; Russell A. Chernenkoff, Ford Research Laboratory; Chin-Chan Chu, Ford Motor Co.; Jackie D. Rehkopf, Exponent Inc.*

Time	***Paper No.***	***Title***
9:00 a.m.	***ORAL ONLY***	***Henry Fuchs Award Invited Presentation***
		Tba
9:30 a.m.	***2007-01-0807***	***Influences of Various Factors of Bolt Tightening on Loosening-Fatigue Failure under Transverse Vibration***
		Shinji Hashimura, Kurume National College of Technology
10:00 a.m.	***ORAL ONLY***	***Bolt Fatigue Panel***
		Darryl S. Taylor, DaimlerChrysler Motors
10:30 a.m.	***ORAL ONLY***	***Fatigue of Thin-Walled SAE 1010 Square Tubes with a Transverse Weld under As-welded, Shot-peened, and Laser-peened Conditions***
		Ralph I. Stephens, Univ. of Iowa
11:00 a.m.	***ORAL ONLY***	***Weld Fatigue Panel***
		John J. Bonnen, Ford Motor Co.

The papers in this session are available in a single publication, SP-2103, and also individually.

Planned by Ferrous Committee / Materials Engineering Activity

Tuesday, April 17

Innovations in Steel Bar Products and Processing

Session Code: ***M7***

Room W1-55 A ***Session Time:*** ***1:30 p.m.***

There continues to be an emphasis on the pursuit of applications that reduce cost and promote durability in many areas of bar steel related components. This includes the continued development of microalloyed steels that can be processed without the need for heat treatment but still meet the demanding requirements for use in engine, transmission or suspension applications. In addition, the advent of new processing techniques (e.g. vacuum carburizing) and modifications to steel grade compositions with an understanding of subsequent fatigue behavior can contribute to eventual cost savings and potential weight reduction without compromising the durability of the component.

Organizers - *David W. Anderson, American Iron and Steel Institute; Peter C. Bauerle, DaimlerChrysler Corp.*

Time	Paper No.	Title
1:30 p.m.	2007-01-1005	**Effects of Silicon and Boron Additions on the Susceptibility to Quench Embrittlement and the Bending Fatigue Performance of Vacuum Carburized Modified 4320 Steel** *Jason J. Spice, Colorado School of Mines; Harry M. Meyer, Oak Ridge National Lab.; John G. Speer, George Krauss, David K. Matlock, Colorado School of Mines*
2:00 p.m.	2007-01-1003	**New Bainitic Steels for High Strength Components for Automotive Parts** *Bernard Resiak, Marie-Therese Perrot-Simonetta, Mario Confente, Mittal Steel Co. R&D*
2:30 p.m.	2007-01-1001	**Fatigue Performance of Forged Steel and Ductile Cast iron Crankshafts** *Jonathan Ryan Williams, Ali Fatemi, Univ. of Toledo*
3:00 p.m.	2007-01-1004	**Development of Microalloyed Steel for Fracture Split Connecting Rod** *Shinichiro Kato, Takashi Kano, Makoto Hobo, Daido Steel Co., Ltd.; Yuuichi Yamada, Tomonori Miyazawa, Yoshio Okada, Nissan Motor Co., Ltd.*
3:30 p.m.		**BREAK**
3:45 p.m.	2007-01-1007	**The Fatigue Performance of High Temperature Vacuum Carburized Nb Modified 8620 Steel** *R. E. Thompson, David K. Matlock, John G. Speer, Colorado School of Mines*
4:15 p.m.	2007-01-1002	**Development of High Strength, Fracture Split Steel Connecting Rods** *Chang Ku Lee, Young Sang Ko, Sung Hwan Kim, Hyoun Soo Park, Jong Dae Lim, Hyundai Motor Co.*
4:45 p.m.	2007-01-1006	**Investigation of S-N Test Data Scatter of Carburized 4320 Steel** *Hong Lin, Gregory A. Fett, Robert R. Binoniemi, Dana Corp.; James A. Sanders, David K. Matlock, George Krauss, Colorado School of Mines*

The papers in this session are available in a single publication, SP-2103, and also individually.

Planned by Ferrous Committee / Materials Engineering Activity

Tuesday, April 17

Modeling, Testing and Design of Materials for Dummies and Structures for Crash Safety Applications (Part 1 of 2)

Session Code: ***M17***

Room W1-55 B ***Session Time:*** ***9:00 a.m.***

This session will discuss recent developments in material models and tests, dummies, seat and occupant system models for impact analysis.

Organizers - *Sheng-Dong Liu, Generalety LLC; Jwo Pan, Univ. of Michigan-Ann Arbor; Tau Tyan, Ford Motor Co.*

Time	Paper No.	Title
9:00 a.m.	2007-01-0981	**Testing and Finite Element Modeling of Hydroform Frames in Crash Applications** *Meagan Gonzalez-Noble, Miinshiou Huang, Tau Tyan, Leonard A. Shaner, Ford Motor Co.; Omar Ghouati, Horst Lanzerath, Ford Research and Advanced Engineering; Binghua Wu, Barry Dombek, Dana Corp.*

9:30 a.m.	***2007-01-0986***	***The Effects of Hydroforming on the Mechanical Properties and Crush Behaviors of Aluminum Tubes***
		Sung-tae Hong, Curt A. Lavender, Pacific Northwest National Labs; John R. Boughton, Kurt Knop, Allan McGowan, David Skilton, DaimlerChrysler Corp.
10:00 a.m.	***2007-01-0980***	***Effect of Element Size and Pre-deformation on Unsafe Zone Structural Finite Element Analyses***
		Jianmin Zhang, Stephen Lambrecht, Lear Corp.
10:30 a.m.	***2007-01-0987***	***An Improved Test Procedure for Measurement of Dynamic Tensile Mechanical Properties of Automotive Sheet Steels***
		P. K. C. Wood, C. A. Schley, Univ. of Warwick; Michael Buckley, Jaguar & Land Rover; Jez Smith, ARRK Technical Services
11:00 a.m.	***2007-01-0978***	***Mass Efficient Cross-Sections Using Dual Phase Steels for Axial and Bending Crushes***
		Guofei Chen, Ming F. Shi, U.S. Steel Corp.; Tau Tyan, Ford Motor Co.
11:30 a.m.	***2007-01-0982***	***Implicit and Explicit Finite Element Methods for Crash Safety Analysis***
		J. Michael Chang, Tau Tyan, Marwan El-Bkaily, James Cheng, Ford Motor Co.; Amar Marpu, Qiang Zeng, Julien Santini, Altair Engineering Inc.

The papers in this session are available in a single publication, SP-2095, and also individually.

Planned by Materials Modeling and Testing Committee / Materials Engineering Activity

Tuesday, April 17

Modeling, Testing and Design of Materials for Dummies and Structures for Crash Safety Applications (Part 2 of 2)

Session Code: ***M17***

Room W1-55 B ***Session Time:*** ***1:30 p.m.***

This session will discuss recent developments in material models and tests, dummies, seat and occupant system models for impact analysis.

Organizers - *Sheng-Dong Liu, Generalety LLC; Jwo Pan, Univ. of Michigan-Ann Arbor; Tau Tyan, Ford Motor Co.*

Time	***Paper No.***	***Title***
1:30 p.m.	***2007-01-0977***	***A Comparison of the Kinematics of a Child Finite Element Model and the Hybrid III 3-Year-Old Dummies in Frontal Crashes***
		Wencheng Zhang, Tanya Kapoor, Miroslav Tot, William J. Altenhof, Univ. of Windsor; Andrew Howard, The Hospital for Sick Children; Koji Mizuno, Nagoya Univ.
2:00 p.m.	***2007-01-0988***	***Approaches to Modeling the Dynamic Interaction for an Automotive Seat and Occupant System***
		Gurunath Vemulakonda, Ben-Ren Tang, R. Jayachandran, Deborah Wan, Sarbasubha-Guha Thakurta, J. Michael Chang, Tau Tyan, James C. Cheng, Jiamaw Doong, Leonard A. Shaner, Ford Motor Co.; Dilip M. Bhalsod, Livermore Software Technology Corp.
2:30 p.m.	***2007-01-0984***	***Modeling of Adhesively Bonded Joints Using Solid Cohesive Interface Element***
		Xinran Xiao, General Motors Corp.

3:00 p.m.	***2007-01-0983***	***Failure Loads of Spot Friction Welds in Aluminum 6111-T4 Sheets under Quasi-Static and Dynamic Loading Conditions***
		Van-Xuan Tran, Pai-Chen Lin, Jwo Pan, Univ. of Michigan; Tsung-Yu Pan, Tau Tyan, Ford Motor Co.
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-0985***	***Crush Characteristics of AA6061-T6 Round Tubes During a Cutting Deformation Mode***
		Shun Yi Jin, William J. Altenhof, Univ. of Windsor
4:15 p.m.	***2007-01-0979***	***Macroscopic Constitutive Behaviors of Aluminum Honeycombs Under Dynamic Inclined Loads***
		Sung-tae Hong, Pacific Northwest National Labs; Jwo Pan, Univ. of Michigan-Ann Arbor; Tau Tyan, Priya Prasad, Ford Motor Co.
4:45 p.m.	***ORAL ONLY***	***Stochastic Simulations for Energy Absorption Material in Head Impact Analysis/Test***
		Keshavlal Rathi, General Motors Corp.
	2007-01-0989	***Failure Prediction of Boron Steels in Crash (Written Only -- No Oral Presentation)***
		Horst H. Lanzerath, Aleksandar Bach, Ford Research & Advanced Engineering Europe; Gernot Oberhofer, Helmut Gese, MATFEM

The papers in this session are available in a single publication, SP-2095, and also individually.

Planned by Materials Modeling and Testing Committee / Materials Engineering Activity

Tuesday, April 17

Vehicle Dynamics and Simulation (Part 1 of 5): Vehicle Dynamics and Control

Session Code: ***AC3***

Room W2-62 ***Session Time:*** ***9:00 a.m.***

This session includes research done on the development of ESC brake control methods to reduce the rollover propensity of SUV's. Simulation results that include roll stability control functions will be presented.

Organizers - *Mohamed Kamel Salaani, Transportation Research Center Inc.; W. Riley Garrott, National Hwy Traffic Safety Admin; Gary J. Heydinger, SEA, Ltd.; Mark Heitz, Janice K. Cooper, Transportation Research Center Inc.*

Chairpersons - *Mark Heitz, Transportation Research Center Inc.; W. Riley Garrott, National Hwy Traffic Safety Admin*

Time	***Paper No.***	***Title***
9:00 a.m.	***2007-01-0820***	***Vehicle Mass Estimator Design for Adaptive Roll Stability Control***
		Kunsoo Huh, Jongchul Jung, Daegun Hong, Hanyang Univ.; Sunghyun Lim, LG Electronics; Sangoh Han, Kwangjin Han, Hanyang Univ.; Hee Young Jo, Jae Min Yun, Hyundai Motor Co.
9:30 a.m.	***2007-01-0813***	***Virtual Development and Application of Chassis Components and Chassis Controls at GM Europe***
		Henning Holzmann, Christoph Halfmann, Karl Hahn, Michael Kochem, GM Europe Engineering
10:00 a.m.	***2007-01-0811***	***Vehicle Trajectories Modeling for Loss Control Evaluation***
		Abdourahmane Koita; Victor Dolcemascolo; Mohamed Bouteldja; Anna Maria Caucci

10:30 a.m.	***2007-01-0832***	***Integration of Kinematics and Compliance Measurement with Vehicle Dynamics Validation for a Shared Platform***
		Ming Une Jen, Ming-Hung Lu, Industrial Technology Research Inst.
11:00 a.m.	***2007-01-0814***	***Development and Verification of Suspension Parameters for The Ohio State Buckeye Bullet 2 Land Speed Vehicle***
		Benjamin John Wright, Ohio State Univ.; Gary J. Heydinger, SEA, Ltd.; Dennis A. Guenther, Ohio State Univ.

The papers in this session are available in a single publication, SP-2138, and also individually.

Planned by Steering, Chassis and Suspension Committee / Automobile Chassis Activity

Tuesday, April 17

Vehicle Dynamics and Simulation (Part 2 of 5): Tire Forces/Moments and Vehicle Stability

Session Code: ***AC3***

Room W2-62 ***Session Time:*** ***1:30 p.m.***

In this tire session, a new validated analytical tire model will be introduced with a generous supply of data supply for different tires. Experimental work on the influence effect influence of tire de-treading on vehicle directional stability will be presented, along with a statistical analysis of the effect of oversize tires on vehicle dynamics and crash risk of light duty trucks.

Organizers - *Mohamed Kamel Salaani, Transportation Research Center Inc.; W. Riley Garrott, National Hwy Traffic Safety Admin; Mark Heitz, Transportation Research Center Inc.; Gary J. Heydinger, SEA, Ltd.; Janice K. Cooper, Transportation Research Center Inc.*

Chairpersons - *W. Riley Garrott, National Hwy Traffic Safety Admin; Mark Heitz, Transportation Research Center Inc.*

Time	***Paper No.***	***Title***
1:30 p.m.	***2007-01-0830***	***Method for Sensing Tire Force in Three Directional Components and Vehicle Control Using This Method***
		Motoshi Suzuki, ADVICS Co., Ltd.; Keita Nakano, ADVICS Co.,Ltd; Akihiro Miyoshi, Sumitomo Rubber Industries, Ltd.; Akira Katagiri, Tokai Rubber Industries, Ltd.; Miwa Kunii, Sumitomo Electric Industries, Ltd.
2:00 p.m.	***2007-01-0816***	***Analytical Tire Forces and Moments Model with Validated Data***
		Mohamed Kamel Salaani, Transportation Research Center Inc.
2:30 p.m.	***2007-01-0836***	***An Analysis of Yaw Inducing Drag Forces Imparted During Tire Tread Belt Detachments***
		Donald F. Tandy, Kenneth Tandy, Nicholas Durisek, Kevan Granat, Tandy Engineering & Associates Inc.; Robert Pascarella; Lee Carr, Robert Liebbe, Carr Engineering Inc.
3:00 p.m.	***2007-01-0829***	***A Simplified Motorcycle Model***
		Bharat Arvind Rajput, TVS Motor Co., Ltd.; Martin Thomas Bayliss; David Crolla, Univ. of Leeds
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-0837***	***Comparison of Methods to Improve Camber Using a Modelica/Dymola Multi-Body Model***
		Andrew Woodruff, Modelon AB; Brian Surgenor, Queen's Univ.; Christian Knobel, BMW Group Research and Technology

	2007-01-0846	***Comparative Dynamic Analysis of Tire Tread Belt Detachments and Stepped Diameter ("Lumpy") Tires (Written Only -- No Oral Presentation)***
		Nicholas J. Durisek, Donald Tandy, Kevan Granat, Kenneth Tandy, Tandy Engineering & Associates Inc.; Robert Pascarella; Lee Carr, Carr Engineering Inc.
	2007-01-0847	***The Effect of Oversize Tires on Vehicle Dynamics and Crash Risk of Light-Duty Trucks (Written Only -- No Oral Presentation)***
		Daniel D. Filiatrault, Peter J. Cooper, M. Reza Ghaeli, Ming Fang, Insurance Corp. of British Columbia

The papers in this session are available in a single publication, SP-2138, and also individually.

Planned by Steering, Chassis and Suspension Committee / Automobile Chassis Activity

Tuesday, April 17

Steering and Suspension Technology Symposium - Suspensions (Part 1 of 2)

Session Code: ***AC2***

Room W2-63 ***Session Time:*** ***9:00 a.m.***

The Suspension Session for the 2007 Congress has a diverse range of papers. There are two papers presenting practical methods for developing suspensions using methods that are uncommon and possibly novel. One involves using the principal elastic axis to understand how to better reach targets. The other uses eigenvectors to finding the roll and pitch centers.

Organizers - *Paul O. Davis, Ford Motor Co.; Robert J. Ackley, Delphi Chassis Systems*

Time	***Paper No.***	***Title***
9:00 a.m.	***2007-01-0857***	***Development of Suspension Design Technology Applying Principal Elastic Axes***
		Kazuhiro Nishimura, Takashi Nozawa, Toyota Motor Corp.
9:30 a.m.	***2007-01-0859***	***An Eigenvector Approach to Roll Centre Analysis***
		B.P. Minaker, Nathan Nantais, Univ. of Windsor
10:00 a.m.	***2007-01-0855***	***Shock Absorber Modeling and Experimental Testing***
		Aldo Sorniotti, Nicolò D'Alfio, Andrea Morgando, Politecnico di Torino
10:30 a.m.	***2007-01-0858***	***Efficient Empirical Modeling of a High-Performance Shock Absorber for Vehicle Dynamics Studies***
		Christopher M. Boggs, Mehdi Ahmadian, Virginia Tech.
11:00 a.m.	***2007-01-0854***	***Direct Measurement of the Dynamic Side Forces on the Automotive Suspension Strut***
		Seung-Hoon Choi, Man-Joon Lee, Mando Corp.; Jae-Keun Park, Je-Su Park, Sung-Soo Park, CAS Ltd.

The papers in this session are available in a single publication, SP-2128, and also individually.

Planned by Steering, Chassis and Suspension Committee / Automobile Chassis Activity

Tuesday, April 17

Steering and Suspension Technology Symposium - Suspensions (Part 2 of 2)

Session Code: ***AC2***

Room W2-63 ***Session Time:*** ***1:30 p.m.***

The Suspension Session for the 2007 Congress has a diverse range of papers. There are two papers presenting practical methods for developing suspensions using methods that are uncommon and possibly novel. One involves using the principal elastic axis to understand how to better reach targets. The other uses eigenvectors to finding the roll and pitch centers.

Organizers - *Paul O. Davis, Ford Motor Co.; Robert J. Ackley, Delphi Chassis Systems*

Time	Paper No.	Title
1:30 p.m.	***2007-01-0856***	***A Review of Automated Design Synthesis Approaches for Virtual Development of Ground Vehicle Suspensions***
		Yuping He, Univ. of Ontario; John McPhee, Univ. of Waterloo
2:30 p.m.	***2007-01-0850***	***Next Generation of Suspension Bushings: Review of Current Technologies and Expansion Upon New 3rd Generation Product Data***
		Boris Piquet, Paulstra Vierzon SNC - Hutchinson; Clayton Andrew Maas, Florent Capout, Paulstra CRC - Hutchinson
3:00 p.m.	***2007-01-0849***	***Multidimensional Optimization of the Steered Wheel Multi-Link Suspension System***
		Jozef Struski, Cracow Univ. of Technology; Wojciech Wach, Inst. of Forensic Research
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-0853***	***Fatigue Strength Evaluation for the Leaf Spring of Commercial Vehicle Considering U Bolt Fixing Force***
		Seungwon Yoo, Jongchan Park, Junghwan Lim, Hyundai Motor Co.
4:15 p.m.	***2007-01-0852***	***A Flexible Multi-body Dynamic Model for Analyzing the Hysteretic Characteristic and the Dynamic Stress of a Taper Leaf Spring***
		Il Dong Moon, Hyundai-Kia Motor; Gi tae Kim, Jung hwan Lim, Yongseo Hwang, Hyundai Motor Co.; Chae youn Oh, Chonbuk National Univ.
	2007-01-0861	***A New Hybrid (Bi-Fuel) Vehicle Suspension Development (Written Only -- No Oral Presentation)***
		Behzad Hamedi, Iran Khodro Automobiles, KNT Univ.; Alexandre Catala, Salvador Cañellas, Applus+ IDIADA; Ali Elahimehr, Tehran Univ.
	2007-01-0863	***The New Twist Beam Axle Design for a Passenger Vehicle (Written Only -- No Oral Presentation)***
		Behzad Hamedi, Iran Khodro Automobiles, KNT Univ.; Jonathan Webb, IDIADA Automotive Technology

The papers in this session are available in a single publication, SP-2128, and also individually.

Planned by Steering, Chassis and Suspension Committee / Automobile Chassis Activity

Tuesday, April 17

Brake Technology (Part 1 of 2): Electro-Mechanical Brakes, Control and Analysis

Session Code: ***AC1***

Room W2-64 ***Session Time:*** ***9:00 a.m.***

This session presents papers in the field of controlled brake systems. Topics illustrate the evolution of controlled brake system architectures, spanning ABS and ESC optimization to electro-mechanical brake systems design. Today these papers, several introducing new concepts, are brought together under a single session, Electro-Mechanical Brakes, Control and Analysis.

Organizers - *Brian L. Boyle, TRW Automotive; David G. Ebert, GM Proving Ground; Paul F. Flanagan, Delphi Corp.; Thomas Fornari, Delphi; Paul S. Gritt, DaimlerChrysler Corp.; Frederik Heineken, Delphi Corp.; Derek F. Hodgson, PBR International USA, Ltd.; Jim Kubokawa, ADVICS North America Inc.; Douglas C. Myers, Visteon Chassis Systems; J. Chris Oakwood, Ford Motor Co.; Robert S. Perkins, Bosch Braking Systems Corp.; Mark T. Riefe, General Motors Corp.; Bangalore Suresh, General*

Dynamics Corp.; George H. Waterman, George Waterman Consulting LLC

Chairpersons - *Paul S. Gritt, DaimlerChrysler Corp.; Frederik Heineken, Delphi Corp.*

Time	Paper No.	Title
9:00 a.m.	***2007-01-0864***	***Driver-Control Interaction of a Curve-Safe Braking Control for Motorcycles***
		Markus Hirsch, Daniel Alberer, Univ. of Linz; Luigi Del Re, Johannes Kepler Univ. Linz; Clemens Schelhaas, KTM Sportmotorcycle
9:30 a.m.	***2007-01-0865***	***Model Predictive Wheel Slip Control System Using Electromechanical Brake Actuators***
		Dae Keun Yoo, Liuping Wang, RMIT Univ.; Dennis Plunkett, PBR Automotive Pty, Ltd.
10:00 a.m.	***2007-01-0867***	***Brake Torque Sensing for Enhancement of Vehicle Dynamics Control Systems***
		Naoto Ohkubo, Takehiro Horiuchi, Osamu Yamamoto, Hiromi Inagaki, Honda R&D Co., Ltd.
10:30 a.m.	***2007-01-0866***	***Modeling and Control of a Single Motor Electronic Wedge Brake***
		J. Fox, R. Roberts, C. Baier-Welt, Siemens AG Siemens VDO Automotive; Lok Man Ho, Siemens AG; L. Lacraru, B. Gombert, Siemens AG Siemens VDO Automotive
11:00 a.m.	***2007-01-0590***	***Simulation Process to Investigate Suspension Sensitivity to Brake Judder***
		Amandeep Singh, Gene R. Lukianov, DaimlerChrysler Corp.
11:30 a.m.	***2007-01-1020***	***Dual Rate Boosters: Analysis, Modeling and Experimental Evaluation of Their Performance***
		Aldo Sorniotti, Mauro Velardocchia, Politecnico di Torino
	2007-01-0868	***Development of Hydraulic Servo Brake System for Cooperative Control with Regenerative Brake (Written Only -- No Oral Presentation)***
		Yasushi Aoki, Kenji Suzuki, Hiroshi Nakano, Kohei Akamine, Honda R&D Co., Ltd.; Shirase Takaomi, Kouji Sakai, Nissin Kogyo Co., Ltd.

The papers in this session are available in a single publication, SP-2070, and also individually.

Planned by Brake Committee / Automobile Chassis Activity

Tuesday, April 17

Brake Technology (Part 2 of 2): Vehicle, Brake Subsystem Performance and NVH

Session Code: ***AC1***

Room W2-64 ***Session Time:*** ***1:30 p.m.***

This session includes technology studies dealing with vehicle level brake system performance issues. Vehicle sensitivity to pulsation/judder, NVH issues, racetrack braking performance, chassis controls robustness development, and vehicle level brake lining performance effects are featured topics. Papers from three OEMs and three major suppliers will be presented. These papers should be of interest to any engineer dealing with overall braking performance and brake QRD issues.

This session also presents papers on brake subsystem performance and their impact on the overall vehicle brake system. The presentation topics focus on specific areas of brake corner and acutation system performance, which include thermo-fluid dynamics, friction material wear, and apply system modeling.

Organizers - *Brian L. Boyle, TRW Automotive; David G. Ebert, GM Proving Ground; Paul F. Flanagan, Delphi Corp.; Thomas Fornari, Delphi; Paul S. Gritt, DaimlerChrysler Corp.; Frederik Heineken, Delphi Corp.; Derek F. Hodgson, PBR International USA, Ltd.; Jim Kubokawa, ADVICS North America Inc.; Douglas C. Myers, Visteon Chassis Systems; J. Chris Oakwood, Ford Motor Co.; Robert S. Perkins, Bosch Braking Systems Corp.; Mark T. Riefe, General Motors Corp.; Bangalore Suresh, General*

Dynamics Corp.; George H. Waterman, George Waterman Consulting LLC

Chairpersons - *David Ebert, GM Product Dev Quality; Derek F. Hodgson, PBR International USA, Ltd.; George Waterman, George Waterman Consulting LLC*

Time	Paper No.	Title
1:30 p.m.	***2007-01-1021***	***Numerical Investigation of Thermal Behavior in Brake Assembly During the ALPINE Braking Mode*** *Mi-Ro Kim, Byung-Jae Ahn, Jong-Min Lee, Young-Kyu Jung, Hyundai Mobis*
2:00 p.m.	***2007-01-0588***	***Diagnosing Brake System Compliance Issues on the Race Track with System Modeling and the Mahalanobis-Taguchi System*** *David B. Antanaitis, General Motors Corp.*
2:30 p.m.	***2007-01-0587***	***Disc Brake Squeal: An Overview*** *Frank Chen, Ford Motor Co.*
3:00 p.m.	***2007-01-0592***	***Eliminating Drum Brake Squeal by a Damped Iron Drum Assembly*** *Snehasis Ganguly, Huanan Tong, Greg Dudley, Ford Motor Co.; Frank Connolly, Stan Hoff, TRW Chassis System*
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-0591***	***Introduction of Anisotropic Lining Elastic Constants Optimization (ALCO) Method for Friction Materials*** *Gang Lou, Li Lee, Brad Malott, Akebono Engineering Center*
4:15 p.m.	***2007-01-1019***	***Prediction of Brake Lining Life Using an Energy-Based CAE Approach*** *Mark Riefe, Erik Yen, General Motors Corp.*
4:45 p.m.	***2007-01-1022***	***Excessive Brake Drum Wear (EBDW) and Its Prevention*** *YJ (Yanjun) Huang, Key Safety Systems Inc.; John (Jianghuai) Yang, The Cold Heading Company*

The papers in this session are available in a single publication, SP-2070, and also individually.

Planned by Brake Committee / Automobile Chassis Activity

Tuesday, April 17

Nanotechnology for Automotive Applications (Part 1 of 2)

Session Code: ***M26***

Room W2-65 ***Session Time:*** ***9:00 a.m.***

Modern automotive customers need safer vehicles with little or no impact to the environment. Nanotechnology is a critical area of automotive R&D to address these needs. The purpose of this session is to present the latest automotive applications of nanotechnology that pave the road for the next generation of automobiles.

Organizers - *Serdar H. Yonak, Minjuan Zhang, Toyota Motor Engineering and Manufacturing North America; Jagjit Nanda, Ford Motor Co.*

Time	Paper No.	Title
9:00 a.m.	***2007-01-1012***	***Micro- and Nano-Technologies for Automotive Sensor Research*** *David Walther, L. Lin, Albert P. Pisano, Univ. of California-Berkeley*
9:30 a.m.	***2007-01-1017***	***Twenty-Year Review of Polymer-Clay Nanocomposites at Toyota Central R&D Labs., Inc.*** *Akane Okada, Arimitsu Usuki, Toyota Central R&D Labs Inc.*

10:00 a.m.	***~~2007-01-1009~~***	***Nano-Structure Controlled Bioplastics and their Hierarchical Nano-Biocomposites***
	ORAL ONLY	*Amar K. Mohanty, Rahul Bhardwaj, Michigan State Univ.*
10:30 a.m.	***2007-01-1010***	***Optical Properties and Microstructures of Colloidal Crystalline Arrays***
		Hiroshi Nakamura, Masahiko Ishii, Azusa Tsukigase, Masashi Harada, Hideyuki Nakano, Toyota Central R&D Labs Inc.
11:00 a.m.	***2007-01-1008***	***Application of Nanotechnology in Automotive Fuel Systems in Restricting Permeation***
		Saquib Usman, Student, Northville High School MI
11:30 a.m.	***~~2007-01-1014~~***	***Automotive PEM Fuel Cell Catalyst Durability***
	ORAL ONLY	*Chi-Hum Paik, Karen M. Adams, George W. Graham, Ford Motor Co.*

The papers in this session are available in a single publication, SP-2113, and also individually.

Planned by Polymers and Coatings Committee / Materials Engineering Activity

Tuesday, April 17

Nanotechnology for Automotive Applications (Part 2 of 2)

Session Code: ***M26***

Room W2-65 ***Session Time:*** ***1:30 p.m.***

Modern automotive customers need safer vehicles with little or no impact to the environment. Nanotechnology is a critical area of automotive R&D to address these needs. The purpose of this session is to present the latest automotive applications of nanotechnology that pave the road for the next generation of automobiles.

Organizers - *Serdar H. Yonak, Minjuan Zhang, Toyota Motor Engineering and Manufacturing North America; Jagjit Nanda, Ford Motor Co.*

Time	***Paper No.***	***Title***
1:30 p.m.	***2007-01-1018***	***Catalysis by Design - Theoretical and Experimental Studies of Model Catalysts***
		Chaitanya K. Narula, Melanie J. Moses, Ye Xu, Douglas A. Blom, Lawrence F. Allard, William A. Shelton, Oak Ridge National Lab.; William F. Schneider, Univ. of Notre Dame
2:00 p.m.	***2007-01-1011***	***Novel Promising 3-D Mesoporous Metal Oxides Sorbent/Catalyst with Volatile Organic Compounds Elimination Ability***
		Kenichirou Suzuki, Anil K. Sinha, Kazuhiro Fukumoto, Toyota Central R&D Labs Inc.
2:30 p.m.	***2007-01-1016***	***A Molecular Dynamics Analysis of the Traction Fluids***
		Hitoshi Washizu, Shuzo Sanda, Shiaki Hyodo, Toshihide Ohmori, Toyota Central R&D Labs Inc.; Atsushi Suzuki, Noriaki Nishino, Toyota Motor Corp.
3:00 p.m.	***2007-01-1015***	***Low Friction Property and its Mechanism of DLC-Si Films Under Dry Sliding Conditions***
		Hiroyuki Mori, Naoko Takahashi, Nakanishi Kazuyuki, Hideo Tachikawa, Toshihide Ohmori, Toyota Central R&D Labs Inc.

The papers in this session are available in a single publication, SP-2113, and also individually.

Planned by Polymers and Coatings Committee / Materials Engineering Activity

Tuesday, April 17

Automotive Lighting Technology (Part 2 of 5): Advanced Lighting Technologies: LED Applications Part 1

Session Code: ***B17***

Room W2-66 ***Session Time:*** ***9:00 a.m.***

LED technology is one of most promising approaches to improve lighting efficiency and vehicle styling, and has been actively pursued by OEM, lighting system and light sources suppliers. Not only new methods of optical, thermal and electrical design are addressed, various of technical strategies are also discussed in the papers in the following two sessions. The session of LED Application I will be focused on forward lighting applications, and LED Application II will list several new signal lighting applications.

Organizers - *Jianzhong Jiao, North American Lighting Inc.*

Chairpersons - *Jianzhong Jiao, North American Lighting Inc.*

Time	Paper No.	Title
9:00 a.m.	***2007-01-0869***	***New Optical Concepts for Headlamps with LED Arrays*** *Ulrike Schlöder, Automotive Lighting*
9:30 a.m.	***2007-01-0870***	***LED HB/LB Module: A Compact Module for Unrivaled Styling, HID Performance and Reduced Package*** *Thomas Luce, Pascal Ho, Valeo Lighting Systems*
10:00 a.m.	***2007-01-0872***	***Advanced Optical and Thermal Solutions for LED Headlamp*** *Robert Apfelbeck, Schefenacker*
10:30 a.m.	***2007-01-0871***	***Application Tradeoffs for LED Headlamp Applications*** *E. Mitchell Sayers, Kyle Lucas, Vladimir Kubena, Visteon Corp.*
11:00 a.m.	***2007-01-0873***	***Adaptive Front-Lighting System in LED Technology - Initial Steps and the Future*** *Christian Schmidt, Franz-Josef Kalze, Karsten Echhorn, Hella KGaA Hueck & Co.*
11:30 a.m.	***2007-01-0874***	***High Efficient LED Headlamp Design -- Styling versus Light Performance*** *Rainer Neumann, Vladimir Dobrus, Jan Popelek, E. Mitchell Sayers, Vladimir Kubena, Visteon Corp.*

The papers in this session are available in a single publication, SP-2106, and also individually.

Planned by Human Factors Committee / Automobile Body Activity

Tuesday, April 17

Automotive Lighting Technology (Part 3 of 5): Advanced Lighting Technologies: LED Applications Part 2

Session Code: ***B17***

Room W2-66 ***Session Time:*** ***1:30 p.m.***

LED technology is one of most promising approaches to improve lighting efficiency and vehicle styling, and has been actively pursued by OEM, lighting system and light sources suppliers. Not only new methods of optical, thermal and electrical design are addressed, various of technical strategies are also discussed in the papers in the following two sessions. The session of LED Application I will be focused on forward lighting applications, and LED Application II will list several new signal lighting applications.

Organizers - *Jianzhong Jiao, North American Lighting Inc.*

Chairpersons - *Rainer Neumann, Visteon Deutschland GmbH; John F. Van Derlofske, 3M Optical Systems Div.*

Time	Paper No.	Title

1:30 p.m.	***2007-01-1037***	***Towards Development of Thermal Standards for the Design of LED Lamps***
		Ajmal Ansari, William Ince, E. Mitchell Sayers, Visteon Corp.
2:00 p.m.	***2007-01-1039***	***Fluid and Thermal Analysis for LED Headlamp with Parametric Studies***
		Kazushige Kikuchi, Yoshihiko Hamashima, Kenji Matsuoka, Ichikoh Industries, Ltd.
2:30 p.m.	***2007-01-1036***	***Color Perception and Recognition under Automotive Headlight with LED***
		Yasushi Kita, Shinichi Kojima, Takashi Sato, Stanley Electric Co., Ltd.; Hirohisa Yaguchi, Chiba Univ.
3:00 p.m.	***2007-01-1040***	***Construction and Application of Near Field Lenses (TIR Type) for Automotive Lighting Functions***
		Jeyachandrabose Chinniah, E. Mitchell Sayers, Chris Eichelberger, Visteon Corp.
3:30 p.m.		***BREAK***
3:45 p.m.	***ORAL ONLY***	***Implementation Issues of LED Automotive Forward Lighting Devices***
		Jeff Kmetec, Philips Lumileds Lighting

The papers in this session are available in a single publication, SP-2106, and also individually.

Planned by Human Factors Committee / Automobile Body Activity

Tuesday, April 17

Fire Safety (Part 3 of 5): Fire Statistics and Analysis

Session Code: ***B12***

Room W2-67 ***Session Time:*** ***9:00 a.m.***

Organized by the Fire Safety Committee, this session will focus on what we can learn about vehicle fires from the transportation and fire databases and the limitations of these databases. It will also include a discussion of issues faced in making design decisions for fire safety. Recent research on crashes and fire safety will be reviewed. Dangers to the rescue personnel at vehicle fires will also be addressed.

Organizers - *Marty Ahrens, National Fire Protection Association; Thomas M. Desantis, Ford Motor Co.; R Rhoads Stephenson, Motor Vehicle Fire Research Institute*

Time	***Paper No.***	***Title***
9:00 a.m.	***2007-01-0880***	***Recent MVFRI Research in Crash Induced Vehicle Fire Safety***
		Kennerly H. Digges, R Rhoads Stephenson, Motor Vehicle Fire Research Institute
9:30 a.m.	***2007-01-0879***	***Vehicle Design for Fire Safety and Evaluation of Design Trade-Offs***
		Leland E. Shields, Leland E Shields Inc.; Robert R. Scheibe, GT Engineering; Terry Thomas, TRT Enterprises
10:00 a.m.	***2007-01-0877***	***Vehicle Fire Data: Different Sources, Different Goals, Different Conclusions?***
		Rose M. Ray, Exponent Inc.; Marty Ahrens, National Fire Protection Association
10:30 a.m.	***2007-01-0876***	***An Analysis of Vehicle Fire Rates in Fatal Crashes: Is there an Indication of Underreporting?***
		James Fell, Scott Tippets, George T. Bahouth, PIRE
11:00 a.m.	***2007-01-0878***	***Vehicle Fires and the Danger to Emergency Personnel***
		Markus Egelhaaf, Dieter Wolpert, DEKRA Automobil GmbH

11:30 a.m.	***2007-01-0875***	***Fire Occurrence in Rollover Crashes Based on NASS/CDS***
		Kennerly H. Digges, Shaun Kildare, George Washington Univ.

The papers in this session are available in a single publication, SP-2097, and also individually.

Planned by Fire Safety Committee / Automobile Body Activity

Tuesday, April 17

Design for Remanufacturing

Session Code: ***ENV4***

Room W2-67 ***Session Time:*** ***1:30 p.m.***

As vehicle warranties are extending and OE service part availability requirements are increasing from 10 to15 years, remanufacturing is an important manufacturing process that helps extend the service life cycle for automotive and heavy-duty parts. Reusing material helps to lower the amount of parts needed for long life supply, reducing the need for life-time builds and excess and obsolete part inventories. Early considerations on the design can greatly effect remanufacturability, improving profitability and reducing costs. The forum will focus on design for remanufacturing methodologies, such as, closure systems, assembly/disassembly considerations, material selection for electronic, mechatronic, and mechanical products.

The forum will have a second focus to discuss the challenges remanufacturers will have to face in designing new test equipment and remanufacturing processes to handle the latest electronic and mechatronic technology components.

Organizers - *Jeffrey Stukenborg, Delphi Corp.; Fernand Weiland, APRA Technical Service*

Time	***Paper No.***	***Title***
1:30 p.m.	***ORAL ONLY***	***Zero to Landfill***
		John Elter, Plug Power Inc.
2:00 p.m.	***ORAL ONLY***	***A System Approach to Design for Remanufacturing***
		Nabil Nasr, Rochester Institute of Technology
2:30 p.m.	***ORAL ONLY***	***Diagnosis and Test Methods for Remanufacturing of Mechatronics and Electronics***
		Stefan Freiberger, Rolf Steinhilper, Univ. of Bayreuth

Planned by Environmental Activity / EMB Land and Sea Group

Tuesday, April 17

Emissions Trading 101 for the Mobility Industry

Session Code: ***ENV3***

Room W2-67 ***Session Time:*** ***3:45 p.m.***

Emissions trading has been proven in the U.S and elsewhere to offer a cost-effective tool for reducing pollution. Trading is a core feature of the Kyoto protocol, and an EU-wide trading system is now in operation. Josh Margolis of Cantor Fitzgerald will present an introductory seminar on emissions trading, to be followed by a panel discussion on the impact of emissions trading on the global mobility industry.

Organizers - *Stephen L. Landes, Ford Motor Co.*

Planned by Environmental Activity / EMB Land and Sea Group

Tuesday, April 17

Thermal Systems Modeling (Part 1 of 2)

Session Code: ***HX4***

Room W2-68 ***Session Time:*** ***9:00 a.m.***

Thermal systems (HVAC, engine cooling, transmission, power steering) have significant energy requirements that could adversely affect the vehicle performance. New and innovative approaches are being used to provide the comfort to the customer in an energy efficient way. Optimization of the components and the system is required to fully understand the impact of the components on the system. Hence, modeling of the components and the system is essential for performance predictions. Simulation of the thermal systems is becoming an essential tool in development phase of a given project.

Organizers - *Ales Alajbegovic, EXA Corp.; Gursaran D. Mathur, CalsonicKansei North America Inc.; Kumar Srinivasan, DaimlerChrysler Corp.*

Time	Paper No.	Title
9:00 a.m.	***2007-01-0762***	***An Integrated Approach for Air Conditioning and Electrical System Impact on Vehicle Fuel Consumption and Performances Analysis: DrivEM 1.0*** *Luigi Orofino, Fiat Auto SPA; Fabrizio Amante, Fiat Auto S.p.A.; Stefano Mola, Centro Ricerche Fiat Scpa; Matteo Rostagno, Giorgio Villosio, Alessandro Piu, Fiat Research Center*
9:30 a.m.	***2007-01-0764***	***Modeling and Performance of Trailer Refrigeration Units with Alternative Power Systems*** *Harry A. Dwyer, C. Kulkarni, Univ. of California-Davis*
10:00 a.m.	***2007-01-0761***	***Windshield Defrosting Modeling and Simulation for the Assessment of Convection Configurations*** *Oliver Velde, ITI R&D; Jens Otto Schindler, ITI GmbH*
10:30 a.m.	***2007-01-0767***	***Modeling of In-Cabin Climate and Fogging of Windshield*** *R. B. Kharat, M. R. Nandgaonkar, S. R. Kajale, PIET's College of Engineering Pune; V. V. Ranade, National Chemical Laboratory; S. K. Mahajan, Technical Education Regional Office*
11:00 a.m.	***2007-01-0763***	***Experimental and Numerical Investigations of Jet Impingement Cooling of Piston of Heavy-Duty Diesel Engine for Controlling the Non-Tail Pipe Emissions*** *Avinash Kumar Agarwal, Sandeep Goyal, Indian Institute of Technology - Kanpur*

The papers in this session are available in a single publication, SP-2132, and also individually.

Planned by Vehicular Thermal Management Activity / EMB Land and Sea Group

Tuesday, April 17

Thermal Systems Modeling (Part 2 of 2)

Session Code: ***HX4***

Room W2-68 ***Session Time:*** ***1:30 p.m.***

Thermal systems (HVAC, engine cooling, transmission, power steering) have significant energy requirements that could adversely affect the vehicle performance. New and innovative approaches are being used to provide the comfort to the customer in an energy efficient way. Optimization of the components and the system is required to fully understand the impact of the components on the system. Hence, modeling of the components and the system is essential for performance predictions. Simulation of the thermal systems is becoming an essential tool in development phase of a given project.

Organizers - *Ales Alajbegovic, EXA Corp.; Gursaran D. Mathur, CalsonicKansei North America Inc.; Kumar Srinivasan, DaimlerChrysler Corp.*

Time	Paper No.	Title
1:30 p.m.	***2007-01-0766***	***Simulation of Cooling Airflow Under Different Driving Conditions*** *Ales Alajbegovic, Bing Xu, Alex Konstantinov, Joe Amodeo, Exa Corporation; Wilko Jansen, Jaguar Cars ltd/Land Rover*

2:00 p.m.	***2007-01-0768***	***A New System Restriction Simulation Method for Underhood Airlfow CFD Analysis*** *Fei Wang, Caterpillar Inc.*
2:30 p.m.	***2007-01-0769***	***Stator and Support Arm Aerodynamic Performance for Automotive Engine Cooling Fans with Realistic Inlet Cconditions*** *Ehab Abu-Ramadan; Jesse Dybenko, Eric Savory, Alexander Graham Hunt, Univ. of Western Ontario; Robert Martinuzzi, Univ. of Calgary*
3:00 p.m.	***2007-01-0765***	***Transient Analysis of a Dual Loop Vehicle Thermal Management System using Co-Simulation between 1-D Fluid Simulation Software, MATLAB/Simulink and 1-D Engine Simulation Software*** *Tyson Lee Stewart, Ricardo*

The papers in this session are available in a single publication, SP-2132, and also individually.

Planned by Vehicular Thermal Management Activity / EMB Land and Sea Group

Tuesday, April 17

CAD/CAM/CAE Technology (Part 1 of 2)

Session Code: ***B2***

Room W2-69 ***Session Time:*** ***9:00 a.m.***

Papers in the component design area are the major contributor of this year's CAD/CAM Technology session. They vary from door design, to battery cooling analysis, to muffler design, to tubing frame structure. Study of crash worthiness also has a heavy representation. These authors report their research findings in pedestrian impact, application of computer-aided principle for crash safety design, macro element fast crash analysis, and the next generation side impact dummies. The remaining papers cover a wide range of topics such as numerical method, traffic noise prediction, virtual human simulation, reconfigurable machines, tolerance analysis, etc. The authors of CAD/CAM Technology session come from automotive companies, suppliers, university, and government research center. In terms of region, they are from all over the world: Australia, Canada, China, Germany, India, Iran, Japan, and USA. The efforts made and precious time spent by our reviewers are gratefully acknowledged.

Organizers - *Randy Gu, Oakland Univ.; Yu J. Teng, DaimlerChrysler Corp.; William J. Altenhof, Univ. of Windsor; Yun Lu, DaimlerChrysler Corp.*

Time	***Paper No.***	***Title***
9:00 a.m.	***2007-01-0889***	***Design of Dual Sliding Door for a Small-Size Car and Its Validation using CAE Tools*** *Kalpak Shah, Univ. of Michgian-Dearborn; Hong Tae Kang, Upendra A. Deshmukh, Univ. of Michigan-Dearborn*
9:30 a.m.	***2007-01-0884***	***Development of Water Level Predicting Method Around the Air Intake Duct by Using Multivariate Analysis*** *Jun Yamamura, Toyota Motor Corp.; Hisashi Sugiyama, Tetsuya Akino, Toyota Technical Development Corp.*
10:00 a.m.	***2007-01-0885***	***Nonlinear Coupling of Transient Analysis of Thermal Flow and Thermal Stress for T Pipe*** *Qinyin Fan, Software Cradle Co., Ltd.; Yan Bo, Harbin Institute of Technology; Harris Wang, John Yan, SUNTECH, Inc.*
10:30 a.m.	***2007-01-0883***	***Computer Supported Collaborative Design: Review and Perspective*** *Weiming Shen, Qi Hao, National Research Council Canada*
11:00 a.m.	***2007-01-0894***	***Macro Element Fast Crash Analysis of 3D Space Frame*** *Kenji Takada, Honda R&D Co., Ltd.; Wlodek Abramowicz, Impact Design EUROPE*

11:30 a.m.	***2007-01-0892***	***Design Theory and Computational Modeling Tools for Systems with Wear***
		Saad Mukras, Nam-Ho Kim, W. Gregory Sawyer, Univ. of Florida; David B. Jackson, Paul Swanson, Deere & Company

The papers in this session are available in a single publication, SP-2072, and also individually.

Planned by Body Engineering Committee / Automobile Body Activity

Tuesday, April 17

CAD/CAM/CAE Technology (Part 2 of 2)

Session Code: ***B2***

Room W2-69 ***Session Time:*** ***1:30 p.m.***

Papers in the component design area are the major contributor of this year's CAD/CAM Technology session. They vary from door design, to battery cooling analysis, to muffler design, to tubing frame structure. Study of crash worthiness also has a heavy representation. These authors report their research findings in pedestrian impact, application of computer-aided principle for crash safety design, macro element fast crash analysis, and the next generation side impact dummies. The remaining papers cover a wide range of topics such as numerical method, traffic noise prediction, virtual human simulation, reconfigurable machines, tolerance analysis, etc. The authors of CAD/CAM Technology session come from automotive companies, suppliers, university, and government research center. In terms of region, they are from all over the world: Australia, Canada, China, Germany, India, Iran, Japan, and USA. The efforts made and precious time spent by our reviewers are gratefully acknowledged.

Organizers - *Randy Gu, Oakland Univ.; Yu J. Teng, DaimlerChrysler Corp.; William J. Altenhof, Univ. of Windsor; Yun Lu, DaimlerChrysler Corp.*

Time	***Paper No.***	***Title***
1:30 p.m.	***ORAL ONLY***	***Nonlinear Transient CAE Procedure for Vehicle Response Analysis***
		Yongquan Liu, Ford Motor Co.
2:00 p.m.	***2007-01-0890***	***Architecture of Integrated Environment for Design of Reconfigurable Machines***
		Zhuming Bi; Sherman Lang, National Research Council Canada
2:30 p.m.	***2007-01-0881***	***Development of Robust Design Method in Pedestrian Impact Test***
		Tsukatada Matsumoto, Koushi Kumagai, Hideaki Arimoto, Toyota Motor Corp.
3:00 p.m.	***2007-01-0886***	***Machining Error Correction at Batch Processing***
		Peter E. Orban, Millan Yeung, National Research Council Canada; Ye Jiang, Jin Jiang, Univ. of Western Ontario
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-0882***	***An Application of CAP (Computer-Aided Principle) to Structural Design for Vehicle Crash Safety***
		Sou Natori, Nissan Motor Co., Ltd.; Qiang Yu, Yokohama National Univ.
4:15 p.m.	***2007-01-0891***	***Development of Advanced Finite Element Models of World SID 5th and 50th - The Next Generation Side Impact Dummies***
		Yi Liu, First Technology Safety Systems, Inc.; Fuchun Zhu, Zhenwen Wang, Michiel Van Ratingen, First Technology Safety Systems Inc.
4:45 p.m.	***2007-01-0887***	***Modelling Factors of Square Tubes in High Speed Bending Situations***
		Paul K. Collins, Jonathan G. Mullins, Bernard F. Rolfe, Peter D. Hodgson, Deakin Univ.

	2007-01-0895	***Study On Perforated Mufflers Of Circular And Elliptical Cross Sections Using Parametric Technique And Finite Element Methodology (Written Only -- No Oral Presentation)***
		P. Dube, P. R. Sajanpawar, Mahindra and Mahindra
	2007-01-0896	***Study on the Simulation of Structural Dynamic Characteristics of Vehicle's Powertrain System (Written Only -- No Oral Presentation)***
		Cheng Ying, Tu Hongmao, Long Kal, Beijing Institute of Technology

The papers in this session are available in a single publication, SP-2072, and also individually.

Planned by Body Engineering Committee / Automobile Body Activity

Tuesday, April 17

Vehicle Aerodynamics (Part 3 of 6): Aerodynamic Development

Session Code: ***B34***

Room W2-70 ***Session Time:*** ***9:00 a.m.***

These six sessions, organized by the Vehicle Aerodynamics Committee, discuss the latest technology advancements in aerodynamics and aero-acoustics for automotive design. Wind-tunnel simulation of the on-road condition and Computational Fluid Dynamic (CFD) methodologies are essential to an effective product development process.

Organizers - *Norbert Gruen, Hans Kerschbaum, BMW Group*

Chairpersons - *Hans Kerschbaum, BMW Group*

Time	***Paper No.***	***Title***
9:00 a.m.	***2007-01-0897***	***Aerodynamics for Formula SAE: On-Track Performance Evaluation***
		Scott Wordley, Jessie Pettigrew, Jeffrey Saunders, Monash Univ.
9:30 a.m.	***2007-01-0898***	***A Comparison Between On-Road and Wind Tunnel Surface Pressure Measurements on a Mid-Sized Hatchback***
		Andrew A. Lawson, Robert Dominy, David B. Sims-Williams, Univ. of Durham; Paul Mears, Flow Physics Ltd.
10:00 a.m.	***2007-01-0899***	***Pressure Fluctuations on Automotive Rear View Mirrors***
		Rajneesh Jaitlee, Firoz Alam, Simon Watkins, RMIT Univ.
10:30 a.m.	***2007-01-0900***	***Observation of Flow Asymmetry Over the Rear of Notchback Vehicles***
		Adrian Gaylard, Jaguar Land Rover; Jeff Howell, Tata Motors European Technical Centre; Kevin Garry, Cranfield Univ.
11:00 a.m.	***2007-01-0901***	***Optimization of the Aerodynamic Design of Supermileage Vehicle***
		Himanshu Almadi, Maruti Udyog Limited; Sagar Maji, Delhi College of Engineering
11:30 a.m.	***2007-01-0902***	***A New Technique to Measure the Aerodynamic Response of Passenger Cars by a Continuous Flow Yawing***
		Giuseppe Carlino, Davide Cardano, Antonello Cogotti, Pininfarina s.p.a.

The papers in this session are available in a single publication, SP-2066, and also individually.

Planned by Vehicle Aerodynamics Committee / Automobile Body Activity

Tuesday, April 17

Vehicle Aerodynamics (Part 4 of 6): Moving Ground Simulation and Boundary Interferences Effects

Session Code: ***B34*** ***1:30 p.m.***

Room W2-70 ***Session Time:***

These six sessions, organized by the Vehicle Aerodynamics Committee, discuss the latest technology advancements in aerodynamics and aero-acoustics for automotive design. Wind-tunnel simulation of the on-road condition and Computational Fluid Dynamic (CFD) methodologies are essential to an effective product development process.

Organizers - *Jewel B. Barlow, Univ. of Maryland; Gerhard Wickern, Audi AG*

Chairpersons - *Jewel B. Barlow, Univ. of Maryland*

Time	Paper No.	Title
1:30 p.m.	***2007-01-1044***	***The New Moving Ground System of the Pininfarina Wind Tunnel*** *Antonello Cogotti, Pininfarina Spa*
2:00 p.m.	***2007-01-1043***	***Upgrade of the Volvo Cars Aerodynamic Wind Tunnel*** *Johan Sternéus, Tim Walker, Volvo Car Corp.; Trevor Bender, Aiolos Engineering Corp.*
2:30 p.m.	***2007-01-1047***	***The Influence of Rotating Wheels on the Total Road Load*** *Wolfgang Mayer, Jochen Wiedemann, IVK/ FKFS Univ. Stuttgart*
3:00 p.m.	***2007-01-1045***	***CFD Investigations of Wind Tunnel Interference Effects*** *Oliver Fischer, Timo Kuthada, Nils Widdecke, Jochen Wiedemann, IVK/FKFS Univ. Stuttgart*
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-1046***	***Detailed Analysis of the Bluff Body Blockage Phenomenon in Closed Wall Wind Tunnels Utilizing CFD*** *Mark E. Gleason, DaimlerChrysler Corp.*
4:15 p.m.	***2007-01-1048***	***Advantages of Adaptive Wall Wind Tunnel Technology: A CFD Study for Testing Open Wheel Race Cars*** *Edward G. Duell, Christopher Connor, William Martindale, Joel Walter, Stephen Arnette, Jacobs Sverdrup*
	2007-01-1050	***Recent Literature on Wind Tunnel Test Section Interference Related to Ground Vehicle Testing (Written Only -- No Oral Presentation)*** *Gerhard Wickern, Audi AG*

The papers in this session are available in a single publication, SP-2066, and also individually.

Planned by Vehicle Aerodynamics Committee / Automobile Body Activity

Wednesday, April 18

How are New Powertrain Technologies Changing Drivetrain Development?

Session Code: ***CONG74***

Room FEV Powertrain Innovation Forum ***Session Time:*** ***9:30 a.m.***

No longer does the focus of fuel economy, power and emissions reduction remain solely on the engine. From dual mass flywheels, to electronic torque converters to 7 and 8 speed transmissions to electronic locking differentials, OEMs and suppliers have been focusing on the complete powertrain and approaching the drivetrain from a systematic approach. Join us for an in depth look at some of those technologies and approaches that change the way we think about drivetrain.

Moderators - *Joachim Wolschendorf, VP, Engineering and CTO, FEV Engine Technology, Inc.*

Panelists - *Robert Genway-Haden, Chief Engineer, GKN Automotive, Inc.; Rajiv Jetli, Director, Principal, PRTM; William Kelley, Jr., VP, Drivetrain Research & Technology, BorgWarner Inc.; Paul Smith, Sr. Manager, N.A. Automotive Consulting, The MathWorks; Hamid Vahabzadeh, Director, Advanced Power Transfer, General Motors Corp.*

Wednesday, April 18

The Gasoline Engine is Dead. Or Is It?

Session Code: ***CONG75***

Room FEV Powertrain Innovation Forum ***Session Time:*** ***1:30 p.m.***

Driving change. One innovation at a time. Today's OEMs and suppliers are constantly reviewing gasoline alternative strategies to improve fuel economy, reduce emissions and enhance power. GTDI is one example of an innovation that's at the forefront of gasoline technology news. Join us in the powertrain innovation theater to hear how GTDI and other technologies will play a strong role in our automotive future.

Moderators - *Scott Bailey, Gen Mgr, Gas Engine Mgmt Systems, Delphi Corp.*

Panelists - *Michael Crane, Director of Gasoline Systems, Siemens VDO; Uwe Grebe, Executive Director, Advanced Engineering, GM Powertrain; Dan Kapp, Director for Powertrain Res & Adv Engrg., Ford Motor Co.; Robert Lee, VP, PowerTrain Product Engineering, DaimlerChrysler Corp.; Prof. Stefan Pischinger, President & CEO, FEV Group*

Wednesday, April 18

Policies and Issues Impacting Consumer Choice of Vehicles and Fuels

Session Code: ***CONG64***

Room AVL Technology Theater (open to all ***Session Time:*** ***10:30 a.m.***

Motor vehicles and fuels face a challenge today, with the prices of conventional petroleum based fuels fluctuating over wide limits. What realistic choices are there for new fuels, over what period of time, at what costs to consumers pocketbooks, fuel company investments, and OEM costs to adapt vehicle technologies to new fuels. All of these changes entail risks. Perhaps the biggest risk of all is uncertainty of what would really motivate consumers to switch to new fuels --convenience, performance, perhaps lower costs, and other factors. Experts from government, industry, fuel industry and alternative fuel suppliers will outline what global issues are affecting the supply of petroleum and then what are the sustainable alternatives in the near and long-term, addressing the policy questions of pricing and regulation as well.

Moderators - *Steven Plotkin, Transportation Energy Analyst, Argonne National Laboratory*

Panelists - *Josef Affenzeller, Director, Research Coordination, AVL LIST GmbH; Christoph Huss, Sr VP Science & Traffic Policy, BMW Group; Darran Messem, VP Fuel Development, Shell International Petroleum Company; Margo T. Oge, Director, Office of Transp & Air Quality, U.S. EPA; Steven Plotkin, Transportation Energy Analyst, Argonne National Laboratory; Samatha M. Slater, Dir, Congressional & Reg Affairs, Renewable Fuels Assoc.*

Wednesday, April 18

Safety Sells

Session Code: ***CONG65***

Room AVL Technology Theater (open to all ***Session Time:*** ***2:30 p.m.***

Consumers have let manufacturers know that safety sells. What does the future hold for new regulations from NHTSA? What safety systems are on the horizon that only a few years ago seemed like a fantasy? How are the NHTSA, industry and other overseas regulatory bodies cooperating to harmonize regulations and standards? These questions and more will be answered by the panel.

Moderators - *Robert C. Lange, Executive Director, Safety Integration, General Motors Corp.*

Panelists - *Roger Berg, VP, WIreless Technologies, DENSO International America Inc.; Helmut Fennel, VP, Competence Center Control Systems Software, Continental; Robert Kittle, President, The Kittle Group; Adrian Lund, President, Insurance Institute for Highway Safety; Robert W. Schumacher, Gen Dir, Adv Prod & Bus Dev, Delphi Electronics & Safety; Tomiji Sugimoto, VP, Automobile Tech Res Div., Honda R&D Americas Inc.*

Keynote Speakers - *Nicole Nason, Administrator, NHTSA, U.S. DOT*

Wednesday, April 18

Compression Ignition Combustion Processes (Part 1 of 2)

Session Code: ***PFL16***

Room D2-08 ***Session Time:*** ***9:00 a.m.***

This session includes modeling and experimental results regarding the physical and chemical processes that occur in compression ignition engines, along with the resulting emissions. Materials presented help to advance the art and science of compression ignition engine performance and emissions.

Organizers - *Mark P. B. Musculus, Sandia National Laboratories; John F. Wright, Cummins Inc.*

Chairpersons - *John F. Wright, Cummins Inc.*

Time	Paper No.	Title
9:00 a.m.	***2007-01-0907***	***End-of-Injection Over-Mixing and Unburned Hydrocarbon Emissions in Low-Temperature-Combustion Diesel Engines*** *Mark P. B. Musculus, Thierry Lachaux, Lyle M. Pickett, Cherian A. Idicheria, Sandia National Laboratories*
9:30 a.m.	***2007-01-0911***	***Optimization Towards Low-temperature Combustion in a HSDI Diesel Engine, Using Consecutive Screenings*** *Santiago A. Molina, Jesus Benajes, Korneel De Rudder, Rogério Jorge Amorim, Universidad Politecnica de Valencia*
10:00 a.m.	***2007-01-0904***	***Simulation of the Low-Temperature Combustion in a Heavy Duty Diesel Engine*** *Jost Weber; Norbert Peters, RWTH Aachen; Ramachandra Diwakar, Robert Siewert, Andreas Lippert, GM R&D Center*
10:30 a.m.	***2007-01-0905***	***An Analysis of Regulated and Unregulated Emissions in a HSDI Diesel Engine under the LTC Regime*** *Krishna C. Natti, Anamitra Bhattacharyya, Aditya Kastury, Naeim A. Henein, Wayne State Univ.; Walter Bryzik, US Army TARDEC*
11:00 a.m.	***2007-01-0903***	***PCCI Investigation Using Variable Intake Valve Closing in a Heavy Duty Diesel Engine*** *Ryan M. Nevin, Yong Sun, Manuel A. Gonzalez, Rolf D. Reitz, Univ. of Wisconsin-Madison*

The papers in this session are available in a single publication, SP-2076, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Wednesday, April 18

Compression Ignition Combustion Processes (Part 2 of 2)

Session Code: ***PFL16***

Room D2-08 ***Session Time:*** ***1:30 p.m.***

This session includes modeling and experimental results regarding the physical and chemical processes that occur in compression ignition engines, along with the resulting emissions. Materials presented help to advance the art and science of compression ignition engine performance and emissions.

Organizers - *Mark P. B. Musculus, Sandia National Laboratories; John F. Wright, Cummins Inc.*

Chairpersons - *Mark P. B. Musculus, Sandia National Laboratories*

Time	Paper No.	Title

1:30 p.m.	***2007-01-0915***	***A Comprehensive Study of Diesel Combustion and Emissions with Post-injection***
		Jose M. Desantes, Jean Arregle, J. Javier Lopez, Antonio Garcia, CMT Motores Termicos - UPV
2:00 p.m.	***2007-01-0910***	***Effects of Multiple Injections on Engine-Out Emission Levels Including Particulate Mass from an HSDI Diesel Engine***
		Rickard Ehleskog, Raul Ochoterena, Sven Andersson, Chalmers Univ. of Technology
2:30 p.m.	***2007-01-0909***	***Numerical Evaluation of Direct Injection of Urea as NOx Reduction Method for Heavy Duty Diesel Engines***
		Valeri I. Golovitchev, Luca Montorsi, Ingemar Denbratt, Chalmers Univ. of Technology; Felice Corcione, Istituto Motori - CNR; Salvatore Coppola, Isotta Fraschini Motori S.p.A.
3:00 p.m.	***2007-01-0908***	***Role of Heat Accumulation by Reaction Loop Initiated by H2O2 Decomposition for Thermal Ignition***
		Kazunari Kuwahara, Osaka Inst. of Technology; Hiromitsu Ando, Univ. of Fukui
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-0912***	***Fuel Injection and Mean Swirl Effects on Combustion and Soot Formation in Heavy Duty Diesel Engines***
		Michael J. Bergin, Rolf D. Reitz, Univ. of Wisconsin - Madison; Seungmook Oh, Korea Inst. of Machinery and Materials; Paul C. Miles, Sandia National Laboratories; Leif Hildingsson, Anders Hultqvist, Lund Inst. of Technology
4:15 p.m.	***2007-01-0914***	***The Effect of Charge Air and Fuel Injection Parameters on Combustion with High Levels of EGR in a HDDI Single Cylinder Diesel Engine***
		Malin Alriksson, Volvo Powertrain Sweden; Savo Gjirja, Ingemar Denbratt, Chalmers Univ. of Technology
4:45 p.m.	***2007-01-0906***	***Appliance of High EGR Rates with a Short and Long Route EGR System on a Heavy Duty Diesel Engine***
		Marc van Aken, Frank Willems, TNO Automotive; Dirk-Jan de Jong, DAF Trucks N.V.

The papers in this session are available in a single publication, SP-2076, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Wednesday, April 18

CI and SI Power Cylinder Systems (Part 1 of 4) Power Cylinder Oil Consumption and Blow-by

Session Code: ***PFL21***

Room D2-09/10 ***Session Time:*** ***9:00 a.m.***

This session discusses factors that affect blow-by and oil consumption in an engine. As part of this session, the SAE Piston and Ring Standard committee will present recently released Technical Information Reports on the Blow-by and Oil Consumption.

Organizers - *Dwight A. Doig, Cummins Inc.; Mikhail A. Ejakov, Ford Motor Co.; Raj P. Ranganathan, General Motors Corp.; Dan E. Richardson, Cummins Inc.*

Chairpersons - *Dwight A. Doig, Dan E. Richardson, Cummins Inc.*

Time	***Paper No.***	***Title***

9:00 a.m.	***ORAL ONLY***	***Mechanisms of Oil Consumption and Blow-by Part 1 (SAE J2794 & J2797)***
		Dan Earl Richardson, Cummins Inc.
9:30 a.m.	***ORAL ONLY***	***Mechanisms of Oil Consumption and Blow-by Part 2 (SAE J2794 & J2797)***
		Dan Earl Richardson, Cummins Inc.
10:00 a.m.	***ORAL ONLY***	***Methods of Measuring Oil Consumption (SAE J2796)***
		Dan Earl Richardson, Cummins Inc.
10:30 a.m.	***ORAL ONLY***	***Solving Oil Consumption and Blow-by Problems (SAE J2795 and J2798)***
		Dan Earl Richardson, Cummins Inc.
11:00 a.m.	***2007-01-1054***	***Oil Transport Inside the Power Cylinder During Transient Load Changes***
		Steven Przesmitzki, Tian Tian, Massachusetts Institute of Technology

The papers in this session are available in a single publication, SP-2073, and also individually.

Planned by Lubricants and Powertrain Systems Committee / Powertrain Fuels and Lubricants Activity

Wednesday, April 18

CI and SI Power Cylinder Systems (Part 2 of 4) Power Cylinder Friction and Noise

Session Code: ***PFL21***

Room D2-09/10 ***Session Time:*** ***1:30 p.m.***

This session discusses factors that affect friction and noise in an engine. This primarily focuses on friction and noise caused by the piston and piston rings.

Organizers - *Dwight A. Doig, Cummins Inc.; Mikhail A. Ejakov, Ford Motor Co.; Raj P. Ranganathan, General Motors Corp.; Dan E. Richardson, Cummins Inc.*

Chairpersons - *Mikhail A. Ejakov, Ford Motor Co.; Dan E. Richardson, Cummins Inc.*

Time	***Paper No.***	***Title***
1:30 p.m.	***2007-01-1245***	***How to Predict the Piston Slap-Noise Using 3D Piston Motion Simulation***
		Toshiaki Kobayashi, Yukitaka Takahashi, Honda R&D Co., Ltd.; David J. Bell, Ricardo UK Ltd.
2:00 p.m.	***2007-01-1249***	***A Comprehensive Method for Piston Secondary Dynamics and Piston-Bore Contact***
		Prashant Patel, Zissimos P. Mourelatos, Oakland Univ.; Paras Shah, Federal Mogul Corp.
2:30 p.m.	***2007-01-1251***	***Piston Secondary Dynamics Considering Elastohydrodynamic Lubrication***
		Paras Shah, Federal-Mogul Corp.; Zissimos P. Mourelatos, Prashant Patel, Oakland Univ.
3:00 p.m.	***2007-01-1247***	***Part 2: The Effects of Lubricating Oil Film Thickness Distribution on Gasoline Engine Piston Friction***
		Kwang-soo Kim, Thom Godward, Federal-Mogul Technical Center; Masaaki Takiguchi, Shuma Aoki, Musashi Institute of Technology
3:30 p.m.		***BREAK***

3:45 p.m.	***2007-01-1248***	***Investigations of Crank Offset and It's Influence on Piston and Piston Ring Friction Behavior Based on Simulation and Testing***
		Martin Rebbert, FEV Motorentechnik GmbH; Patrick Ragot, Renault SAS
4:15 p.m.	***2007-01-1246***	***Mixed Lubrication and Roughness Surface Effects Application to Piston Rings***
		Jean-Louis Ligier, Patrick Ragot, Renault SAS
4:45 p.m.	***2007-01-1250***	***The Effects of Piston Rings and Liner Break-in on Lubricating Condition***
		Ryo Wakabayashi, Minoru Kawanishi, Hideki Yoshida, Riken Corp.; Yoshinori Ozaki, Toyota Motor Corp.

The papers in this session are available in a single publication, SP-2073, and also individually.

Planned by Lubricants and Powertrain Systems Committee / Powertrain Fuels and Lubricants Activity

Wednesday, April 18

Combustion and Flow Diagnostics (Part 3 of 3)

Session Code: ***PFL39***

Room D2-11/12 ***Session Time:*** ***9:00 a.m.***

This session is comprised of presentations touching on a variety of technical topics relative to spark ignition, emission behavior, laser diagnostics, injectors, air/fuel ratios, and combustion behavior.

Organizers - *Matthew J. Hall, Univ. of Texas-Austin; Paul C. Miles, Sandia National Laboratories*

Chairpersons - *Matthew J. Hall, Univ. of Texas-Austin*

Time	***Paper No.***	***Title***
9:00 a.m.	***2007-01-0648***	***An Investigation of Multiple Scattering in a Hollow-Cone Spray***
		Chia-Fon F. Lee, Univ. of Illinois at Urbana-Champaign
9:30 a.m.	***2007-01-0640***	***Effects of Charge Motion Characteristics on Engine Variables such as Emission Behavior and Efficiency***
		Andre Blechstein, Kai Behnk, Roland Deepe, Stefan Donath, Ansgar Sommer, Lutz Stiegler, IAV GmbH Ingenieursgesellschaft Auto & V
10:00 a.m.	***2007-01-0647***	***Quantitative Mixing Measurements in a Vaporizing Diesel Spray by Rayleigh Imaging***
		Cherian A. Idicheria, Lyle Pickett, Sandia National Laboratories
10:30 a.m.	***2007-01-0650***	***Study of the Correlation Between Mixing and Auto-ignition Processes in High Pressure Diesel Jets***
		Gilles Bruneaux
11:00 a.m.	***ORAL ONLY***	***Investigation of Early Soot Formation Process in a Diesel Spray Flame via Excitation-Emission Matrix (EEM) using a Multi-Wavelength Laser Source***
		Tetsuya Aizawa, Tokyo Institute of Technology

The papers in this session are available in a single publication, SP-2075, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Wednesday, April 18

New Diesel Engines and Components

Session Code: ***PFL15***

Room D2-11/12 ***Session Time: 1:30 p.m.***

Papers in PFL-15 will cover a wide range of topics, including: New Engine Concepts and Combustion Systems; Advanced Common Rail Fuel Injection; EGR Cooler Heat Exchange Efficiency; Advanced Electro-Hydraulic Valvetrain and Components; and 2010 Engine Thermal Efficiency.

Organizers - *Adish Jain, Danaher Corp.; Jeffrey E. Mossberg, Jacobs Vehicle Systems Inc.*

Chairpersons - *Adish Jain, Danaher Corp.; Jeffrey E. Mossberg, Jacobs Vehicle Systems Inc.*

Time	Paper No.	Title
1:30 p.m.	***2007-01-1252***	***Effects of the Internal Shape of EGR Cooler on Heat Exchanger Efficiencies*** *Sang-Ki Park, Kap-Seung Choi, Hak-Min Wang, Inje Univ.; Hae-Il Jung, Tae-Jin Kim, Joon Lee, Yong-Kuk Cho, Korens Inc.; Dae-Hee Lee, Hyung-Man Kim, Inje Univ.*
2:00 p.m.	***2007-01-1257***	***Improved Characterisation of Fouling in Cooled EGR systems*** *Yolanda Bravo, Valeo; F. Moreno, O. Longo, IDIADA Automotive Technology*
2:30 p.m.	***2007-01-1258***	***Common Rail without Accumulator: Development, Theoretical-Experimental Analysis and Performance Enhancement at DI-HCCI Level of a New Generation FIS*** *Andrea Emilio Catania, Alessandro E. Ferrari, Antonio Mittica, Ezio Spessa, Politecnico di Torino*
3:00 p.m.	***2007-01-1253***	***A New Concept for Ultra-Compact HSDI Diesel Engines*** *Enrico Mattarelli, Giuseppe Cantore, Universita degli Studi di Modena*
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-1255***	***A New Combustion System for 2-Stroke HSDI Diesel Engines*** *Enrico Mattarelli, C.A. Demarco, Universita degli Studi di Modena; Fabrizio Paltrinieri, Univ. of Modena & Reggio Emilia; Carlo Alberto Rinaldini, Universita degli Studi di Modena*
4:15 p.m.	***2007-01-1256***	***Modeling, Validation and Dynamic Analysis of Diesel Pushrod Overhead Bridged Valve Train*** *Tao Xu, Chung-Yao Alex Tang, Huihua Shen, Michael S. King, Ford Motor Co.; Qianfan Xin, International Truck and Engine Corp.; Mark E. Nowak, Ford Motor Co.*
4:45 p.m.	***2007-01-1254***	***Hydrogen Combustion in a Novel Rotary DI-HCRI Engine with Low Heat Rejection*** *David A. Blank, HCRI Technologies Intl.*

The papers in this session are available in a single publication, SP-2081, and also individually.

Planned by Lubricants and Powertrain Systems Committee / Powertrain Fuels and Lubricants Activity

Wednesday, April 18

Advanced Catalysts and Substrates (Part 1 of 2)

Session Code: ***PFL1***

Room D2-13/14 ***Session Time: 9:00 a.m.***

Light-duty gasoline vehicles with ultra-low tailpipe emissions have been introduced in major markets worldwide. The emission levels associated with these ultra-low gasoline vehicles were facilitated by systems engineering that combined advanced emission control technologies with advanced engine components, advanced calibration strategies, and the use of ultra-low sulfur gasoline. This session contains technical papers that discuss continued progress in this systems engineering experience required to achieve ultra-low emission levels on light-duty vehicles. Emission system component topics discussed in this session include the development of high efficiency, advanced three-way catalysts, the development of high performance NOx adsorber catalysts for gasoline partial lean burn engines, the application of high cell density substrates to high performance emission systems, and the integration of these components into full vehicle emission systems to achieve near-zero tailpipe emission levels.

Organizers - *Rasto Brezny, Manufacturers of Emission Controls Assoc.; Ronald M. Heck, RMH Consulting; Joseph E. Kubsh, Manufacturers of Emission Controls Assoc.; Pramod K. Ravindran, Engelhard Corp.*

Time	Paper No.	Title
9:00 a.m.	***2007-01-1055***	***The Effects of Platinum and Rhodium on the Functional Properties of a Lean NOx Trap***
		Joseph R. Theis, Justin A. Ura, Robert W. McCabe, Ford Motor Co.
9:30 a.m.	***2007-01-1056***	***Improvement of NOx Storage-Reduction Catalyst***
		Yoshiteru Yazawa, Masahiko Takeuchi, Masao Watanabe, Toyota Motor Corp.; Haruo Imagawa, Toshiyuki Tanaka, Toyota Central R&D Labs Inc.
10:00 a.m.	***2007-01-1057***	***High OSC CeO2/ZrO2 Mixed Oxides Used as Preferred Metal Carriers for Advanced Catalysts***
		E. Rohart, S. Verdier, Rhodia Research & Technologies; H. Takemori, E. Suda, K. Yokota, Rhodia Anan Kasei
10:30 a.m.	***2007-01-1058***	***Aging of Zeolite Based Automotive Hydrocarbon Traps***
		Theodore Kostek, Southwest Research Institute; Matthew A. Franchek, Univ. of Houston
11:00 a.m.	***2007-01-1059***	***Development of Three-Way Catalyst with the Simultaneous Function of HC-Trapping and Ni-Free H2S Control***
		Jaeau Ha, Heesung Engelhard Crop; Jinwoo Song, Hyun Sik Han, Heesung Engelhard Corp.
11:30 a.m.	***2007-01-1060***	***Oxygen Partial Pressure over Precious Metals and Its effect on HC Oxidation Performance***
		Yasushi Tanaka, Makoto Nagata, N E Chemcat Corp.

The papers in this session are available in a single publication, SP-2065, and also individually.

Planned by Exhaust Aftertreatment and Emissions Committee / Powertrain Fuels and Lubricants Activity

Wednesday, April 18

Advanced Catalysts and Substrates (Part 2 of 2)

Session Code: ***PFL1***

Room D2-13/14 ***Session Time:*** ***1:30 p.m.***

Light-duty gasoline vehicles with ultra-low tailpipe emissions have been introduced in major markets worldwide. The emission levels associated with these ultra-low gasoline vehicles were facilitated by systems engineering that combined advanced emission control technologies with advanced engine components, advanced calibration strategies, and the use of ultra-low sulfur gasoline. This session contains technical papers that discuss continued progress in this systems engineering experience required to achieve ultra-low emission levels on light-duty vehicles. Emission system component topics discussed in this session include the development of high efficiency, advanced three-way catalysts, the development of high performance NOx adsorber catalysts for gasoline partial lean burn engines, the application of high cell density substrates to high performance emission systems, and the integration of these components into full vehicle emission systems to achieve near-zero tailpipe emission levels.

Organizers - *Rasto Brezny, Manufacturers of Emission Controls Assoc.; Ronald M. Heck, RMH Consulting; Joseph E. Kubsh, Manufacturers of Emission Controls Assoc.; Pramod K. Ravindran, Engelhard Corp.*

Time	Paper No.	Title

1:30 p.m.	***2007-01-1260***	***The Volvo S40/V50 PZEV MY2007 with an Optimized 2.4l Engine*** *Mats Laurell, Jan Dahlgren, Jukka Vaisanen, Volvo Car Corp.*
2:00 p.m.	***2007-01-1261***	***The Potential for Achieving Low Hydrocarbon and NOx Exhaust Emissions from Large Light-Duty Gasoline Vehicles*** *Joseph W. Anthony, Southwest Research Institute; Joseph E. Kubsh, Manufacturers of Emission Controls Assoc.*
2:30 p.m.	***2007-01-1262***	***Development of Advanced Metallic Substrate Design for Close Coupled Converter Applications*** *Klaus Mueller-Haas, Emitec; Ronald Dean, Randal Olsen, Joseph Adams, DaimlerChrysler; Lisa Manasse, Michael Church, Johnson Matthey; Mike Rice, Emitec*
3:00 p.m.	***2007-01-1263***	***Palladium/Rhodium Dual-Catalyst LEV 2 and Bin 4 Close-Coupled Emission Solutions*** *W. Burton Williamson, John G. Nunan, David G. Frownfelter, Richard S. McClaughry, Glenn E. Tripp, Julia T. Huynh, Delphi Automotive Systems*
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-1264***	***New Type of Metal Substrates for Catalytic Converters Durability for Elevated Temperature*** *Tooru Inaguma, Shogo Konya, Hiroaki Sakamoto, Tsuyoshi Yamauchi, Masayuki Kasuya, Yuichi Okazaki, Nippon Steel Corp.*
4:15 p.m.	***2007-01-1265***	***Effects of Substrate Diameter and Cell Density on FTP Performance*** *Douglas J. Ball, Delphi Corp.; Michael Zammit, DaimlerChrysler Corp.; George Mitchell, DaimlerChrysler Vehicle Engineering*

The papers in this session are available in a single publication, SP-2065, and also individually.

Planned by Exhaust Aftertreatment and Emissions Committee / Powertrain Fuels and Lubricants Activity

Wednesday, April 18

Homogeneous Charge Compression Ignition (HCCI) (Part 5 of 8) Optical Diagnostics

Session Code: ***PFL11***

Room D2-15 ***Session Time:*** ***9:00 a.m.***

This session presents optical measurements to characterize HCCI combustion.

Organizers - *Kevin P. Duffy, Caterpillar Inc.; Bengt Johansson, Lund University; David M. Milam, Caterpillar Inc.; Nebojsa Milovanovic, Delphi Diesel Systems; Per Tunestal, Lund University; Hongming Xu, Univ. of Birmingham*

Chairpersons - *David M. Milam, Caterpillar Inc.*

Time	***Paper No.***	***Title***
9:00 a.m.	***2007-01-0188***	***19-Color H2O Absorption Spectrometer Applied for Real-Time In-Cylinder Gas Thermometry in an HCCI Engine*** *Chun Lan, Andrew W. Caswell, Laura A. Kranendonk, Scott T. Sanders, Univ. of Wisconsin-Madison; Yasuhiro Urata, Yasuhira Okura, Honda R&D Co., Ltd.*
9:30 a.m.	***2007-01-0180***	***Improving the NOx-CO2 Trade-Off of an HCCI Engine Using a Multi-Hole Injector*** *Richard Steeper, Sandia National Laboratories; Shane De Zilwa, Fair Isaac Corporation*

10:00 a.m.	***2007-01-0212***	***Investigation of the Early Flame Development in Spark Assisted HCCI Combustion Using High Speed Chemiluminescence Imaging***
		Håkan Persson, Anders Hultqvist, Bengt Johansson, Lund University; Alfredo Remón, Simón Bolívar University
10:30 a.m.	***2007-01-0192***	***Extinction and Chemiluminescence Measurements in CR DI Diesel Engine Operating in HCCI Mode***
		Ezio Mancaruso, Bianca M. Vaglieco, Simona S. Merola, Istituto Motori CNR

The papers in this session are available in a single publication, SP-2100, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Wednesday, April 18

Homogeneous Charge Compression Ignition (HCCI) (Part 6 of 8) Gasoline HCCI

Session Code: ***PFL11***

Room D2-15 ***Session Time:*** ***1:30 p.m.***

This session presents studies on HCCI combustion in gasoline engines. Effects of injection timing, negative valve overlap, EGR and intake temperature are presented.

Organizers - *Kevin P. Duffy, Caterpillar Inc.; Bengt Johansson, Lund University; David M. Milam, Caterpillar Inc.; Nebojsa Milovanovic, Delphi Diesel Systems; Per Tunestal, Lund University; Hongming Xu, Univ. of Birmingham*

Chairpersons - *Bengt Johansson, Lund University*

Time	***Paper No.***	***Title***
1:30 p.m.	***2007-01-0224***	***The Use of Fuel Chemistry and Property Variations to Evaluate the Robustness of Variable Compression Ratio as a Control Method for Gasoline HCCI***
		James P. Szybist, Bruce G. Bunting, Oak Ridge National Laboratory
2:00 p.m.	***2007-01-0173***	***An Experimental Approach to the Controlled Auto-Ignition***
		Yoichi Ishibashi, Hideaki Morikawa, Honda R&D Co., Ltd.
2:30 p.m.	***2007-01-0197***	***Investigation of the Effects of Injection Timing on Thermo-Atmosphere Combustion of Methanol***
		Mingfa Yao, Zheng Chen, Zun-qing Zheng, Tianjin Univ.
3:00 p.m.	***2007-01-0207***	***Thermodynamic and Chemical Effects of EGR and Its Constituents on HCCI Autoignition***
		Magnus Sjoberg, John Dec, Wontae Hwang, Sandia National Laboratories
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-0209***	***Particulate Emissions from a Gasoline Homogeneous Charge Compression Ignition Engine***
		Philip Price, University of Oxford; Richard Stone, Univ. of Oxford; Jacek Misztal, Hongming Xu, Miroslaw Wyszynski, Univ. of Birmingham; Trevor Wilson, Jaguar Cars, Ltd.; J. Qiao, Jaguar Cars
4:15 p.m.	***2007-01-0219***	***Experimental Investigation into the Effects of Direct Fuel Injection During the Negative Valve Overlap Period in an Gasoline Fueled HCCI Engine***
		John Ogalla Waldman, Dennis Nitz, Tanet Aroonsrisopon, David E. Foster, Univ. of Wisconsin Madison; Minoru Iida, Yamaha Motor Co., Ltd.

4:45 p.m.	***2007-01-0221***	***Effect of Intake Air Temperature and Humidity on Gasoline HCCI Operating in the Negative-Valve-Overlap Mode*** *Morgan Andreae, Cummins Engine Co., Ltd.; Wai Cheng, Massachusetts Institute of Technology; Thomas Kenney, Ford Motor Co.; Jialin Yang*

The papers in this session are available in a single publication, SP-2100, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Wednesday, April 18

Diesel Exhaust Emission Control (Part 6 of 10) DPF Systems

Session Code: ***PFL6***

Room D3-19 ***Session Time:*** ***9:00 a.m.***

This session is concerned with DPF System looking specifically at the means and the control of regeneration of the filter.

Organizers - *Paul J. Richards, Innospec Limited; Eric R. Corrigan, Corning Inc.; Kevin F. Brown, Engine Control Systems*

Chairpersons - *Paul J. Richards, Innospec Limited; Eric R. Corrigan, Corning Inc.*

Time	***Paper No.***	***Title***
9:00 a.m.	***2007-01-1061***	***Development of Diesel Engine System with DPF for European Market*** *Makoto Ootake, Terunori Kondou, Mamoru Ikeda, Masanao Daigo, Masahiko Nakano, Junichi Yokoyama, Manabu Miura, Nissan Motor Co., Ltd.*
9:30 a.m.	***2007-01-1063***	***Detailed Diesel Exhaust Particulate Characterization and DPF Regeneration Behavior Measurements for Two Different Regeneration Systems*** *Niklas Schmidt, Ekathai Wirojsakunchai, Eric Schroeder, Christopher Kolodziej, Thatcher Root, David Foster, Univ. of Wisconsin - Madison; Toshiyuki Suga, Honda R&D Americas Inc.; Terunao Kawai, National Traffic Safety & Enviro Lab.*
10:00 a.m.	***2007-01-1064***	***Development of a Diesel Particulate Filter Burner Control System for Active Trap Regeneration*** *Clark Paterson, Ed Van Dyne, Woodward Governor Company; Rudolf Stanglmaier, Colorado State University*
10:30 a.m.	***2007-01-1266***	***Thermal and Chemical Aging of Diesel Particulate Filters*** *Herbert Dacosta, Corey Shannon, Ronald Silver, Caterpillar Inc.*
11:00 a.m.	***2007-01-1267***	***A New Diesel Particulate Filter Using a Metal Foam Filter Combined with Electrostatic Precipitation Mechanism*** *Seok Joo Park, Clean Energy System Research Center; Dong Geun Lee, Chungnam National Univ.; Gyubaek Cho, HOngsuk Kim, Young I. Jeong, Korea Institute of Machinery & Materials; Kwonoh Oh, Eui Sung Lee, Korea Nickel Corp.*

The papers in this session are available in a single publication, SP-2080, and also individually.

Planned by Exhaust Aftertreatment and Emissions Committee / Powertrain Fuels and Lubricants Activity

Wednesday, April 18

Diesel Exhaust Emission Control (Part 7 of 10) DPF Systems

Session Code: ***PFL6*** ***1:30 p.m.***

Room D3-19 ***Session Time:***

This session is concerned with DPF-Systems looking specifically new substrate and coating technologies with additional papers looking at aging and the soot oxidation process.

Organizers - *Paul J. Richards, Innospec Limited; Eric R. Corrigan, Corning Inc.; Kevin F. Brown, Engine Control Systems*

Chairpersons - *Paul J. Richards, Innospec Limited; Eric R. Corrigan, Corning Inc.*

Time	Paper No.	Title
1:30 p.m.	***2007-01-1268***	***Performance Aspects of New Catalyzed Diesel Soot Filters Based on Advanced Oxide Filter Materials*** *Willard A. Cutler, Thorsten Boger, Corning GmbH; Andrew Chiffey, Paul Phillips, Daniel Swallow, Martyn V. Twigg, Johnson Matthey PLC*
2:00 p.m.	***2007-01-1269***	***On Road Durability and Field Experience Obtained with an Aluminum Titanate Diesel Particulate Filter*** *Thorsten Boger, Dominik Rose, Otto A. Pittner, Claudia Jaskula, Corning GmbH; Thomas Glasson, Victor Miranda Da Costa, Corning S.A.S.*
2:30 p.m.	***2007-01-1270***	***Experimental Investigation of Soot Oxidation Characteristic with NO2 and O2 using a Flow Reactor Simulating DPF*** *Jay Hwee Lee, Hyeong-Sang Lee, Soonho Song, Kwang Min Chun, Yonsei Univ.*

The papers in this session are available in a single publication, SP-2080, and also individually.

Planned by Exhaust Aftertreatment and Emissions Committee / Powertrain Fuels and Lubricants Activity

Wednesday, April 18

Diesel Exhaust Emission Control (Part 8 of 10) Durability of Diesel Exaust Emission Control Systems

Session Code: ***PFL9***

Room D3-19 ***Session Time:*** ***3:00 p.m.***

This session includes publications contributing to the understanding of the diesel exhaust aftertreatment systems' durability, mechanisms of their performance degradation and possible mitigation strategies. The session includes information from the field tests, analysis of the aged catalysts, laboratory and accelerated on-engine aging studies, as well as relevant experimental tools and methodology.

Organizers - *Aleksey Yezerets, Cummins Engine Co., Ltd.; Kevin F. Brown, Engine Control Systems*

Time	Paper No.	Title
3:00 p.m.	***2007-01-0468***	***NOx Adsorber Aging on a Heavy-Duty On-Highway Diesel Engine ¿ Part Two*** *Christopher A. Laroo, Charles R. Schenk, U.S. Environmental Protection Agency*
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-0469***	***Robustness of the LNT-SCR System to Aging Protocol*** *Rachel Snow, Santhoji Katare, Douglas Dobson, Robert H. Hammerle, Ford Motor Co.*

4:15 p.m.	***2007-01-0470***	***Rapid Aging of Diesel Lean NOx Traps by High-Temperature Thermal Cycling***
		Ke Nguyen, Hakyong Kim, Univ. of Tennessee; Bruce G. Bunting, Todd Toops, Oak Ridge National Laboratory; Cheon Seog Yoon, Hannam University
4:45 p.m.	***2007-01-0467***	***Structural Durability Evaluation of Exhaust System Components***
		Lakshmikanth Meda, Helge Lawrenz, Martin Romzek, Daniel Gilmer, Eberspaecher North America Inc.
5:15 p.m.	***2007-01-0471***	***Advanced Mounting System for Light Duty Diesel Filter***
		Seth T. Nickerson, Constance B. Sawyer, Suresh T. Gulati, Corning Inc.; Sergio D. Fernandes, James R. Olson, Unifrax Corporation

The papers in this session are available in a single publication, SP-2080, and also individually.

Planned by Exhaust Aftertreatment and Emissions Committee / Powertrain Fuels and Lubricants Activity

Wednesday, April 18

System Level Architecture Design Tools and Methods (Part 1 of 2)

Session Code: ***AE10***

Room D3-20/21 ***Session Time:*** ***9:00 a.m.***

This session focuses on solutions related to meeting the electrical system architecture design challenge. This may revolve around optimizing various architectural dimensions such the network or wiring topology, protocol types and the mapping of functions to ECU's, across systems metrics such as monetary cost, end to end latency and dependability. In addition, enablers such as seamless virtual integration tool frameworks, model to model translators and novel meta-model definitions are also within the scope of this session.

Organizers - *Bruce Emaus, Tom Guthrie, Vector CANtech Inc.; Sri Kanajan, General Motors*

Time	***Paper No.***	***Title***
9:00 a.m.	***2007-01-1277***	***Architecture Exploration for Time-Critical and Cost-Sensitive Distributed System***
		Claudio Pinello, Sri Kanajan, General Motors Corp.; Paolo Giusto, Marco Dinatale, General Motors; Patrick Popp, General Motors Corp.
9:30 a.m.	***2007-01-1271***	***A Modeling Framework for Efficient Safety Critical Time-Triggered Architecture Design***
		Juan Martin Perez, Antonio Perez, Oskar Berreteaga, Alberto Ruiz De Olano, Ikerlan
10:00 a.m.	***2007-01-1273***	***An Initial Study on Monetary Cost Evaluation for the Design of Automotive Electronic Architectures***
		Arkadeb Ghosal, UC Berkeley; Sri Kanajan, Randall Urbance, General Motors Corp.; Alberto Sangiovanni-Vincentelli, Univ. of California-Berkeley
11:00 a.m.	***2007-01-1276***	***A Virtual Platform for Architecture Integration and Optimization in Automotive Communication Networks***
		Razvan Racu, Technical University of Braunschweig, Germany; Kai Richter, Symtavision GmbH; Rolf Ernst, Technical Univ. of Braunschweig; Marek Jersak, Symtavision GmbH
	2007-01-1272	***Adding Timing Analysis to Functional Design to Predict Implementation Errors (Written Only -- No Oral Presentation)***
		Paolo Gai, Evidence Srl

The papers in this session are available in a single publication, SP-2129, and also individually.

Planned by Electrical and Electronic Systems Committee / Automobile Electronic Activity

Wednesday, April 18

System Level Architecture Design Tools and Methods (Part 2 of 2)

Session Code: ***AE10***

Room D3-20/21 ***Session Time:*** ***1:30 p.m.***

This session focuses on concepts related to architectural design in various dimensions such as deciding the network or wiring topology, choosing between time-triggered vs. event triggered protocols and mapping of functions to ECU's. The methods could also involve techniques to analyze or optimize metrics such as monetary cost, timing jitter or latency and dependability. In addition, enablers such as seamless virtual integration tool frameworks, model to model translators and novel meta-model definitions are also within the scope of this session.

Organizers - *Bruce Emaus, Tom Guthrie, Vector CANtech Inc.; Sri Kanajan, General Motors*

Time	Paper No.	Title
1:30 p.m.	***2007-01-1275***	***SMART Tool Based Analysis of E/E Subsystems***
		Rainer Denkelmann, Jeffrey Higgins, Dirk Siebert, Georg Sobczyk, Douglas Turner, Delphi Corp.
2:00 p.m.	***~~2007-01-1776~~***	***A Solution for System-Level E/E Design***
	ORAL ONLY	*Jason W. Paskvan, Mentor Graphics Corp.*
2:30 p.m.	***2007-01-1278***	***Seamless System-Oriented Development Process - A Key Factor for Error Prevention and Cost Reduction***
		Reinhold Blank, Intedis GmbH & Co. KG
3:00 p.m.	***2007-01-1279***	***Effective Cooperation of System Level und ECU Centric Tools within the AUTOSAR Tool Chain***
		Dirk Stichling, Oliver Niggemann, Rainer Otterbach, dSPACE GmbH; Karsten Hoffmeister, Elektrobit Automotive Software
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-1274***	***Design Tools for FlexRay Applications and Networks***
		Roman Pallierer, DECOMSYS Dependable Computer Systems
	2007-01-1280	***Conceptual Performance Analysis Eliminates Distributed System Design Risks (Written Only -- No Oral Presentation)***
		Deepak Shankar, Mirabilis Design Inc.

The papers in this session are available in a single publication, SP-2129, and also individually.

Planned by Electrical and Electronic Systems Committee / Automobile Electronic Activity

Wednesday, April 18

Developing New Technology Through Student Design Competitions

Session Code: ***PFL13***

Room D3-22/23 ***Session Time:*** ***9:00 a.m.***

This session presents detailed information on how teams of collegiate student engineers have incorporated new technologies into advanced vehicles designed to deliver significantly improved energy efficiency and reduced greenhouse gas emissions without sacrificing the functionality and performance consumers have come to expect. Using a wide range of cutting-edge hybrid vehicle configurations, these presentations explain how the designs were selected, modeled, built, tested, and validated in the context of a modern vehicle development process.

Organizers - *Stephen D. Gurski, Robert P. Larsen, Argonne National Laboratory*

Chairpersons - *Forrest Jehlik, Argonne National Laboratory*

Time	Paper No.	Title

9:00 a.m.	***2007-01-1069***	***Implementation and Optimization of a Fuel Cell Hybrid Powertrain***
		Erik J. Wilhelm, University of Waterloo
9:30 a.m.	***2007-01-1067***	***Hybrid-Electric Vehicle Controller Development - Levels of Simulation and Verification***
		Marc E. Herniter, Zachariah Chambers, Caleb N. Harper, Jeffrey S. Parks, Matthew D. DeVries, Benjamin T. Clavola, Adam M. Williams, Edgar A. Vargas, Gary V. Wieneke, Rose-Hulman Institute of Technology
10:00 a.m.	***2007-01-1066***	***Vehicle Design Analysis and Validation for the Equinox REVLSE E85 Hybrid Electric Vehicle***
		Steven Boyd, Kurt Matthew Johnson, Dustin Hall Sheffield, Irene Berry, Erin Hissong, Brian Goode, Douglas J. Nelson, Virginia Tech.
10:30 a.m.	***2007-01-1065***	***Redesign of a 2005 Chevy Equinox Rear Cradle for the Implementation of a Hybrid Electric Drive***
		Christopher Whitt, Mississippi State Univ.
11:00 a.m.	***2007-01-1068***	***Design and Testing of a Prototype Hybrid-Electric Split-Parallel Crossover Sports Utility Vehicle***
		Elizabeth Casson; Daniel Bocci; Ethan Brodsky; Daniel Mehr, Rebecca Gunn, Glenn R. Bower, Univ. of Wisconsin Madison

Planned by Advanced Power Sources Committeee / Powertrain Fuels and Lubricants Activity

Wednesday, April 18

Variable Valve Actuation (Part 1 of 3)

Session Code: ***PFL36***

Room D3-22/23 ***Session Time:*** ***1:30 p.m.***

Variable Valve Actuation mechanisms, devices, systems and the impact of such systems on thermodynamics, combustion, fuel economy, emissions and controls.

Organizers - *Timothy W. Kunz, Delphi Corp.; Ronald Pierik, GM Powertrain*

Time	***Paper No.***	***Title***
1:30 p.m.	***2007-01-1282***	***Unthrottled Engine Operation with Variable Intake Valve Lift, Duration, and Timing***
		David John Cleary, Gerald Silvas, General Motors Research and Development
2:00 p.m.	***2007-01-1283***	***Co-Simulation Analysis of Transient Response and Control for Engines with Variable Valvetrains***
		James Fern Sinnamon, Delphi Research Labs
2:30 p.m.	***2007-01-1288***	***Valve Event Detection Using Knock Sensor Signals***
		John Pakkala, Milwaukee School of Engineering; Michael James Scheuerell, Eaton Corp.
3:00 p.m.	***2007-01-1281***	***Valve-Event Duration Reduction Through Ultra-Fast Phaser Actuation***
		David B. Roth, James Sisson, Marty Gardner, Braman Wing, BorgWarner Inc.
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-1294***	***High Performance Electric Camshaft Phasing System***
		Jens Schaefer, Jeff S. Balko, INA Schaeffler KG

4:15 p.m.	***2007-01-1293***	***High Speed Electric Actuator Designs for Improved Air Intake***
		Guillaume Loussert, Didier Angleviel, Gael Andrieux, Stephan Biwersi, Michael Delbaere, Moving Magnet Technologies SA

The papers in this session are available in a single publication, SP-2135, and also individually.

Planned by Control and Calibration Committee / Powertrain Fuels and Lubricants Activity

Wednesday, April 18

General Emissions (Part 1 of 4) - Catalyst Performance and Emissions

Session Code: ***PFL2***

Room D3-24/25 ***Session Time:*** ***9:00 a.m.***

This session will address a variety of subjects including: catalyst substrates and converter technology, traffic effects on emissions, aftertreatment, Euro emissions, ethanol blends and some aspects of modeling.

Organizers - *Brian E. Mace, Volvo Powertrain North America*

Time	***Paper No.***	***Title***
9:00 a.m.	***2007-01-1070***	***Parametric Analysis of Catalytic Converter Plugging Caused by Manganese-Based Gasoline Additive***
		Chiharu Shimizu, Yoshiyuki Ohtaka, Honda R&D Co., Ltd.
9:30 a.m.	***2007-01-1072***	***Impact of Oil Consumption Modes and Pathways on Oil-Derived Catalyst Deposits***
		Lifeng Xu, Robert W. McCabe, Carolyn P. Hubbard, Robert M. Dennis, James M. Tabron, Kristofor R. Norman, Ford Motor Co.
10:00 a.m.	***2007-01-1078***	***Interaction of MMT® Combustion Products with the Exhaust Catalyst Face***
		Joseph W. Roos, Lawrence Cunningham, Michael Meffert, Afton Chemical Corp.
10:30 a.m.	***2007-01-1074***	***Zero Delay Light-Off - New Cold-Start Concept with a Latent Heat Storage Integrated into a Catalyst Substrate***
		Gerd Gaiser, Christian Seethaler, J Eberspacher GmbH & Co.
11:00 a.m.	***2007-01-1085***	***Exhaust Emission Level Reduction in Two-Stroke Engine using In-Cylinder Combustion Control***
		Stephen Samuel, Kashif Shaukat Moughal, Oxford Brookes Univ.

The papers in this session are available in a single publication, SP-2090, and also individually.

Planned by Exhaust Aftertreatment and Emissions Committee / Powertrain Fuels and Lubricants Activity

Wednesday, April 18

General Emissions (Part 2 of 4) - Catalyst Modeling, Materials and Diesel Emissions

Session Code: ***PFL2***

Room D3-24/25 ***Session Time:*** ***1:30 p.m.***

This session will address a variety of subjects including: catalyst substrates and converter technology, traffic effects on emissions, aftertreatment, Euro emissions, ethanol blends and some aspects of modeling.

Organizers - *Brian E. Mace, Volvo Powertrain North America; Matthew S. Newkirk, Afton Chemical Corp.*

Time	***Paper No.***	***Title***

1:30 p.m.	***2007-01-1071***	***Three-Way-Catalyst Modeling ¿ A Comparison of 1D and 2D Simulations***
		Steffen Tischer, Yi Jiang, Katherine W. Hughes, M. D. Patil, Michael Murtagh, Corning Inc.
2:00 p.m.	***2007-01-1088***	***Numerical Optimization of Flow Uniformity inside an F-Oval Substrate***
		Xiaogang Zhang, Ted Gomulka, Martin Romzek, Eberspaecher North America Inc.
2:30 p.m.	***2007-01-1081***	***Development of a New Oxygen Storage Model for SIMTWC***
		Gang Guo, Michael Shane, Paul Laing, Trescott Jensen, Ford Motor Company
3:00 p.m.	***2007-01-1086***	***Application of Transient Temperature vs. Equivalence Ratio Emission Maps to Engine Simulations***
		Miriam Bergman, Valeri Golovitchev, Chalmers Univ. of Technology
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-1077***	***Engineered Mat Technology for High Temperature Close Coupled Applications***
		Mitchell Watson, Javier Gonzalez, 3M Company, Automotive Division

The papers in this session are available in a single publication, SP-2090, and also individually.

Planned by Exhaust Aftertreatment and Emissions Committee / Powertrain Fuels and Lubricants Activity

Wednesday, April 18

Modeling of SI and Diesel Engines (Part 5 of 7) - Thermal Modeling of Engines

Session Code: ***PFL37***

Room D3-26/27 ***Session Time:*** ***9:00 a.m.***

Thermal Modeling of Engines

Organizers - *Thomas Morel, Gamma Technologies Inc.*

Chairpersons - *Brian Luptowski, Gamma Technologies Inc.*

Assistant Chairpersons - *Caterina Venezia, FIAT Research Center*

Time	***Paper No.***	***Title***
9:00 a.m.	***2007-01-1091***	***Study of the Transient Operation of Low Heat Rejection Turbocharged Diesel Engine Including Wall Temperature Oscillations***
		Evangelos Giakoumis, Constantine Rakopoulos, National Technical Univ. of Athens
9:30 a.m.	***2007-01-1092***	***Analysis and Modeling of Heat Transfer in the SI Engine Exhaust System During Warm-Up.***
		Stefan Heller, BMW Group
10:00 a.m.	***2007-01-1094***	***Numerical and Experimental Investigation of the Thermal Behavior of a Complete Exhaust System***
		Francesco Fortunato; Marco Caprio
11:00 a.m.	***2007-01-1772***	***A Study of Vehicle Fuel Economy Improvement by Optimization of the Cooling and Ancillary Systems of a Heavy Duty Engine***
		Myung Seok Lyu, Hyundai Motor Co.

The papers in this session are available in a single publication, SP-2079, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Wednesday, April 18

Modeling of SI and Diesel Engines (Part 6 of 7) - Modeling of Engines for Control Applications

Session Code: ***PFL37***

Room D3-26/27 ***Session Time:*** ***1:30 p.m.***

Modeling of Engines for Control Applications

Organizers - *Thomas Morel, Gamma Technologies Inc.*

Chairpersons - *John J. Silvestri, Gamma Technologies Inc.*

Assistant Chairpersons - *Koos Zwaanenburg, ETAS*

Time	Paper No.	Title
1:30 p.m.	***2007-01-1303***	***Crank Angle - Based Diesel Engine Modeling for Hardware-in-the-Loop Applications with In-Cylinder Pressure Sensors***
		Herbert Schuette, Tino Schulze, Markus Wiedemeier, dSPACE GmbH
2:00 p.m.	***2007-01-1301***	***Development of a New Mean Value Model for the Analysis of Turbolag Phenomena in Automotive Diesel Engines***
		F. Millo, Politecnico di Torino; M. Pettiti, L. Pilo, Fiat Powertrain Technologies Italia
2:30 p.m.	***2007-01-1299***	***Modeling of Sensor Performance During Engine Testing***
		Jiri Vavra, Czech Technical Univ.
3:00 p.m.	***2007-01-1304***	***Development and Validation of a Mean Value Engine Model for Integrated Engine and Control System Simulation***
		Yongsheng He, Chan-Chiao Lin, General Motors Corp.
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-1302***	***Development of an Engine Torque Estimation Model: Integration of Physical and Statistical Combustion Model***
		Machiko Katsumata, Yukio Kuroda, Akira Ohata, Toyota Motor Corp.
4:15 p.m.	***2007-01-1300***	***Integration of a Physical AMESim® Engine Model in a Hardware in the Loop Environment, Dedicated to Engine Control Unit Testing***
		Thierry Bourdon, Landry Saussol, Siemens VDO Automotive SAS
4:45 p.m.	***2007-01-1463***	***Powertrain Modeling Advances***
		Joseph Philip Lomonaco, DaimlerChrysler Powertrain Engrg

The papers in this session are available in a single publication, SP-2079, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Wednesday, April 18

Advanced Hybrid Vehicle Powertrains (Part 5 of 6) New Concepts and Testing

Session Code: ***PFL14***

Room D3-28 ***Session Time:*** ***9:00 a.m.***

Papers in this session cover new hybrid concepts, fleet testing, and drive cycle development for heavy duty trucks in refuse collection service.

Organizers - *Michael Duoba, Argonne National Laboratory; Matthew E. Fleming, Ford Motor Co.; Mark A. Theobald, GM Powertrain; S. R. Weerasinghe, University of Sussex*

Chairpersons - *Mark A. Theobald, GM Powertrain; S. R. Weerasinghe, Univ. of Sussex*

Time	Paper No.	Title
9:00 a.m.	***2007-01-0288***	***Introductory Study of Variable Valve Actuation for Pneumatic Hybridization***
		Sasa Trajkovic, Per Tunestal, Bengt Johansson, Lund University; Urban Carlson, Anders Hoglund, Cargine Engineering Ab
9:30 a.m.	***2007-01-0270***	***The Controllability of Vapour Based Thermal Recovery Systems in Vehicles***
		Richard K. Stobart, Sandra Michele Hounsham, Rohitha Weerasinghe, Univ. of Sussex
10:00 a.m.	***2007-01-0284***	***Hybrid Vehicle / Building Thermal and Electric System Combination***
		Eric F. Weber, MIT
10:30 a.m.	***2007-01-0289***	***Analysis of Hybrid Electric Vehicle Performance -- An HEV Test in the Urban Area***
		Yaojung Shiao, National Taipei University of Technology; Meiling Jow, Tamkang Univ.
	2007-01-0302	***Duty Cycle Characterization and Evaluation Towards Heavy Hybrid Vehicle Applications (Written Only -- No Oral Presentation)***
		Michael P. O'Keefe, National Renewable Energy Laboratory; Daniel Pedersen, Oshkosh Truck Corp.; Andrew Simpson, Kenneth Kelly, National Renewable Energy Laboratory

The papers in this session are available in a single publication, SP-2101, and also individually.

Planned by Advanced Power Sources Committeee / Powertrain Fuels and Lubricants Activity

Wednesday, April 18

Advanced Hybrid Vehicle Powertrains (Part 6 of 6) Hybrid Power Electronics: Two-Mode Hybrid Powertrains

Session Code: ***PFL14***

Room D3-28 ***Session Time:*** ***1:30 p.m.***

Papers in this session describe new developments in power electronics for hybrid drives. Additional papers describe GM's Two-Mode hybrid powertrain now in heavy duty service and as configured for new light duty applications.

Organizers - *Michael Duoba, Argonne National Laboratory; Matthew E. Fleming, Ford Motor Co.; Mark A. Theobald, GM Powertrain; S. R. Weerasinghe, University of Sussex*

Chairpersons - *Michael Duoba, Argonne National Laboratory*

Time	Paper No.	Title
1:30 p.m.	***2007-01-0277***	***Design Considerations for Power Electronics in HEV Applications***
		Mark Nils Münzer, Infineon
2:00 p.m.	***2007-01-0293***	***Development of an Insulated Gate Bipolar Transistor for the High-power Hybrid System***
		Norihiro Togawa

2:30 p.m.	***2007-01-0294***	***Development of Free Wheeling Diode for High-Power Hybrid Vehicles***
		Shinji Nakagaki; Tetsuya Kanta, Tadashi Misumi, Katsuhiko Nishiwaki, Tomoyoshi Kshida, Toyota Motor Corp.
3:00 p.m.	***2007-01-0271***	***Power Control Unit for High Power Hybrid System***
		Hiroshi Ishiyama, Yasuyuki Sakai, DENSO Corp.; Takaji Kikuchi, Toyota Motor Corp.
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-0272***	***Two-Mode Urban Transit Hybrid Bus In-Use Fuel Economy Results From 20 Million Fleet Miles***
		Peter Chiang, GM Powertrain
4:15 p.m.	***2007-01-0273***	***Defining the General Motors 2-Mode Hybrid Transmission***
		Timothy H. Grewe, GM Powertrain

The papers in this session are available in a single publication, SP-2101, and also individually.

Planned by Advanced Power Sources Committeee / Powertrain Fuels and Lubricants Activity

Wednesday, April 18

Transmission and Drivelines (Part 5 of 8) Transmission Systems

Session Code: ***PFL22***

Room M2-29 ***Session Time:*** ***9:00 a.m.***

This session contains papers representing some of the latest transmissions to enter production, as well as concept transmission systems. Three papers on new production six-speed planetary automatic transmissions from General Motors, Ford, Chrysler Group and Toyota are scheduled to be presented. The world's first 8-speed planetary automatic transmission for passenger cars is also presented. And finally a DCT architecture is discussed which involves the multiplexing of a novel electrical actuation system of dry clutches.

Organizers - *Joel H. Gunderson, General Motors Corp.; Berthold Martin, DaimlerChrysler Corp.*

Chairpersons - *Joel H. Gunderson, General Motors Corp.; Berthold Martin, DaimlerChrysler Corp.*

Time	***Paper No.***	***Title***
9:00 a.m.	***2007-01-1096***	***Double Clutch Transmission (DCT) using Multiplexed Linear Actuation Technology and Dry Clutches for High Efficiency and Low Cost***
		J.C. Wheals, A. Turner, K. Ramsay, Anthony O'Neill, J. Bennett, Haiping Fang, Ricardo Driveline and Transmission Systems, Ricardo Plc.
9:30 a.m.	***2007-01-1098***	***Toyota's New Six-Speed Automatic Transmission AB60E for RWD Vehicles***
		Masato Watanabe, Kazumichi Sasaki, Koichi Miyamoto, Masafumi Kinoshita, Toyota Motor Corp.; Manabu Hasegawa, Denso Corp.; Akifumi Yamasaki, Atsushi Mori, Hiroyuki Tsukamoto, Aisin AW Co., Ltd.
10:00 a.m.	***2007-01-1095***	***General Motors Hydra-Matic & Ford New FWD Six-Speed Automatic Transmission Family***
		Charles W. Lewis, GM Powertrain; Bryce A. Bollwahn, Ford Motor Co.
10:30 a.m.	***2007-01-1097***	***62TE 6-Speed Transaxle for Chrysler Group***
		Berthold Martin, Hussein Dourra, Charles J. Redinger, Mark R. Champine, Fred Goedtel, Gary K. Lowe, Steve Barrer, DaimlerChrysler Corp.
11:00 a.m.	***2007-01-1101***	***Toyota's World First 8-Speed Automatic Transmission for Passenger Cars***
		Hirofumi Ota, Kazutoshi Nozaki, Atsushi Honda, Masafumi Kinoshita, Toyota Motor Corp.; Toshihiko Aoki, Minoru Todo, Mikio Iwase, Aisin AW Co., Ltd.

The papers in this session are available in a single publication, SP-2134, and also individually.

Planned by Transmission and Driveline Committee / Powertrain Fuels and Lubricants Activity

Wednesday, April 18

Transmission and Drivelines (Part 6 of 8) Controls

Session Code: ***PFL22***

Room M2-29 ***Session Time:*** ***1:30 p.m.***

This session presents current progress in electronic controls of automatic transmission systems.

Organizers - *James Hendrickson, General Motors Corp.; Henry Zhang, DaimlerChrysler Technology Center*

Chairpersons - *James Hendrickson, General Motors Corp.*

Time	Paper No.	Title
1:30 p.m.	***2007-01-1308***	***Double Swap Shift Control***
		Hussein Dourra, DaimlerChrysler Corp.
2:00 p.m.	***2007-01-1310***	***Devlopment of Smooth Up-Shift Control Technology for Automatic Transmission with Integrated Control of Engine and Automatic Transmission***
		Takaaki Tokura, Tomohiro Asami, Yoshio Hasegawa, Toshio Sugimura, Katsumi Kono, Kenji Aoki, Toyota Motor Corp.
2:30 p.m.	***2007-01-1311***	***Toyota AA80E 8-Speed Automatic Transmission with Novel Powertrain Control System***
		Masami Kondo, Yoshio Hasegawa, Yoji Takanami, Kenji Arai, Masaharu Tanaka, Masafumi Kinoshita, Toyota Motor Corporation; Takeshi Ootsuki, Tetsuya Yamaguchi, Akira Fukatsu, Aisin AW Co. Ltd.
3:00 p.m.	***2007-01-1306***	***Toyota's New Integrated Drive Power Control System***
		Seiji Kuwahara, Katsumi Kono, Masato Kaigawa, Hideki Kubonoya, Hiroshi Mizuno, Toyota Motor Corp.
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-1313***	***Clutch-to-Clutch Transmission Control Strategy***
		John Marano, Steven Patrick Moorman, Matthew D. Whitton, Robert Lee Williams, GM Powertrain
4:15 p.m.	***2007-01-1309***	***Mechatronics for "Shift by Wire" - A Technical Challange***
		Karl Smirra, Siemens VDO Automotive AG
4:45 p.m.	***2007-01-1307***	***Zeroshift. A Seamless Automated Manual Transmission (AMT) with no Torque Interrupt***
		Ray Heath, Tony Child, Zeroshift
	2007-01-1314	***Studies on Anti-Slip Regulation Technologies for AMT Vehicles (Written Only -- No Oral Presentation)***
		Hui Jin, Beijing Institute of Technology; Ge Anlin, Jilin Univ.

The papers in this session are available in a single publication, SP-2134, and also individually.

Planned by Transmission and Driveline Committee / Powertrain Fuels and Lubricants Activity

Wednesday, April 18

Intelligent Vehicle Initiative (IVI) Technology Advanced Controls and Navigation Systems (Part 1 of 2)

Session Code: ***AE7***

Room M2-30 ***Session Time:*** ***9:00 a.m.***

A collection of technical papers presented by leading experts in the field, Intelligent Vehicle Technologies covers vehicle navigation, collision avoidance, sensor and camera based autonomous driving and parking, vehicle to vehicle communications, and more. Practical examples and applications of sensors, software, control logic, and data used to assist, control, and/or guide the driver and/or vehicle.

Organizers - *Daniel J. Bartz, Self-Guided Systems; Milton J. Dunlop, Kenneth W. Webster, Transportation Research Center Inc.*

Time	Paper No.	Title
9:00 a.m.	***2007-01-1106***	***Standardised Interface Between Advanced Driver Assistance Systems and Digital Maps for Safer, Smarter and Cleaner Transport***
		Vincent Blervaque, ERTICO
9:30 a.m.	***2007-01-1102***	***Map Matching with Travel Time Constraints***
		John Charles Krumm, Microsoft Corp.; Julie Letchner, Univ. of Washington; Eric Horvitz, Microsoft Corp.
10:30 a.m.	***2007-01-1104***	***Object Detection and Tracking using an Optical Time-of-Flight Range Camera Module for Vehicle Safety and Driver Assist Applications***
		Steve Hsu, Canesta, Inc.; David Hirvonen, Elucideye, Inc.; Abbas Rafii, Canesta, Inc.
11:00 a.m.	***2007-01-1105***	***An Efficient Visual Forward Collision Warning Display for Vehicles***
		Henrik Lind, Volvo Car Corporation
	2007-01-1103	***Ultrasonic Sensor Modeling for Automatic Parallel Parking Systems in Passenger Cars (Written Only -- No Oral Presentation)***
		Pär Degerman, Jochen Pohl, Magnus Sethson, Linköping Univ.
	2007-01-1107	***A Navigation Assistance Agent: Mobile LBS Web Service (Written Only -- No Oral Presentation)***
		Dengyue Li; Shengrui Wang, AUTO21 Network of Centres of Excellence; Zhen Mei, Manifold Data Mining Inc.; Wentao Cai
	2007-01-1108	***Adaptive and Reconfigurable Data Fusion Architectures in Vehicle Positioning Navigation Systems (Written Only -- No Oral Presentation)***
		Guopei Liu; Denis Gingras, Universite de Sherbrooke
	2007-01-1109	***Fuzzy Information Fusion Based on Genetic Algorithm for Vehicle Navigation System (Written Only -- No Oral Presentation)***
		Yang Zhengqi

The papers in this session are available in a single publication, SP-2099, and also individually.

Planned by Electrical and Electronic Systems Committee / Automobile Electronic Activity

Wednesday, April 18

Intelligent Vehicle Initiative (IVI) Technology Advanced Controls and Navigation Systems (Part 2 of 2)

Session Code: ***AE7***

Room M2-30 ***Session Time:*** ***1:30 p.m.***

A collection of technical papers presented by leading experts in the field, Intelligent Vehicle Technologies covers vehicle navigation, collision avoidance, sensor and camera based autonomous driving and parking, vehicle to vehicle communications, and more. Practical examples and applications of sensors, software, control logic, and data used to assist, control, and/or guide the driver and/or vehicle.

Organizers - *Daniel J. Bartz, Self-Guided Systems; Milton J. Dunlop, Kenneth W. Webster, Transportation Research Center Inc.*

Time	Paper No.	Title
1:30 p.m.	***2007-01-1320***	***Target Tracking by a Single Camera Based on Range-Window Algorithm and Pattern Matching: Real Time Operation*** *Shunji Miyahara, Visteon Japan, Ltd.*
2:00 p.m.	***2007-01-1322***	***Camera-Based Driver Monitoring for Increased Safety and Convenience*** *Ulrich Bueker, Ruediger Schmidt, Stefan Wiesner, Hella KGaA Hueck & Co.*
2:30 p.m.	***2007-01-1321***	***Development of an Intelligent Multimode Speed Adaption System*** *Riaz Akbar Sayed, George Washington Univ.; Pierre Delaigue, George Washington University; Jeremy Blum, Azim Eskandarian, George Washington Univ.*
3:00 p.m.	***2007-01-1319***	***Integrated Project PReVENT: Functional Requirements and System Architecture for Preventive Safety Applications*** *Maxime Flament, Ertico; Matthias Schulze, DaimlerChrysler Corp.; Tapani Makinen, VTT Technical Research Center of Finland; Joachim Irion, Irion Management Consulting*
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-1315***	***Architecture and Design of a Multi-Layered Cooperative Adaptive Cruise Control System*** *Charles Desjardins, Pierre-Luc Gregoire, Julien Laumônier, Brahim Chaib-draa, Laval University*
4:15 p.m.	***2007-01-1316***	***Hybrid Power Supplies of Electro-Mobiles*** *Viktor Pavlov, Electro-Dynamic Institute of the UNAS; Sergey Gladyshev, Univ. of Michigan-Dearborn; Alexey Popov, Electro-Dynamic Institute of the UNAS*
4:45 p.m.	***2007-01-1317***	***Effect of Headlamp Controller on Fuel Efficiency in Small Vehicles*** *Sunil Gangaram Kakaye, G.K. Binani, Jitendra Sudhakar Mahajan, Tata Motors, Ltd.*
5:15 p.m.	***2007-01-1318***	***Keeping the Driver in the Loop While Using Assistance Systems*** *Christoph Mayser, BMW Group; Joachim Steinle, BMW*

The papers in this session are available in a single publication, SP-2099, and also individually.

Planned by Electrical and Electronic Systems Committee / Automobile Electronic Activity

Wednesday, April 18

Emissions Measurement and Testing (Part 5 of 6) Particle Emissions from Combustion Sources

Session Code: ***PFL53***

Room M3-31 ***Session Time:*** ***9:00 a.m.***

This session focuses on particle mass, size, number, and other particle emission characteristics that are measured in engine exhaust or vehicle tailpipe. It provides information on the effect of engine and fuel technologies on particle emissions using various particle sampling techniques.

Organizers - *Imad A. Khalek, Southwest Research Institute; M. Matti Maricq, Ford Motor Co.; Greg J. Smallwood, National Research Council Canada*

Time	Paper No.	Title

9:00 a.m.	***2007-01-1110***	***Effect of Speed and Speed-Transition on the Formation of Nucleation Mode Particles from a Light Duty Diesel Vehicle***
		Barouch Giechaskiel, Leonidas Ntziachristos, Zissis Samaras, Aristotle University Thessaloniki; Roberto Casati, Volker Scheer, Rainer Vogt, Ford Forschungszentrum Aachen GmbH
9:30 a.m.	***2007-01-1111***	***An Alternative Method for Generating Ultra-Clean Dilution Air for Engine Emissions Measurements***
		David B. Kittelson, Jacob Swanson, Univ. of Minnesota; Andrew Dallas, Donaldson Company Inc.
10:00 a.m.	***2007-01-1112***	***Nanoparticle-Emission of EURO 4 and EURO 5 HDV Compared to EURO 3 With and Without DPF***
		A. Mayer, TTM; M. Kasper, Th. Mosimann, Matter Engineering; F. Legerer, AKPF; Jan Czerwinski, FHS Biel; L. Emmenegger, J. Mohn, A. Ulrich, EMPA; P. Kirchen, ETH
10:30 a.m.	***2007-01-1113***	***Detection of Gasoline Vehicles with Gross PM Emissions***
		Alberto Ayala, Tao Huai, California Air Resources Board; Wei Li, John Collins, Thomas D. Durbin, Univ. of California-Riverside; Gary Full, Environmental Systems Products; Claudio Mazzoleni, Nicholas Nussbaum, Daniel Obrist, Daniel Zhu, Hampden D. Kuhns, Hans Moosmuller, Desert Research Institute
11:00 a.m.	***2007-01-1114***	***Investigation of Ultrafine Particle Number Measurements from a Clean Diesel Truck Using the European PMP Protocol***
		Alberto Ayala, Jorn D. Herner, William H. Robertson, California Air Resources Board
11:30 a.m.	***2007-01-1116***	***Road Test of an On-Board Particulate Matter Mass Measurement System***
		D. R. Booker, Sensors Inc.; R. A. Giannelli, J. Hu, US Environmental Protection Agency

The papers in this session are available in a single publication, SP-2089, and also individually.

Planned by Exhaust Aftertreatment and Emissions Committee / Powertrain Fuels and Lubricants Activity

Wednesday, April 18

Emissions Measurement and Testing (Part 6 of 6) In-Use Engine Emissions Measurements and Modeling

Session Code: ***PFL51***

Room M3-31 ***Session Time:*** ***1:30 p.m.***

A session devoted to real-world measurement of activity, emissions and performance, and related modeling of these parameters as compared to the laboratory environment. This session topic is shared with the Coordinating Research Council's On-Road Vehicle Emissions Workshop.

Organizers - *Reynaldo J. Agama, Caterpillar Inc.; Chris J. Tennant, Coordinating Research Council Inc.*

Time	***Paper No.***	***Title***
1:30 p.m.	***2007-01-1323***	***Improvement of Fuel Economy by Eco-Driving with Devices for Freight Vehicles in Real Traffic Conditions***
		Yutaka Takada, Shigeru Ueki, Akira Saito, Naoya Sawazu, Yayoi Nagatomi, LEVO
2:00 p.m.	***2007-01-1324***	***Analysis of Uncertainty of the Emission Measurement of Gaseous Pollutants on Chassis Dynamometer***
		Andrzej Szczotka, Piotr Bielaczyc, BOSMAL Automotive Research and Development Centre

2:30 p.m.	***2007-01-1325***	***Trends in Technical Efficiency Trade-Offs for the U.S. Light Vehicle Fleet*** *Feng An, Energy & Transport LLC; John M. DeCicco, Environmental Defense*
3:00 p.m.	***2007-01-1326***	***Performance Test Results of a New On Board Emission Measurement System Conformed with CFR Part 1065*** *Hiroshi Nakamura, Horiba, Ltd.; Michael Akard, Scott Porter, Horiba Instruments, Inc.; Nobutaka Kihara, Masayuki Adachi, Horiba, Ltd.; Imad A. Khalek, Southwest Research Institute*
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-1327***	***Emission Factors Analysis for Multiple Vehicles Using an On-Board, In-Use Emissions Measurement System*** *Yutong Gao, M. David Checkel, Univ. of Alberta*
4:15 p.m.	***2007-01-1329***	***Simultaneous Real-Time Measurements of NO and NO2 in Medium Duty Diesel Truck Exhaust*** *Christine A. Gierczak, Thomas Korniski, Timothy Wallington, Ford Motor Co.; Carl Ensfield, Sensors Inc.*

The papers in this session are available in a single publication, SP-2089, and also individually.

Planned by Exhaust Aftertreatment and Emissions Committee / Powertrain Fuels and Lubricants Activity

Wednesday, April 18

Diesel Exhaust Emission Control Modeling (Part 1 of 4)

Session Code: ***PFL4***

Room M3-32 ***Session Time:*** ***9:00 a.m.***

This year, we have a very special offering from both industry, consultants and universities and government labs, with a mix of topics as they relate to this session. The authors contributions are numerous, and they span from very fundamental science models, to very applied ones. They cover topics ranging from fundamental soot morphology to system optimization. Though still dominating, topics of interest now go beyond Particulate Filter modeling. The reader will find very interesting papers on LNT, SCR, Controls and System Simulation as well. As the 2010 / Tier IV regulations are right around the corner, I look forward to a broader spectrum of modeling interest.

Organizers - *Colin P. Garner, Loughborough Univ.; George G. Muntean; Cornelius N. Opris, Caterpillar Inc.*

Time	***Paper No.***	***Title***
9:00 a.m.	***2007-01-1133***	***Development of an Offline Simulation Tool to Test the On-Board Diagnostic Software for Diesel After-Treatment Systems*** *Federico Piscaglia, Giancarlo Ferrari, Politecnico di Milano*
9:30 a.m.	***2007-01-1125***	***Energy Efficiency Analysis Between In-Cylinder and External Supplemental Fuel Strategies*** *Usman Asad, Siddihartha Banerjee, Graham T. Reader, Meiping Wang, Ming Zheng, Univ. of Windsor*
10:00 a.m.	***2007-01-1144***	***Numerical and Experimental Analysis of the Mass Transfer in Exhaust Gas Sensors*** *Marc Dieter Brück, Gunda Mader, Manfred Piesche, Universität Stuttgart; Sascha Klett, Robert Bosch GmbH*

10:30 a.m.	***2007-01-1119***	***Relationship Between Substrate Mounting Materials and Diesel Substrate and Shell Surface Temperatures: On-Engine Experimental Testing and Thermal Modeling***
		L.R. Hornback, Mark Fairbanks, Nathan Brunner, 3M Automotive; James Bauman, 3M Autmotive; David Lindeman, 3M Predictive Engineering Analysis
11:00 a.m.	***2007-01-1121***	***Prediction of CI Engine Emissions from Combustion Chamber Pressure Characteristics***
		Vijay Manikandan Janakiraman; Saikishan Suryanarayanan; G. Lakshmi Narayana Rao; S. Sampath, Sri Venkateswara College of Engineering

The papers in this session are available in a single publication, SP-2140, and also individually.

Planned by Exhaust Aftertreatment and Emissions Committee / Powertrain Fuels and Lubricants Activity

Wednesday, April 18

Diesel Exhaust Emission Control Modeling (Part 2 of 4)

Session Code: ***PFL4***

Room M3-32 ***Session Time:*** ***1:30 p.m.***

This year, we have a very special offering from both industry, consultants and universities and government labs, with a mix of topics as they relate to this session. The authors contributions are numerous, and they span from very fundamental science models, to very applied ones. They cover topics ranging from fundamental soot morphology to system optimization. Though still dominating, topics of interest now go beyond Particulate Filter modeling. The reader will find very interesting papers on LNT, SCR, Controls and System Simulation as well. As the 2010 / Tier IV regulations are right around the corner, I look forward to a broader spectrum of modeling interest.

Organizers - *Colin P. Garner, Loughborough Univ.; George G. Muntean; Cornelius N. Opris, Caterpillar Inc.*

Time	***Paper No.***	***Title***
1:30 p.m.	***2007-01-1136***	***Numerical Simulation of Zeolite- and V-Based SCR Catalytic Converters***
		Daniel Chatterjee, Thomas Burkhardt, Michel Weibel, DaimlerChrysler AG; Isabella Nova, Antonio Grossale, Enrico Tronconi, Politecnico di Milano
2:00 p.m.	***2007-01-1142***	***Modeling and Simulation of NOx Abatement with Storage/Reduction Catalysts for Lean Burn and Diesel Engines***
		Jan Koop; Olaf Deutschmann, University of Karlsruhe
2:30 p.m.	***2007-01-1117***	***Simulation of NOx Storage and Reduction Catalyst: Model Development and Application***
		Anke Guethenke, Daniel Chatterjee, Michel Weibel, Norbert Waldbuesser, Bernhard Thinschmidt, DaimlerChrysler AG; Petr Koci, Milos Marek, Milan Kubicek, Institute of Chemical Technology Prague
3:00 p.m.	***2007-01-1128***	***Combined Particulate Matter and NOx Aftertreatment Systems for Stringent Emission Standards***
		Stefan Pischinger, Thomas Koerfer, Andreas Wiartalla, Juergen Schnitzler, FEV Motorentechnik GmbH; Dean Tomazic, Marek Tatur, FEV Engine Technology, Inc.
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-1129***	***Soot Oxidation Kinetics in Diesel Particulate Filters***
		Athanasios G. Konstandopoulos, Margaritis Kostoglou, Souzana Lorentzou, Chrysa Pagkoura, Eleni Papaioannou, Aerosol & Particle Technology Laboratory, CERTH/CPERI; Kazushige Ohno, Kazutake Ogyu, Tomokazu Oya, Ibiden Co., Ltd.

4:15 p.m.	***2007-01-1131***	***Application of Digital Material Methods to Silicon Carbide Diesel Particulate Filters***
		Athanasios Konstandopoulos, Nickolas Vlachos, Giorgos Patrianakos, Aerosol & Particle Technology Laboratory, CERTH/CPERI
4:45 p.m.	***2007-01-1139***	***Influence of Soot Profile on Overheating During Regeneration***
		Giacomo Falcucci, Ornella Chiavola, Universita Degli Studi Roma TRE
5:15 p.m.	***2007-01-1126***	***Visualization Techniques for Single Channel DPF Systems***
		Heather E. Dillon, Gary Maupin, Shelley Carlson, Nat Saenz, Thomas R. Gallant, Pacific Northwest National Labs
	2007-01-1130	***Wall-scale Reaction Models in Diesel Particulate Filters (Written Only -- No Oral Presentation)***
		Athanasios G. Konstandopoulos, Margaritis Kostoglou, Souzana Lorentzou, Aerosol & Particle Technology Laboratory, CERTH/CPERI

The papers in this session are available in a single publication, SP-2140, and also individually.

Planned by Exhaust Aftertreatment and Emissions Committee / Powertrain Fuels and Lubricants Activity

Wednesday, April 18

Vehicle Aerodynamics (Part 5 of 6): The Unsteady Wind Environment of Road Vehicles (includes Panel Discussion)

Session Code: ***B34***

Room O2-33 ***Session Time:*** ***9:00 a.m.***

"It remains to call attention to the chief outstanding difficulty of our subject." These words were written by Sir Horace Lamb more than a century ago toward the end of the second edition of his classic book, Hydrodynamics (1895). In spite of enormous progress on the subject along many different fronts, his assessment is not in any particular need of an update.

At the 2006 SAE International World Congress, lively discussions were held on the general subject of ambient turbulence both in the technical sessions and at the meeting of the Vehicle Aerodynamics Committee afterward-how to define, quantify, and simulate it, as well as its influence on the aerodynamic and aeroacoustic performance of road vehicles. The most recent discussion was started by Jeff Saunders (SAE 2006-01-1028), who points out that from a dimensional analysis point of view, we need to prove that turbulence is not important rather than tacitly assuming this to be the case.

This topic certainly has not been ignored by researchers in automotive aerodynamics during the past three decades (see recent work by Cogotti and co-workers, e.g., SAE 2006-01-1031, and many others through the years). However, it is also fair to say that the vast majority of vehicle development programs do not model the ambient turbulent flow field in any systematic way during the numerical and physical testing and development process, even though it is clear we are immersed in such an environment most of the time when driving down the road.

The objectives of this special session are to reintroduce the topic to the larger audience and begin the discussion of how existing and future research results might be systematically integrated into the vehicle development process. The session consists of two invited papers followed by a panel discussion. The papers are co-authored by Kevin Cooper and Simon Watkins, both widely recognized as experts in this field. The first, with Mr. Cooper as the primary author, focuses on the characteristics of the turbulent flow field encountered by a road vehicle. It provides an understanding of the turbulent flow regime that would have to be simulated numerically or in the wind tunnel. The second paper, with Professor Watkins as the primary author, addresses the effects of this environment on the vehicle development (drag and lift, cooling system, interior noise, etc.), and provides a review and discussion of the current state-of-the-art for turbulence generation in wind tunnels.

A panel discussion will follow the paper presentations. The panel will include both experts in this particular field, as well as engineers with primary responsibilities in related areas (i.e., vehicle development and facility operation) who have a technical stake in the discussion. With this cross-section on the panel, and purposefully leaving other experts in the audience, we expect an interactive discussion that is both interesting and practical.

From this special session, the eventual goal of the Vehicle Aerodynamics Committee is to develop and implement Standards or Recommended Practices. We hope to move a small part of this rather mysterious field into the realm of practical engineering, so that some years from now, perhaps, an update to Sir Lamb's assessment will be in order.

Organizers - *Joel A. Walter, Jacobs Sverdrup; Jack Williams*

Chairpersons - *Joel Walter, Jacobs Sverdrup*

Time	***Paper No.***	***Title***

9:00 a.m.	***2007-01-1236***	***The Unsteady Wind Environment of Road Vehicles, Part One: A Review of the On-road Turbulent Wind Environment***
		Kevin R. Cooper, CooperAero Ltd.; Simon Watkins, RMIT Univ.
9:30 a.m.	***2007-01-1237***	***The Unsteady Wind Environment of Road Vehicles, Part Two: Effects on Vehicle Development and Simulation of Turbulence***
		Simon Watkins, RMIT Univ.; Kevin R. Cooper, CooperAero Ltd.
10:00 a.m.	***Panel***	***Vehicle Aerodynamics Panel Discussion***

Planned by Vehicle Aerodynamics Committee / Automobile Body Activity

Wednesday, April 18

Direct Injection SI Engine Technology (Part 1 of 3)

Session Code: ***PFL12***

Room O2-33 ***Session Time:*** ***1:30 p.m.***

Direct injection spark ignition (DISI) engines will play a major role in improving the fuel efficiency of today's vehicles. The papers in this session will explore the latest advancements in DISI engine technology, including spray formation and mixing, injection technology and modeling strategies, and their application to next-generation engines.

Organizers - *Matthew J. Brusstar, US Environmental Protection Agency; James W G Turner, Lotus Engineering, Ltd.; Jianwen Yi, Ford Motor Co.*

Time	***Paper No.***	***Title***
1:30 p.m.	***2007-01-1412***	***Analysis of Cyclic Fluctuations of Charge Motion and Mixture Formation in a DISI Engine in Stratified Operation***
		Philipp Adomeit, FEV Motorentechnik GmbH; Stefan Pischinger, Richard Aymanns, Markus Graf, Georg Stapf, VKA, RWTH Aachen
2:00 p.m.	***2007-01-1407***	***Experimental and Simulative Investigation on Stratification Potential of Spray-Guided GDI Combustion Systems***
		Harald Baecker, Andre Kaufmann, Milos Tichy, Siemens AG
2:30 p.m.	***2007-01-1403***	***Large Eddy Simulation of Spray Injection to Turbulent Duct Flow from a Slit Injector***
		Jun Arai; Nobuyuki Oshima, Hokkaido Univ.; Hisashi Ito; Masato Kubota, Toyota Motor Corp.; Marie Oshima, Univ. of Tokyo
3:00 p.m.	***2007-01-1418***	***Cavitation in Fuel Injection Systems for Spray-Guided Direct Injection Gasoline Engines***
		D. Papoulias, E. Giannadakis, N. Mitroglou, M. Gavaises, City University London; A. Theodorakakos, Fluid Research Co.
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-1405***	***Internal Flow and Cavitation in a Multi-Hole Injector for Gasoline Direct-Injection Engines***
		J.M. Nouri, N. Mitroglou, Y. Yan, C. Arcoumanis, City University London
4:15 p.m.	***2007-01-1419***	***CFD Predictions of Electrohydrodynamics in Model DISI Engines***
		Geraldo Conceicao Nhumaio, Education; A. Paul Watkins, Univ. of Manchester

The papers in this session are available in a single publication, SP-2084, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Wednesday, April 18

Energy Efficient Manufacturing (Part 1 of 2)

Session Code: ***ENV5***

Room O2-37 ***Session Time:*** ***9:00 a.m.***

Energy efficiency is vital to the economic success of automotive manufacturing entities. This timely session brings together researchers to present new developments in enhancing energy utilization on both the process and enterprise-wide levels relevant to the automotive industry.

Organizers - *Bill Allemon, Ford Motor Co.; James P. Penrod, Univ. of Dayton*

Chairpersons - *B. Gopalakrishnan, West Virginia Univ.*

Time	Paper No.	Title
9:00 a.m.	***2007-01-1332***	***Energy Efficiency Improvement: Exceeding the Historical Rate at the Plant Level with New Concepts***
		John Seryak, Go Sustainable Energy, LLC
9:30 a.m.	***2007-01-1338***	***Environmentally Friendly and Low Cost Manufacturing - Implementation of MQL Machining (Minimum Quantity Lubrication)***
		Alexander M. Stoll, Scott N. Silverson, Richard Furness, Ford Motor Co.
10:00 a.m.	***2007-01-1336***	***Guiding Industrial Energy Management by Measuring Savings from Energy-Efficient Practices***
		Carl William Eger, Kelly Kissock, Univ. of Dayton
10:30 a.m.	***2007-01-1331***	***Diagnostics for Developing Energy Efficiency Measures in Compressed Air Systems***
		B. Gopalakrishnan, Deepak Gupta, Y. Mardikar, S. Chaudhari, J. Jadeja, West Virginia Univ.
11:00 a.m.	***2007-01-1335***	***Managing System Wide Compresssed Air Costs Through Web Based Reporting and Analysis Tools***
		Rick Avery, Sam Prud'Homme, Bay Controls, LLC

The papers in this session are available in a single publication, SP-2109, and also individually.

Planned by Environmental Activity / EMB Land and Sea Group

Wednesday, April 18

Energy Efficient Manufacturing (Part 2 of 2)

Session Code: ***ENV5***

Room O2-37 ***Session Time:*** ***1:30 p.m.***

Energy efficiency is vital to the economic success of automotive manufacturing entities. This timely session brings together researchers to present new developments in enhancing energy utilization on both the process and enterprise-wide levels relevant to the automotive industry.

Organizers - *Bill Allemon, Ford Motor Co.; James P. Penrod, Univ. of Dayton*

Chairpersons - *B. Gopalakrishnan, West Virginia Univ.*

Time	Paper No.	Title
1:30 p.m.	***2007-01-1334*** ***ORAL ONLY***	***Power Generation from VOCs in Paint Spraybooth Air after Concentration by an Activated-Carbon Fluidized-Bed Adsorber***
		Mark Wherrett, Ford Motor Co.

2:00 p.m.	***2007-01-1337***	***Inside-Out Approach to Energy-Efficient Process Cooling***
		Kelly Kissock, Univ. of Dayton
2:30 p.m.	***2007-01-1145***	***Cause and Effect: Increased Efficiency in the Plating Industry Benefits the Automobile Industry***
		Noel Corral, William M. Worek, Jonathan Aardsma, Michael Chimack, Andrew Sheaffer, Univ. of Illinois at Chicago
3:00 p.m.	~~***2007-01-1330***~~	***Full-Spectrum Polarized Lighting***
	ORAL ONLY	*Daniel Karpen*
3:30 p.m.		***BREAK***
3:45 p.m.	***Panel***	***Manufacturing Energy Efficiency - What is Possible?***
		Panelists - *Bill Allemon, Ford Motor Co.; B. Gopalakrishnan, West Virginia Univ.; Kelly Kissock, Univ. of Dayton; Brad Reed, Toyota Motor Engrg. & Mfg. No. America Inc.; Robert Threlkeld, General Motors Corp.*

Planned by Environmental Activity / EMB Land and Sea Group

Wednesday, April 18

Advances in Instrument Panels and Interiors (Part 1 of 2)

Session Code: ***M10***

Room O2-38 ***Session Time:*** ***9:00 a.m.***

This session will feature technical presentations on general automotive interior topics. These topics will include hidden airbag door technology, Computer-Aided Engineering (CAE) methods for Buzz, Squeak and Rattle (BSR) evaluation, innovative thermoplastic alternatives to metals, and methods to quantify subjective appearance and feel preferences.

Organizers - *Robert G. Egbers, American Commodities Inc.; Norm Kakarala, Stephen M. Pitrof, Delphi Corp.; Michael R. Shoemaker, Dow Automotive; Ravi S. Thyagarajan, Visteon Corp.; Jeffrey P. Webb, Ford Motor Co.*

Time	***Paper No.***	***Title***
9:00 a.m.	***2007-01-1216***	***Controlling Failure of Polymer Skin/Foam Bilaminate Sheets***
		Kevin Cox, Automotive Components Holding, LLC; Richard E. Robertson, Univ. of Michigan
9:30 a.m.	***2007-01-1217***	***Touch Feel and Appearance Characteristics of Automotive Door Armrest Materials***
		Vivek D. Bhise, Univ. of Michigan; Sonal Onkar, Marc Hayes, Jim Dalpizzol, James D. Dowd, Collins & Aikman Corp.
10:00 a.m.	***2007-01-1218***	***Prototype Design and Testing of a Thermoplastic Steering Wheel Armature***
		Eric J. Jaarda, Manish Chaturvedi, GE Plastics
10:30 a.m.	***2007-01-1219***	***A Modern Development Process to Bring Silence into Interior Components***
		Eberhard Michael Kreppold, BMW Group
11:00 a.m.	***2007-01-1220***	***Minimizing Read-Through when Creating a Mechanical Score in a Polymer Skin***
		Kevin Cox, Automotive Components Holding, LLC; Richard E. Robertson, Univ. of Michigan

The papers in this session are available in a single publication, SP-2104, and also individually.

Planned by Polymers and Coatings Committee / Materials Engineering Activity

Wednesday, April 18

Advances in Instrument Panels and Interiors (Part 2 of 2) Appearance Trends in Automotive Interiors Panel

Session Code: ***M10***

Room O2-38 ***Session Time:*** ***1:30 p.m.***

This session will feature a panel discussion from automotive interior industry experts who will discuss new and emerging technologies to achieve superior appearance and tactile feel in instrument panel, console and door trim components. Panelists will discuss material, tooling and equipment options to improve the perceived quality of vehicle interiors with cost effective solutions.

Organizers - *Robert G. Egbers, American Commodities Inc.; Norm Kakarala, Stephen M. Pitrof, Delphi Corp.; Michael R. Shoemaker, Dow Automotive; Ravi S. Thyagarajan, Visteon Corp.; Jeffrey P. Webb, Ford Motor Co.*

Panelists - *Stefan Arenz, BASF Corp.; Juergen Buehring, Benecke Kaliko AG; Brent Cassata, PolyOne Corp.; Ronald Galecki, BASF Corp.; Anthony Gasbarro, Advanced Composites Inc.; Jeff Hershey, Engel Corp.; Jane W. Horal, Basell Polyolefins; Robert LaCasse, United Paint Corp.; Doug McNally, Konal Engineering; Bill Otto, Frimo, Inc.; Kyle Shane, Red Spot Paint; Jeffrey Shimizu, KTX America Inc.*

Planned by Polymers and Coatings Committee / Materials Engineering Activity

Wednesday, April 18

Accident Reconstruction (Part 3 of 4)

Session Code: ***B24***

Room O2-44 ***Session Time:*** ***9:00 a.m.***

Accident Reconstruction tools, techniques and analysis based on the latest use of technology. Rollovers, all types of impacts and statistical analysis will be covered. Evaluation of vehicles and data will also be discussed.

Organizers - *Michael S. Varat, Stein E. Husher, KEVA Engineering; Raymond M. Brach, Univ. of Notre Dame; Matthew Brach, Brach Engineering*

Time	Paper No.	Title
9:00 a.m.	***2007-01-0735***	***Analysis of Collisions Involving Articulated Vehicles*** *R. Matthew Brach, Brach Engineering; Raymond M. Brach, Univ. of Notre Dame*
9:30 a.m.	***2007-01-0722***	***Daily Vehicle Inspection and Vehicle Maintenance Issues in Accident Reconstruction*** *John D. Scott, Norris Hoover, Ric Robinette, Richard Fay, Fay Engineering Corp.*
10:00 a.m.	***2007-01-0731***	***Estimation of Frontal Crush Stiffness Coefficients for Car-to-Heavy Truck Underride Collisions*** *Massoud S. Tavakoli, Palaniappan Valliappan, Anand Pranesh, Kettering Univ.; Carl Savage, Savage Engineering, Inc.*
10:30 a.m.	***2007-01-0714***	***Calculation of Deceleration Rates for S-Cam Air-Braked Heavy Trucks Equipped with Anti-Lock Brake Systems*** *Wade D. Bartlett, Mechanical Forensics Engineering Services, LLC*

11:00 a.m.	***2007-01-0733***	***Vehicle Response Comparison to Tire Tread Separations Induced by Circumferentially Cut Tires and Distressed Tires***
		Donald F. Tandy, Kevan Granat, Nicholas Durisek, Kenneth Tandy, Tandy Engineering & Associates Inc.; John Baldwin, Robert Pascarella, Ford Motor Co.
11:30 a.m.	***2007-01-0736***	***Pavement Friction Reduction Due to Fine-Grained Earth Contaminants***
		George J. Hall, Hall Consulting, P.L.L.C.; John Painter, TARAS, Inc.

The papers in this session are available in a single publication, SP-2063, and also individually.

Planned by Occupant Protection Committee / Automobile Body Activity

Wednesday, April 18

Accident Reconstruction (Part 4 of 4)

Session Code: ***B24***

Room O2-44 ***Session Time:*** ***1:30 p.m.***

Accident Reconstruction tools, techniques and analysis based on the latest use of technology. Rollovers, all types of impacts and statistical analysis will be covered. Evaluation of vehicles and data will also be discussed.

Organizers - *Michael S. Varat, Stein E. Husher, KEVA Engineering; Raymond M. Brach, Univ. of Notre Dame; Matthew Brach, Brach Engineering*

Time	***Paper No.***	***Title***
1:30 p.m.	***2007-01-0721***	***The Freight Train Emergency Brake System and a Method to Calculate Stop Distance and Time***
		John M. Bentley, P.E., Bentley Technical Services, Inc.; John Bentley, Jr., Train Dynamics Inc.
2:00 p.m.	***2007-01-0734***	***Analysis of Tapered Roller Bearing Hub Separations in Motor Vehicle Crashes***
		Robert J. Pascarella, Ford Motor Co.; Nicholas Durisek, Tandy Engineering & Associates Inc.; Seymour Linovitz, Ford Motor Co.
2:30 p.m.	***2007-01-0718***	***Digital Camera Calibration for Luminance Estimation in Nighttime Visibility Studies***
		Boyd D. Allin, Kurt W. Ising, David J. King, MEA Forensic Engineers and Scientists
3:00 p.m.	***2007-01-0723***	***Relationship Between Anti-Lock Tire Mark Length and Speed Change***
		Jeffrey C. Brown, Matthew Grimm, Dana Hansen, Exponent Inc.
	2007-01-0744	***On the Concept of Inter-Vehicle Friction and Its Application in Automobile Accident Reconstruction (Written Only -- No Oral Presentation)***
		Micky C. Marine, Driven Engineering Inc.
	2007-01-0745	***The Effect of Vehicle Planar Geometry Model Non-Orthogonality for the Constant Stiffness Force-Crush Model: Part 1 (Written Only -- No Oral Presentation)***
		Jai P. Singh; John Perry, Autodyne Inc.
	2007-01-0747	***On the Replicability of the Empirical Constant Stiffness Force-Crush Model using a Mechanics of Materials Approach (Written Only -- No Oral Presentation)***
		Jai P. Singh; John Perry, Autodyne Inc.

The papers in this session are available in a single publication, SP-2063, and also individually.

Planned by Occupant Protection Committee / Automobile Body Activity

Wednesday, April 18

Biomechanics (Part 1 of 3)

Session Code: ***B26***

Room O3-45 ***Session Time:*** ***9:00 a.m.***

This session will present current research on the biomechanics of impact and injury. Paper topics will include dummy biofidelity assessment, analysis of restraint performance, development of injury criteria and tolerances for the head, spine, chest and extremities, injury mechanisms, and clinical studies of injury outcome.

Organizers - *William N. Newberry, Exponent Inc.; Tony R. Laituri, Ford Motor Co.; Michael Prange, Exponent Failure Analysis*

Chairpersons - *Tony R. Laituri, Ford Motor Co.; Michael Prange, Exponent Failure Analysis; William Newberry, Exponent Inc.*

Time	Paper No.	Title
9:00 a.m.	***2007-01-1171***	***A Computational Human Model with Stabilizing Spine: a Step Towards Active Safety*** *H. Cappon, J. Mordaka, L. Van Rooij, TNO Science & Industry; J. Adamec, N. Praxl, H. Muggenthaler, Univ. Muenchen*
9:30 a.m.	***2007-01-1159***	***A Modular Approach to Numerical Human Body Modeling*** *P.A. Forbes, G. Griotto, L. van Rooij, TNO Science and Industry*
10:00 a.m.	***2007-01-1161***	***Validation of Finite Element Human Model for Prediction of Rib Fractures*** *Lex Van Rooij, TNO Automotive*
10:30 a.m.	***2007-01-1162***	***External Knee Geometry Surface Variation as a Function of Subject Anthropometry and Flexion Angle for Human and Surrogate Subjects*** *Deepak Sathyanarayana, Massoud Tavakoli, Patrick J. Atkinson*, Kettering Univ.; Scott Anseth, Thomas Raley, Norman Walter, *McLaren Regional Medical Center*
11:00 a.m.	***2007-01-1170***	***Inertial Neck Injuries in Children Involved in Frontal Collisions*** *Michael Prange, William Newberry, Tara Moore, Daniel Peterson, Brian Smyth, Catherine Corrigan, Exponent, Inc.*

The papers in this session are available in a single publication, SP-2068, and also individually.

Planned by Occupant Protection Committee / Automobile Body Activity

Wednesday, April 18

Biomechanics (Part 2 of 3)

Session Code: ***B26***

Room O3-45 ***Session Time:*** ***1:30 p.m.***

This session will present current research on the biomechanics of impact and injury. Paper topics will include dummy biofidelity assessment, analysis of restraint performance, development of injury criteria and tolerances for the head, spine, chest and extremities, injury mechanisms, and clinical studies of injury outcome.

Organizers - *William N. Newberry, Exponent Inc.; Tony R. Laituri, Ford Motor Co.; Michael Prange, Exponent Failure Analysis*

Chairpersons - *Tony R. Laituri, Ford Motor Co.; Michael Prange, Exponent Failure Analysis; William Newberry, Exponent Inc.*

Time	Paper No.	Title
1:30 p.m.	2007-01-1166	**A Review and Analysis of the Performance of Laminated Side Glazing in Rollover Accidents** *Robert L. Piziali, Julia C. Fox, Daniel S. Girvan, Piziali and Associates, Inc.; Elizabeth H. Raphael, Piziali & Associates; Jack Ridenour, Ford Motor Co.*
2:00 p.m.	2007-01-1172	**Determining the Precision of the Hybrid III Small Female Neck Calibration Laboratory Test Procedure Using ASTM E 691** *John Below, Paul J. Depinet, Denton ATD Inc.; Jason Jenkins, Transportation Research Center Inc.; Virginia L. Watters, Transportation Research Center Inc. (retired)*
2:30 p.m.	2007-01-1168	**Comparison of the THOR and Hybrid III Lower Extremities in Laboratory Testing** *Chad M. Olson, Stephen Rouhana, Brian Spahn, Risa Scherer, Ford Motor Co.*
3:00 p.m.	2007-01-1164	**Development and Application of an Enhanced ES-2 Dummy for Analyzing Side Impact Kinematics** *Hiroyuki Murayama, Taisuke Fujiwara, Toyota Motor Corp.*
3:30 p.m.		**BREAK**
3:45 p.m.	2007-01-1169	**An Analysis of Upper Body Twisting Behavior in Frontal and Oblique Impacts using Hybrid III and THOR-FT Dummies** *Takashi Deguchi, Kunji Nagae, Tetsuo Maki, Tomosaburo Okabe, Nissan Motor Co., Ltd.*
4:15 p.m.	2007-01-1173	**Effect of Dummy Repeatability on Numerical Model Accuracy** *D. Twisk, TNO Madymo BV; H. H. Spit, TNO Automotive Safety Solutions; M. Beebe, P. Depinet, Denton ATD Inc.*

Planned by Occupant Protection Committee / Automobile Body Activity

Wednesday, April 18

Vehicle Aggressivity and Compatibility in Automotive Crashes (Part 1 of 2)

Session Code: ***B33***

Room O3-46 ***Session Time:*** ***9:00 a.m.***

This session presents papers that contribute to a better understanding of the causes of motor vehicle incompatibility in crash scenarios. Investigation of techniques to minimize fatalities and serious injuries are also included. Crash test programs, computer simulations, analytical techniques and accident data investigations are utilized in the studies presented.

Organizers - *Stanley H. Backaitis, National Hwy Traffic Safety Admin.; George W. Neat*

Chairpersons - *David L. Smith, National Hwy Traffic Safety Admin.*

Time	Paper No.	Title
9:00 a.m.	2007-01-1178	**Experimental Evaluation of Rear Under-Run Protection Device** *Prithvi Raj, S. Lingan, Pratyush Khare, V. S. Gogate, Tata Motors, Ltd.*
9:30 a.m.	2007-01-1179	**Development of a Mobile Deformable Barrier as a Car Surrogate** *Sairam N. Peddi, Krishnan Subramaniam, Vikas B. Sharma, Mukul K. Verma, Henry Schuyten, General Motors Corp.*

10:00 a.m.	***2007-01-1181***	***Restraint Robustness in Frontal Crashes***
		James Walter Saunders, David Smith, National Hwy Traffic Safety Admin.; Aida Barsan-Anelli, Information Systems and Services Inc.
10:30 a.m.	***2007-01-1184***	***New Method of Vehicle Inspection for Incompatible Crashes***
		Brian Alonso, James Stratton, Univ. of Miami; Kennerly Digges, George Washington Univ.
11:00 a.m.	***ORAL ONLY***	***Keynote Address: Possibilities for Enhancing Vehicle Compatibility - Thomas Hollowell, NHTSA***
		Thomas Hollowell, National Hwy Traffic Safety Admin

The papers in this session are available in a single publication, SP-2136, and also individually.

Planned by Occupant Protection Committee / Automobile Body Activity

Wednesday, April 18

Vehicle Aggressivity and Compatibility in Automotive Crashes (Part 2 of 2)

Session Code: ***B33***

Room O3-46 ***Session Time:*** ***1:30 p.m.***

This session presents papers that contribute to a better understanding of the causes of motor vehicle incompatibility in crash scenarios. Investigation of techniques to minimize fatalities and serious injuries are also included. Crash test programs, computer simulations, analytical techniques and accident data investigations are utilized in the studies presented.

Organizers - *Stanley H. Backaitis, National Hwy Traffic Safety Admin.; George W. Neat*

Chairpersons - *David L. Smith, National Hwy Traffic Safety Admin.*

Time	***Paper No.***	***Title***
1:30 p.m.	***2007-01-1182***	***Modified Approach to Accurately Measure Height of Force (HOF)***
		Pradeep Mohan, Dhafer Marzougui, Cing-Dao Kan, George Washington Univ.
2:00 p.m.	***2007-01-1175***	***Study of Vehicle-to-Vehicle Collision Performance Based on Balance of Front End Strength***
		Takashi Hasegawa, Toyota Motors
2:30 p.m.	***2007-01-1183***	***Comparative Study of Road Accidents in Iceland and Side Impact Compatibility***
		Sævar Helgi Lárusson, Magnus Jonsson, Univ. of Iceland
3:00 p.m.	***2007-01-1180***	***Adaptive Crashworthiness of Front-End Structure of Motor Vehicles***
		Marian Ostrowski, Polish Academy Of Sciences; Paulius Griskevicius, Kaunas Univ. of Technology; Jan Holnicki-Szulc, Polish Academy Of Sciences
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-1177***	***Road Rage Among Professional Drivers***
		Reginald G. Smart, Gina Stoduto, Robert Mann, Centre for Addiction and Mental Health; Peter R. Frise, AUTO21 Network of Centres of Excellence
4:15 p.m.	***2007-01-1176***	***Load Path Considerations for Side Crash Compatibility***
		Charles Y. Warner, Mark H. Warner, Nathan H. Benson, Collision Safety Engineering LC

The papers in this session are available in a single publication, SP-2136, and also individually.

Planned by Occupant Protection Committee / Automobile Body Activity

Wednesday, April 18

Load Simulation and Analysis in Automotive Engineering (Part 1 of 4) - Test/Simulation Correlation

Session Code: ***M20***

Room Safety/Testing Pavilion (on the exhibi ***Session Time:*** ***9:00 a.m.***

Focusing on correlation studies between road/laboratory test and analytical simulation, determination of correlation matrix and important factors affecting the correlations. Correlation could be on load, displacement, velocity, acceleration, strain/stress, damage, and fatigue life. This session also includes methods and protocols for test-simulation correlation.

Organizers - *Cheng Cao, DaimlerChrysler Corp.; Yin-ping Chang, Oakland Univ.; Yuejun Lee, Ford Motor Co.; James C. Tebbe, General Motors Corp.; Xiaobo Yang, DaimlerChrysler Corp.*

Time	Paper No.	Title
9:00 a.m.	***2007-01-1346***	***Statistical Relationship Between Corner Weight and Spindle Load***
		Cheng Cao, DaimlerChrysler Corp.
9:30 a.m.	***2007-01-1203***	***Spindle-Based Engine Mount Load Analysis - Prediction and Correlation***
		Cheng Cao, DaimlerChrysler Corp.
10:00 a.m.	***2007-01-1205***	***Correlation and Simulation Process Improvement for Automotive Axle***
		Yuejun Lee, Ford Motor Co.
10:30 a.m.	***2007-01-1206***	***Strength Prediction and Correlation of Tow Hook Systems using Finite Element Analyses***
		Michael Guo, DaimlerChrysler Corp.
	2007-01-1202	***Hybrid Vehicle Road Loads Simulation and Correlation (Written Only -- No Oral Presentation)***
		Ligang Liu, Pan Asia Technical Automotive Center Co.

The papers in this session are available in a single publication, SP-2107, and also individually.

Planned by Materials Modeling and Testing Committee / Materials Engineering Activity

Wednesday, April 18

Steering and Suspension Technology Symposium - Steering

Session Code: ***AC2***

Room W1-51 ***Session Time:*** ***9:00 a.m.***

The steering papers this year cover a range of topics from improvements to well established hydraulic systems and the newer technologies of electric assist and active steering to research into future possibilities such as steer by wire.

Organizers - *Paul K. Webber, TRW Steering & Suspension Systems*

Time	Paper No.	Title
9:00 a.m.	***2007-01-1149***	***Control Method of Dual Motor-Based Steer-by-Wire System***
		Yixin Yao, Brian Daugherty, Visteon Corp.
9:30 a.m.	***2007-01-1148***	***Development of the Independent-Type Steer by Wire System***
		Soo Bo Park, Sung Wook Hwang, Young Ho Oh, Un Koo Lee, Hyundai Motor Co.

10:00 a.m.	***2007-01-1153***	***Friction and Stick-Slip Phenomena in Steering System - Modeling and Simulation Studies***
		Zbigniew Lozia, Warsaw Univ. of Technology; Dariusz Zardecki, Automotive Industry Institute
10:30 a.m.	***2007-01-1151***	***Potentials of Change Detection Algorithms for Diagnosis in Electronic Steering Systems***
		Samuel Malinen, Christian Lundquist, Wolfgang Reinelt, ZF Lenksysteme GmbH
11:00 a.m.	***2007-01-1147***	***Development of Torque Controlled Active Steering with Improving the Vehicle Stability for Brushless EPS***
		Hideyuki Tanaka, Kazuo Hitosugi, Masahiko Kurishige, Takayuki Kifuku, Mitsubishi Electric Corp.
	2007-01-1155	***Future Truck Steering Effort Optimization (Written Only -- No Oral Presentation)***
		Jason P. Delor, Jason Wong, General Motors Corp.

The papers in this session are available in a single publication, SP-2128, and also individually.

Planned by Steering, Chassis and Suspension Committee / Automobile Chassis Activity

Wednesday, April 18

Load Simulation and Analysis in Automotive Engineering (Part 2 of 4) - Ride/Handling/Control Modeling and Road Test Simulator Technique

Session Code: ***M20***

Room W1-51 ***Session Time:*** ***1:30 p.m.***

The first half session focuses on the analysis and enhancement of vehicle ride comfort, modeling, simulation, testing, evaluation and optimization of sitting driver and passengers, seat, suspension and whole vehicle, the effect of beaming, shaking, impact harshness, brake judder and any other phenomena on ride comfort of driver and passengers, goods damage, etc.
The second half session focuses on road test simulator techniques, automotive parts, components, subsystems, and full vehicle test, evaluation and performance improvement with road test simulators and multi-axial simulation table, techniques of instrumentation and transducers (such as wheel force transducers), full vehicle and half-vehicle simulation test, data acquisition, data analysis, drive file development, selection of data from multiple passes, effects of WFT and other signals on measured loads and simulation results, etc.

Organizers - *F. M.L. Amirouche, Univ. of Illinois at Chicago; Yin-ping Chang, Oakland Univ.; James C. Tebbe, General Motors Corp.; Mike Temkin, Vince Wu, Peijun Xu, Xiaobo Yang, DaimlerChrysler Corp.*

Time	***Paper No.***	***Title***
1:30 p.m.	***2007-01-1347***	***Pitch Attitude Control and Braking Performance Analysis of Heavy Vehicle with Interconnected Suspensions***
		Dongpu Cao, Subhash Rakheja, Concordia Univ.
2:00 p.m.	***2007-01-1348***	***Transmission Mount Assembly Modelling for Load Simulation and Analysis***
		Dajun Zhang, DaimlerChrysler Canada
2:30 p.m.	***2007-01-1349***	***Shock Absorber Force and Velocity Sensitivity to Its Damping Characteristics***
		Xiaobo Yang, DaimlerChrysler Corp.
3:00 p.m.	***2007-01-1350***	***Effective Solutions to Decreasing Load Conflicts Using 4DOF Road Test Simulators***
		Vince Wu, Graham Andrews, Chad Vermeulen, Dan Wong, Gerry Peticca, Brian Nhan, DaimlerChrysler Corp.
3:30 p.m.		***BREAK***

3:45 p.m.	***2007-01-1352***	***Sensitivity of Road Test Simulator Drive Files to Convertible Roof Configurations***
		Tana Tjhung, DaimlerChrysler Technology Center; Mike Temkin, DaimlerChrysler Corp.

The papers in this session are available in a single publication, SP-2107, and also individually.

Planned by Materials Modeling and Testing Committee / Materials Engineering Activity

Wednesday, April 18

Magnesium Technologies (Part 3 of 3)

Session Code: ***M3***

Room W1-52 ***Session Time:*** ***9:00 a.m.***

Research and development of magnesium alloys for automotive applications have received renewed interest in recent years. This is particularly shown in both the quantity and the quality of Mg-related technical papers submitted to SAE for this congress. In this Magnesium Technologies session, we have selected some of the top-notch submissions from various areas, including fundamental studies of new high-temperature alloys, electrochemistry of creep-resistant alloys, new joining technologies, newly developed Mg composite materials, a new process for making Mg wheels, as well as FEA simulation of bolt-loading. Mg alloys are seen to have great future in enhancing fuel efficiency and improving vehicle performance, and this is detailed in a USAMP paper on the future development plan for Mg, Vision 2020.

Organizers - *Zi-Kui Liu, Pennsylvania State Univ.; Bob R. Powell, General Motors Corp.; Wenyue Zheng, CANMET*

Time	***Paper No.***	***Title***
9:00 a.m.	***ORAL ONLY***	***Magnesium Front End Program: USAMP Activities***
		Alan A. Luo, General Motors Corp.
9:30 a.m.	***ORAL ONLY***	***Coating of Mg Alloys by Cold-Spray***
		Julio Villafuerte, Centerline (Windsor), Ltd.
10:00 a.m.	***ORAL ONLY***	***Need for an Industry Standard for Accelerated Salt-Spray Testing for Mg Alloys***
		Wenyue Zheng, CANMET
10:30 a.m.	***ORAL ONLY***	***Pathways to Passivity in Vapor Deposited Mg Alloys***
		Barbara A. Shaw, Pennsylvania State Univ.
11:00 a.m.	***2007-01-1033***	***Expanding the Application of Magnesium Components in the Automotive Industry: A Strategic Vision***
		Gerald Cole, LightWeightStrategies LLC; James F. Quinn, General Motors Corp.

The papers in this session are available in a single publication, SP-2108, and also individually.

Planned by Non-Ferrous Committee / Materials Engineering Activity

Wednesday, April 18

Sheet/Hydro/Gas Forming Technology and Modeling (Part 1 of 3)

Session Code: ***M9***

Room W1-52 ***Session Time:*** ***1:30 p.m.***

This session will discuss draw die designs, forming processes, stamping developments on applications such as roof panels, strain gages and body panels.

Organizers - *Ching-Kuo Hsiung, Thomas J. Oetjens, Thomas Stoughton, General Motors Corp.; Michael J. Worswick, Univ. of Waterloo; Z. Cedric Xia, Ford Motor Co.*

Time	Paper No.	Title
1:30 p.m.	ORAL ONLY	**Non-Steady-State Creep Behavior in Tube Deformation by Hot Metal Gas Forming** *Xin Wu, Wayne State Univ.*
2:00 p.m.	2007-01-1676	**Finite Element Analysis of an Advanced Superplastic Forming Process Utilizing a Mechanical Pre-form** *Yingbing Luo; Yinghong Peng, Shanghai Jiao Tong Univ.; George Luckey, Peter Friedman, Ford Motor Co.*
2:30 p.m.	2007-01-1690	**Formability Predictions of Hydroformed AKDQ Steel Tubes by Various Burst Criteria** *Kuo-Kuang Chen, General Motors R&D Center*
3:00 p.m.	2007-01-1691	**Validation of Math-based Process for Hydroforming Dual Phase Steel Tubes** *Wei Ji, General Motors Corp.*
3:30 p.m.		**BREAK**
3:45 p.m.	2007-01-1677	**An Application of the Roll-Forming Process on the Production of a Waterproof Metal Motor Housing** *Alberto Dal Poz, CO.MEC. S.r.l.*
4:15 p.m.	2007-01-1687	**On Improving the Accuracy of Springback Prediction and Die Compensation** *Siguang Xu, Kunmin Zhao, Terry A. Lanker, Jimmy J. Zhang, Chuan-Tao Wang, General Motors Corp.*
4:45 p.m.	2007-01-1685	**A Critical Review of Different Experimental Approaches to Calibrate Numerical Sheet Forming Simulations** *Aldo Ofenheimer, Daniela Kitting, Virtual Vehicle Research Center; Mark Iadicola, Tim Foecke, National Institute of Standards and Technology*
5:15 p.m.	2007-01-1688	**Virtual Manufacturing of Automotive Body Side Outers Using Advanced Line Die Forming Simulation** *Jimmy J. Zhang, General Motors Corp.*

The papers in this session are available in a single publication, SP-2103, and also individually.

Planned by Ferrous Committee / Materials Engineering Activity

Wednesday, April 18

Experiments in Automotive Engineering (Part 5 of 8) - Fasteners Engineering

Session Code: ***M19***

Room W1-54 A ***Session Time:*** ***1:30 p.m.***

Program Chairs - Lianxiang Yang, Oakland Univ.; Darryl Taylor, Kah Wah Long, DaimlerChrysler Corp.

This session will offer models and experimental results of different types of fasteners used in a variety of applications

Organizers - *Mohamed El-Sayed, Kettering Univ.; Sayed A. Nassar, Oakland Univ.; Wolfgang Scheiding, KAMAX Werke; Xianjie Yang, Oakland Univ.*

Time	Paper No.	Title

1:30 p.m.	***2007-01-1669***	***Torque-Angle Signature Analysis of Weld Stud Tightening***
		Saravanan Ganeshmurthy, Sayed A. Nassar, Oakland Univ.; Gerald Grzadzinski, DaimlerChrysler Corp.
2:00 p.m.	***2007-01-1666***	***Elasto-Plastic Clamp Load Analysis of Bolted Joint for Bolt Strain Hardening Material Under Separating Loading***
		Xianjie Yang, Sayed A. Nassar, Oakland Univ.
2:30 p.m.	***2007-01-1668***	***Potentials and Limitations of Ultrasonic Clamp Load Testing***
		Gunther Hartmann, KAMAX-Werke
3:00 p.m.	***2007-01-1663***	***DOE Investigation on the Effect of Dimensional Thread Tolerance on the Vibration-Induced Loosening of Fasteners***
		Basil Housari, Oakland Univ.; Sebastian Mark Dykas, DaimlerChrysler; Gerald Grzadzinski, DaimlerChrysler Corp.; Sayed A. Nassar, Oakland Univ.
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-1671***	***Investigation of the Effect of Adhesive Coating on the Performance of Threaded Fasteners***
		Saravanan Ganeshmurthy, Basil Housari, Sayed A. Nassar, Oakland Univ.
4:15 p.m.	***2007-01-1665***	***Torque Angle Signature Analysis of Joints with Thread Rolling Screws and Unthreaded Weld Nuts***
		Radesh Vangipuram, Anthony Valasin, Rick Squires, Ford Motor Co.
4:45 p.m.	***2007-01-1673***	***Optimization of Automotive Wheel Lugnut Tightening***
		Ali Alhusni Alkelani, Oakland Univ.; Basil Housari, Gerald Grzadzinski, DaimlerChrysler Corp.; Sayed A. Nassar, Oakland Univ.
5:15 p.m.	***2007-01-1670***	***Effect of Bearing Friction and Hole Clearance on the Clamp Load-Deformation Correlation in Bolted Joints***
		Aidong Meng, Xianjie Yang, Sayed A. Nassar, Oakland Univ.

The papers in this session are available in a single publication, SP-2094, and also individually.

Planned by Materials Modeling and Testing Committee / Materials Engineering Activity

Wednesday, April 18

Reliability and Robust Design in Automotive Engineering (Part 7 of 14) - Part 6A - Axiomatic Design

Session Code: ***M18***

Room W1-54 B ***Session Time:*** ***9:00 a.m.***

Program Chairs: Zissimos Mourelatos, Oakland Univ.; Yung-Li Lee, DaimlerChrysler; Efstratios Nikolaidis, Univ. of Toledo; Ren-Jye Yang, Ford Motor Co.; Yih-Chyun Sheu, General Motors Corp.

This session presents papers on the recent development of methods and implementations of Axiomatic Design. Methods presented and implementations demonstrated are on lean manufacturing, lean organization and knowledge management. A one-hour tutorial on Axiomatic Design will be given at the beginning of the session.

Organizers - *Yih-Chyun Sheu, General Motors Corp.; Hilario L. Oh, Massachusetts Institute of Technology; Christopher A. Brown, Worcester Polytechnic Institute; Taesik Lee, Massachusetts Institute of Technology*

Chairpersons - *Hilario L. Oh, Taesik Lee, Massachusetts Institute of Technology*

Time	***Paper No.***	***Title***

9:00 a.m.	***ORAL ONLY***	***Axiomatic Design 101 - The Fundamental Elements of a Powerful Method - Tutorial***
		Christopher A. Brown, Worcester Polytechnic Institute
10:00 a.m.	***~~2007-01-1376~~***	***Axiomatic Design Rules for Implementing Lean Manufacturing***
	ORAL ONLY	*J T. Black, Auburn Univ.*
10:30 a.m.	***2007-01-1377***	***Systems Approach to Sustain Lean Organizations***
		David S. Cochran, System Design LLC
11:00 a.m.	***2007-01-1211***	***Knowledge Management and Axiomatic Design***
		Christopher A. Brown, Worcester Polytechnic Inst.

The papers in this session are available in a single publication, SP-2119, and also individually.

Planned by Materials Modeling and Testing Committee / Materials Engineering Activity

Wednesday, April 18

Reliability and Robust Design in Automotive Engineering (Part 8 of 14) - Part 6B - Axiomatic Design

Session Code: ***M18***

Room W1-54 B ***Session Time:*** ***1:30 p.m.***

Program Chairs: Zissimos Mourelatos, Oakland Univ.; Yung-Li Lee, DaimlerChrysler; Efstratios Nikolaidis, Univ. of Toledo; Ren-Jye Yang, Ford Motor Co.; Yih-Chyun Sheu, General Motors Corp.

This session presents papers on the recent development of methods and implementations of Axiomatic Design. Methods presented are on balancing design functional coupling and sensitivity to noise, reducing design functional coupling and minimizing design information content through compliance analysis. Implementations demonstrated is on car occupant protection.

Organizers - *Yih-Chyun Sheu, General Motors Corp.; Hilario L. Oh, Massachusetts Institute of Technology; Christopher A. Brown, Worcester Polytechnic Institute; Taesik Lee, Massachusetts Institute of Technology*

Chairpersons - *Christopher A. Brown, Worcester Polytechnic Institute; Shawn Hui, General Motors Corp.*

Time	***Paper No.***	***Title***
1:30 p.m.	***2007-01-1209***	***Minimizing Information Content of a Design using Compliance Analysis***
		A. M. M. Sharif Ullah, Khalifa H. Harib, Ahmed Al Awar, United Arab Emirates Univ.
2:00 p.m.	***2007-01-1210***	***Design of the Occupant Protection System for Frontal Impact Using the Axiomatic Approach***
		Sang-Ki Jeon, Delphi Korea; Gyung-Jin Park, Hanyang Univ.
2:30 p.m.	***2007-01-1207***	***Balancing Design Functional Coupling and Sensitivity to Noise to Achieve the Design Target***
		Hilario L. Oh, Massachusetts Institute of Technology
3:00 p.m.	***2007-01-1208***	***Achieving Design Target in the Presence of Functional Coupling***
		Taesik Lee, Hilario Oh, Massachusetts Institute of Technology

The papers in this session are available in a single publication, SP-2119, and also individually.

Planned by Materials Modeling and Testing Committee / Materials Engineering Activity

Wednesday, April 18

Reliability and Robust Design in Automotive Engineering (Part 9 of 14) - Military

Session Code: ***M18*** ***3:45 p.m.***

Room W1-54 B ***Session Time:***

Program Chairs: Zissimos Mourelatos, Oakland Univ.; Yung-Li Lee, DaimlerChrysler; Efstratios Nikolaidis, Univ. of Toledo; Ren-Jye Yang, Ford Motor Co.; Yih-Chyun Sheu, General Motors Corp.

This session considers aspects of reliability that are key to military ground vehicle systems. Military vehicles pose some unique requirements, and this session will address several aspects of the problem. How can reliability be improved for military ground vehicles?

Organizers - *David J. Gorsich, David A. Lamb, US Army TACOM*

Chairpersons - *David J. Gorsich, David A. Lamb, US Army TACOM*

Time	Paper No.	Title
3:45 p.m.	***2007-01-1421***	***Predicting Military Ground Vehicle Reliability using High Performance Computing*** *David Alan Lamb, David J. Gorsich, Dmitriy Krayterman, US Army RDECOM-TARDEC; Kyung K. Choi, Edwin Hardee, Univ. of Iowa; Byeng Dong Youn, Michigan Tech. Univ.; Dan Ghiocel, Ghiocel Predictive Technologies Inc.*
4:15 p.m.	***2007-01-1423***	***Fatigue Resistance of Short Fiber-Reinforced TiNi/Al6061-SiC Composite*** *Chunlei Xie, Mohammad Hailat, Noveltech Inc.; Basem Almatar, Golam Newaz, Wayne State Univ.; Basavaraju B. Raju, US Army RDECOM*
4:45 p.m.	***2007-01-1422***	***Reliability Based Design of Composite Over-Wrapped Tanks*** *Galib Abumeri, Frank Abdi, Alpha STAR Corp.; Myles Baker, M4 Engineering Inc.; Matt Triplet, Joseph Griffin, US Army Research, Development & Engineering*
	2007-01-1424	***Construction and Tests of Swimming Vehicle with Diesel - Hydraulic Power Transmission Feed, Assigned for Special Operation Forces (SOF) (Written Only -- No Oral Presentation)*** *Przemyslaw Siminski, Military Inst. of Armour and Automotive Technology; Zbigniew Zienowicz, Hydromega*

The papers in this session are available in a single publication, SP-2110 and SP-2119, and also individually.

Planned by Materials Modeling and Testing Committee / Materials Engineering Activity

Wednesday, April 18

Climate Control (Part 1 of 2)

Session Code: ***HX2***

Room W1-55 A ***Session Time:*** ***9:00 a.m.***

This session includes topics describing new or revised techniques for methods or concepts to increase efficiency, improve occupant comfort, improve test methodology and minimize the environmental impact of the climate control system.

Organizers - *Bashar S. AbdulNour, Ford Motor Co.; Jeffrey A. Bozeman, General Motors Corp.; William Hill, GM Technical Center*

Chairpersons - *Ramesh Kumar Goyal, General Motors Corp.*

Time	Paper No.	Title
9:00 a.m.	***2007-01-1188***	***Development of Next Generation Automatic Climate Control*** *Mingyu Wang, John L. Pawlak, Charles A. Archibald, Delphi Corp.*

10:00 a.m.	***2007-01-1194*** ***ORAL ONLY***	***Reduction in Vehicle Temperatures and Fuel Use from Cabin Ventilation, Solar-Reflective Paint, and a New Solar-Reflective Glazing*** *John P. Rugh, Larry Chaney, Jason Lustbader, National Renewable Energy Laboratory; John Meyer, Visteon Climate Control; Mukesh Rustagi, Kurt Olson, PPG Industries Inc.; Rupert Kogler, Webasto AG*
10:30 a.m.	***2007-01-1195***	***Cyling in Automotive Climate Control Systems With Orifice Tube and Thermostatic Expansion Valve*** *Yunho Hwang, Amr Gado, Reinhard Radermacher, Univ. of Maryland*
11:00 a.m.	***2007-01-1185***	***In-Car Air Quality -- A Global Approach to Enhanced Comfort*** *Frederic Ladrech, Valeo; Hara Shinichi, Sirot Jean-Pascal, Tellier Laurent, Valeo Climate Control Inc.*

The papers in this session are available in a single publication, SP-2132, and also individually.

Planned by Vehicular Thermal Management Activity / EMB Land and Sea Group

Wednesday, April 18

Welding and Joining and Fastening (Part 2 of 2)

Session Code: ***M16***

Room W1-55 A ***Session Time:*** ***1:30 p.m.***

This session will address modeling and testing of methods of welding on a variety of materials and applications.

Organizers - *Sheng-Dong Liu, Generalety LLC; Jwo Pan, Univ. of Michigan-Ann Arbor; Tau Tyan, Ford Motor Co.; Shicheng Zhang, DaimlerChrysler AG*

Time	***Paper No.***	***Title***
1:30 p.m.	***2007-01-1360***	***Gas Metal Arc Welding of Coated Advanced High Strength Steel (AHSS) - Developments for Improved Weld Quality*** *Adrian N. Elliott, Armando Joaquin, Ford Motor Co.; Vaidyanath Rajan, Dennis Hartman, The Lincoln Electric Co.; Chonghua Jiang, AET Integration Inc.; Chris Karas, Metro Technologies Inc.*
2:00 p.m.	***2007-01-1356***	***Effects of Material Stack-ups and Microhardness Distribution on Fatigue Performance of DP600 and Boron Steel GMAW Lap Joint*** *Ramakrishna P. Koganti, Sergio Angotti, Armando M. Joaquin, Ford Motor Co.; Chonghua Jiang, AET Integration Inc.; Chris Karas, Metro Technologies Ltd.*
2:30 p.m.	***2007-01-1370***	***Monitoring the Effect of RSW Pulsing on AHSS using FEA (SORPAS) Software*** *Mohammad Ibraheem Khan, Michael L. Kuntz, Y. Zhou, Univ. of Waterloo; Kevin R. Chan, Nigel S. Scotchmer, Huys Industries, Ltd.*
3:00 p.m.	***2007-01-1363***	***Resistance Spot Weldability of Three Metal Stack Dual Phase 600 Hot-dipped Galvanized Steel*** *Ramakrishna P. Koganti, Ted Coon, Armando M. Joaquin, Arnon Wexler, Adrian Nicholas Elliott, Ford Motor Co.; Sree Harsha Lalam, Ravir S. Bhatnagar, Mittal Steel USA*

The papers in this session are available in a single publication, SP-2139, and also individually.

Planned by Materials Modeling and Testing Committee / Materials Engineering Activity

Wednesday, April 18

Climate Control (Part 2 of 2)

Session Code: ***HX2***

Room W1-55 A ***Session Time:*** ***3:45 p.m.***

This session includes topics describing new or revised techniques for methods or concepts to increase efficiency, improve occupant comfort, improve test methodology and minimize the environmental impact of the climate control system.

Organizers - *Bashar S. AbdulNour, Ford Motor Co.; Jeffrey A. Bozeman, General Motors Corp.; William Hill, GM Technical Center*

Chairpersons - *Ramesh Kumar Goyal, General Motors Corp.*

Time	Paper No.	Title
3:45 p.m.	***2007-01-1187***	***Elaboration of a Correlation Factor Based on Fleet Tests and Mobile Air Conditioning (MAC) System Laboratory Test*** *Denis Clodic, Ecole des Mines de Paris; Yingzhong Yu; Arnaud Tremoulet, Lionel Palandre, Ecole des Mines de Paris*
4:15 p.m.	***2007-01-1186***	***Measurements of Leak Flow Rates of Mobile Air Conditioning (MAC) Components - How to Reach a Generic Approach*** *Denis Clodic, Ecole des Mines de Paris; Yingzhong Yu*
4:45 p.m.	***2007-01-1190***	***Strategy for Efficient Automotive Climate Control*** *Padraig Donovan, John Manning, Advanced Automotive Electronic Control Group*
5:15 p.m.	***2007-01-1191***	***R-744 MAC System for an Low-intermediate Segment Vehicle*** *Roberto Monforte, Fiat Auto SPA*
5:45 p.m.	***2007-01-1193***	***Cooling with Augmented Heated and Cooled Seats*** *Edward I. Wolfe, Delphi Corp.; Xiaoxia Mu; Linjie Huang, Delphi Corp.; Prasad Kadle, Delphi Thermal & Interior*

The papers in this session are available in a single publication, SP-2132, and also individually.

Planned by Vehicular Thermal Management Activity / EMB Land and Sea Group

Wednesday, April 18

Welding and Joining and Fastening (Part 1 of 2)

Session Code: ***M16***

Room W1-55 B ***Session Time:*** ***9:00 a.m.***

This session will address modeling and testing of methods of welding on a variety of materials and applications.

Organizers - *Sheng-Dong Liu, Generalety LLC; Jwo Pan, Univ. of Michigan-Ann Arbor; Tau Tyan, Ford Motor Co.; Shicheng Zhang, DaimlerChrysler AG*

Time	Paper No.	Title
9:00 a.m.	***2007-01-1362***	***Modelling Rivets in the Finite Element Analysis*** *Francesco Vivio, Univ. di Roma Tor Vergata*
9:30 a.m.	***2007-01-1364***	***An Evaluation of NDT for Self-Piercing Riveting*** *Li Han, Richard Hewitt, Univ. of Warwick; Mike Shergold, Jaguar & Land Rover; Andreas Chrysanthou, Univ. of Hertfordshire; Tadeusz Stepinski, Uppsala Univ.*

10:00 a.m.	***2007-01-1373***	***A Fatigue Crack Growth Model for Spot Welds in Square-Cup and Lap-Shear Specimens Under Cyclic Loading Conditions***
		Kulthida Sripichai, Pai-Chen Lin, Jwo Pan, Univ. of Michigan-Ann Arbor
10:30 a.m.	***2007-01-1361***	***Extension of the Spot Weld Element to the Elasto-Plastic Case***
		Pietro Salvini, Francesco Vivio, Vincenzo Vullo, Univ. di Roma Tor Vergata
11:00 a.m.	***~~2007-01-1357~~ ORAL ONLY***	***Stress Solutions and Stress Intensity Factors of Spot Welds under General Loading Conditions***
		Pai-Chen Lin, Jwo Pan, Univ. of Michigan

The papers in this session are available in a single publication, SP-2139, and also individually.

Planned by Materials Modeling and Testing Committee / Materials Engineering Activity

Wednesday, April 18

Computational Fluid Dynamics

Session Code: ***AE18***

Room W1-55 B ***Session Time:*** ***1:30 p.m.***

This session covers papers dealing with the advances in the use of Computational Fluid Dynamics in the analysis, design, and optimization of automotive systems and components. The papers discuss new methodologies for addressing advanced applications and provide experimental validations.

Organizers - *Sunil K. Jain, Jaina Engineering Services LLC; Sandeep Dinkar Sovani, Fluent Inc.*

Time	***Paper No.***	***Title***
1:30 p.m.	***2007-01-1400***	***Experimental and Numerical Study of Gasoline Refueling Nozzle Spray Pattern***
		Raja Banerjee, Charles Burke, Donald Gepper, Mark IV Automotive
2:00 p.m.	***2007-01-1397***	***Optimization of HVAC Temperature Regulation Curves with modeFrontier and Fluent***
		Philip William Stephenson, Yang Chen, Behr America Inc.; Kanthasany Elankumaran, General Motors
2:30 p.m.	***2007-01-1396***	***Fluid Dynamic Analysis of Ducati 999 Heat Exchangers by Means of Numerical and Experimental Methodologies***
		Daniele Nanni; Gianmaria Castori, Riccardo Rossi, Universita di Bologna; Alberto Tarroni, Ducati Motor Holding SpA; Simone Di Piazza, Ducati Motor S P A
3:00 p.m.	***2007-01-1398***	***1D/3D Comparison of Flow Field Simulations Inside an Exhaust-Type Duct***
		Daniele Nanni
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-1399***	***A Theoretical and Experimental Study of Resonance in a High Performance Engine Intake System: Part 2***
		Síle Brennan; Robert Kee; Robert Kenny; Robert Fleck; John Gaynor, Queen's Univ. of Belfast; Bryan Fleck, Advanced Engine Technology, Ltd.,Northampton
	2007-01-1401	***Development of an Algorithm for Dynamic Grid Generation (Written Only -- No Oral Presentation)***
		Aswin Gnanaskandan; M. Kalaiselvan, C Senthil Kumar, S. Elangovan, Madras Institute of Technology

	2007-01-1402	***A Practical and Simplified Airflow Simulation to Assess Underhood Cooling Performance (Written Only -- No Oral Presentation)***
		Chia Hui Tai, China Motor Corporation; Chung-Guang Cheng, China Motor; Ching-Yun Liao, China Motor Corporation

The papers in this session are available in a single publication, SP-2077, and also individually.

Planned by Computer Applications Committee / Automobile Electronic Activity

Wednesday, April 18

Vehicle Sensors and Actuators (Part 1 of 4)

Session Code: ***AE2***

Room W2-62 ***Session Time:*** ***9:00 a.m.***

Modern automotive customers need safer vehicles with little or no impact to the environment. This purpose of this session is to present the latest research and development on novel sensors, actuators, and sensor fusion that are critical to deliver the function of today's complex automotive systems.

Organizers - *Serdar H. Yonak, Toyota Motor Engineering and Manufacturing North America*

Time	***Paper No.***	***Title***
9:00 a.m.	***2007-01-0404***	***Modeling and Analysis of MEMS in Multi-Physics Fields***
		Dumitru Beloiu, Wayne State University
9:30 a.m.	***2007-01-0397***	***Performance and Technology Comparison of GMR Versus Common Used Angle Sensor Principles for Automotive Applications***
		Wolfgang Granig, Stephan Hartman, Benno Koppl, Infineon
10:00 a.m.	***2007-01-0391***	***Novel Vertical Hall Elements For High Functional Linear Angular Sensor***
		Satoshi Oohira, DENSO CORPORATION; Keisuke Suzui, Yoshiko Isobe, Seiji Fujino, DENSO Corp.
10:30 a.m.	***2007-01-0395***	***Development of the Noncontact Steering Angle Sensor Using a Giant Magnetoresistive Element***
		Ichiro Tokunaga; Hirofumi Okumura, Yuichi Shonai, Toshio Ogawa, Alps Electric Co., Ltd.
11:00 a.m.	***2007-01-0400***	***Study on the Development of the Flexural Plate Wave (FPW) Accelerometer for the Continous Damping Control System of an Automobile***
		Jin Seung Lee, KAIST; Jung-Taek Lim, Seung-Cheol Lee, Mando Corp.; Seung-Seob Lee, Kaist; Seong Soo Kim, Mando. Corp.

The papers in this session are available in a single publication, SP-2124, and also individually.

Planned by Electrical and Electronic Systems Committee / Automobile Electronic Activity

Wednesday, April 18

Vehicle Sensors and Actuators (Part 2 of 4)

Session Code: ***AE2***

Room W2-62 ***Session Time:*** ***1:30 p.m.***

Modern automotive customers need safer vehicles with little or no impact to the environment. This purpose of this session is to present the latest research and development on novel sensors, actuators, and sensor fusion that are critical to deliver the function of today's complex automotive systems.

Organizers - *Serdar H. Yonak, Toyota Motor Engineering and Manufacturing North America*

Time	Paper No.	Title
1:30 p.m.	2007-01-0410	**Rotor Speed Detection Method for an Ultra High Speed Induction Motor Utilizing Slot Harmonics** *Takashi Masuzawa, Nobumasa Isogai, Masami Fujitsuna, DENSO Corp.*
2:00 p.m.	2007-01-0401	**A Study of Regenerative Braking Control of the Switched Reluctance Motor for Electric Racing Karts** *Hiroaki Okada, Yukihiro Yanagita, Toshiaki Isomura, Takeshi Sekiguchi, Mitsuba Corp.*
2:30 p.m.	2007-01-0409	**Development of Optimized Actuator for Active Geometry Control Suspension** *Haeryong Choi, Hyundai & Kia Corp.; Sung-Jun Kim, Sang-Wook Han, Hyundai Motor Company; Sang-Ho Lee, Yong-Ho Oh, Un Koo Lee, Hyundai Motor Co.*
3:00 p.m.	2007-01-0412	**Obstacle Detection for Power Folding Seats** *Michael Koepke, Kostal of America Inc.; Michael Grunert, Leopold Kostal GmbH & Co. KG*
3:30 p.m.		**BREAK**
3:45 p.m.	2007-01-0411	**Real Time Active Noise Control of Engine Booming in Passenger Vehicles** *Adel Nasiri, UWM; Youn-Hee Lee, Univ. of Wisconsin Milwaukee*

The papers in this session are available in a single publication, SP-2124, and also individually.

Planned by Electrical and Electronic Systems Committee / Automobile Electronic Activity

Wednesday, April 18

Vehicle Dynamics and Simulation (Part 3 of 5): Advances in Methods for Vehicle System Design and Control (Part 1 of 2)

Session Code: ***AC3***

Room W2-63 ***Session Time:*** ***9:00 a.m.***

In this session, presentations will be given on vehicle parameter measurements and estimation techniques for passenger vehicles. Comprehensive data will be presented for a typical passenger vehicle model that uses multi-body dynamics theory. Validation of the model will be discussed using field experiments on dry and wet surfaces. Discussion of the effects of ESC on vehicle¿s stability and handling performances will be discussed too.

Organizers - *Mohamed Kamel Salaani, Transportation Research Center Inc.; W. Riley Garrott, National Hwy Traffic Safety Admin; Mark Heitz, Transportation Research Center Inc.; Gary J. Heydinger, SEA, Ltd.; Janice K. Cooper, Transportation Research Center Inc.*

Chairpersons - *Mohamed Kamel Salaani, Transportation Research Center Inc.; Gary J. Heydinger, SEA, Ltd.*

Time	Paper No.	Title
9:00 a.m.	2007-01-0825	**Robust Active Roll Controller Design for Vehicles Considering Variable Speed and Actuator Delay** *Haiping Du, Nong Zhang, Guangming Dong, Univ. of Technology Sydney*
9:30 a.m.	2007-01-0826	**Development of Active Suspension Control for Combined Handling and Rollover Propensity Enhancement** *Mohammad Kamal, Altair Engineering Inc.; Taehyun Shim, Univ. of Michigan-Dearborn*

10:00 a.m.	***2007-01-0808***	***Nonlinear Observer for Vehicle Velocity with Friction and Road Bank Angle Adaptation - Validation and Comparison with an Extended Kalman Filter***
		Lars Imsland, Håvard Grip, Tor Johansen, Thor Inge Fossen, SINTEF; Jens Kalkkuhl, Avshalom Suissa, DaimlerChrysler AG
10:30 a.m.	***2007-01-0834***	***Extended Kalman Filter for Vehicle Dynamics Determination Based on a Nonlinear Model Combining Longitudinal and Lateral Dynamics***
		Anne Vietinghoff, Stephan Olbrich, Uwe Kiencke, Univ. of Karlsruhe
11:00 a.m.	***2007-01-0812***	***Exploring the Trade-Off of Handling Stability and Responsiveness with Advanced Control Systems***
		Edward Bedner, Aleksander Hac, Daniel Fulk, Delphi Corp.

The papers in this session are available in a single publication, SP-2138, and also individually.

Planned by Steering, Chassis and Suspension Committee / Automobile Chassis Activity

Wednesday, April 18

Vehicle Dynamics and Simulation (Part 4 of 5): Advances in Methods for Vehicle Systems Design and Control (Part 2 of 2)

Session Code: ***AC3***

Room W2-63 ***Session Time:*** ***1:30 p.m.***

This topic includes research done on the improvements of ESC systems with the applications of sophisticated control theories including robust Kalman filters and nonlinear observers to predict road surface conditions and vehicle states. Papers presented in this section represent different schools of thought on some of the theoretical work done in academia and industry. A paper discussing the trade-off between handling stability and responsiveness will also be presented.

Organizers - *Mohamed Kamel Salaani, Transportation Research Center Inc.; W. Riley Garrott, National Hwy Traffic Safety Admin; Mark Heitz, Transportation Research Center Inc.; Gary J. Heydinger, SEA, Ltd.; Janice K. Cooper, Transportation Research Center Inc.*

Chairpersons - *Gary J. Heydinger, SEA, Ltd.; Mohamed Kamel Salaani, Transportation Research Center Inc.*

Time	***Paper No.***	***Title***
1:30 p.m.	***2007-01-0809***	***An Enhancement to an Electronic Stability Control System to Include a Rollover Control Function***
		Jianbo Lu, David Messih, Albert Salib, Dave Harmison, Ford Motor Co.
2:00 p.m.	***2007-01-0828***	***Vehicle Dynamics Simulation to Develop an Active Roll Control System***
		Aldo Sorniotti, Nicolò D'Alfio, Politecnico di Torino
2:30 p.m.	***2007-01-0840***	***Development of a Method for Controlling Unstable Vehicle Behavior***
		Yuuki Shiozawa, Masatsugu Yokote, Masaaki Nawano, Hiroshi Mouri, Nissan Motor Co., Ltd.
3:00 p.m.	***2007-01-0842***	***Integrated Safety Concept and Design of a Vehicle Dynamics Management System***
		Willy Klier, Wolfgang Schroeder, Martin Kieren, Robert Bosch GmbH
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-0843***	***Highly Maneuverable Mobility Platform For Personal Vehicle***
		Yu-Yin Peng, Industrial Technology Research Institute; Cheng-Ho Li; James Wang, Tien-Ho Gau, Industrial Technology Research Institute

The papers in this session are available in a single publication, SP-2138, and also individually.

Planned by Steering, Chassis and Suspension Committee / Automobile Chassis Activity

Wednesday, April 18

In-Vehicles Networks (Part 1 of 2)

Session Code: ***AE1***

Room W2-64 ***Session Time:*** ***9:00 a.m.***

Papers presented in this session will portray the latest developments and proposals for In-Vehicle Networks. Typical subjects covered are: new protocols, gateways, vehicle control, message handling, X-by-wire, diagnostics and off-board connectivity.

Organizers - *Richard D. Means, Dearborn Group Technology; Mark P. Zachos, Dearborn Group Inc.*

Chairpersons - *Wolfhard Lawrenz, Univ. of Applied Sciences Wolfenbuttel*

Time	Paper No.	Title
9:00 a.m.	***ORAL ONLY***	***Scalability in a Dynamic Discovery Service-Based JINI for the Next Generation Vehicle Network***
		Rami Baroody, Univ. of Detroit Mercy
9:30 a.m.	***2007-01-1715***	***On Reliable Communication and Group Membership in Safety-Relevant Automotive Electronic Systems***
		Philipp Nenninger, Michael Bauer, Uwe Kiencke, Universität of Karlsruhe
10:00 a.m.	***2007-01-1711***	***Real Multi-Partitioning for Optimized Distributing and Allocating Software in Vehicle Networks***
		Stephan Brummund, Univ. of Karlsruhe; Christian Steup; Uwe Kiencke, University of Karlsruhe
10:30 a.m.	***2007-01-1714***	***Prevention of DoS Attacks on Inter-Vehicle Communications***
		Bryan Fleming; Jason Watson; Mark Pellerito; Huirong Fu, Oakland Univ.
11:00 a.m.	***2007-01-1712***	***Using Simulation for Designing In-Vehicle Network Gateways***
		Weida Zhu, Brendan Jackman, Waterford Institute of Technology

The papers in this session are available in a single publication, SP-2102, and also individually.

Planned by Electrical and Electronic Systems Committee / Automobile Electronic Activity

Wednesday, April 18

In-Vehicles Networks (Part 2 of 2)

Session Code: ***AE1***

Room W2-64 ***Session Time:*** ***1:30 p.m.***

Papers presented in this session will portray the latest developments and proposals for In-Vehicle Networks. Typical subjects covered are: new protocols, gateways, vehicle control, message handling, X-by-wire, diagnostics and off-board connectivity.

Organizers - *Richard D. Means, Dearborn Group Technology; Mark P. Zachos, Dearborn Group Inc.*

Chairpersons - *Wolfhard Lawrenz, Univ. of Applied Sciences Wolfenbuttel*

Time	Paper No.	Title
1:30 p.m.	***ORAL ONLY***	***A Survey of Wireless Technology for Automotive Applications***
		Nizar Al-Holou, University Of Detroit Mercy; Utayba Mohammad, Univ. of Detroit Mercy
2:00 p.m.	***2007-01-1709***	***Add-On Device Network for Passenger Cars***
		Holger Zeltwanger, CAN in Automation

2:30 p.m.	***2007-01-1713***	***Eletrical Architectures and In-Vehicles Networks***
		Eude Cezar De Oliveira, Ford Motor Co. Brasil Ltda
3:00 p.m.	***2007-01-1710***	***Contactless CAN Interface: A Standard for Aftermarket Automotive***
		Jean-Yves Berenger, NSI
3:30 p.m.		***BREAK***
3:45 p.m.	***ORAL ONLY***	***Can FlexRay Solve Your CAN Throughput Problems?***
		Robert Boys, Dearborn Group Inc.
4:15 p.m.	***2007-01-1716***	***A Combined Heuristic and Linear Programming (LP) Approach to Design and Optimize Network Topology for In-Vehicle Networks***
		Manaswini Rath, Honeywell, India
4:45 p.m.	***2007-01-1717***	***HIS/VectorCAN Driver API on Top of a Time-Triggered Communication Protocol***
		Roman Obermaisser, Vienna University of Technology; Dominique Riezler, TTTech. Computertechnik AG
5:15 p.m.	***2007-01-1718***	***Implementing FlexRay on Silicon***
		Harald Zweck, Patrick Leteinturier, Infineon Technologies AG
	2007-01-1719	***Industry First SAE J1939 Controlled Mobile Hydraulic AC Power Generator Systems (Written Only -- No Oral Presentation)***
		William Leach, Smart Power Systems

The papers in this session are available in a single publication, SP-2102, and also individually.

Planned by Electrical and Electronic Systems Committee / Automobile Electronic Activity

Wednesday, April 18

Advances in Lightweight Materials - Casting

Session Code: ***M2***

Room W2-65 ***Session Time:*** ***9:00 a.m.***

This session will provide details on how to improve casting properties and inspection techniques for automotive components.

Organizers - *Pam Lassila, Steve Robison, American Foundry Society Inc.*

Time	***Paper No.***	***Title***
9:00 a.m.	***2007-01-1221***	***Application of High Thermal Conductivity Steels to Automotive Aluminum Die-Cast Molds***
		Masahiko Ayabe, Kiyoshi Shibata, Honda Motor Co. Ltd.; Hiroaki Koyama, Honda Engineering Co., Ltd.; Kozo Ozaki, Masamichi Kawano, Tamiki Yanagisawa, Daido Steel Co., Ltd.; Teruhiko Nagaoka, Hiroshi Nozute, Honda Motor Co. Ltd.
9:30 a.m.	***2007-01-1224***	***The Effect of Solidification Time and Solution-Treatment Time on the Tensile Properties of a Cast 319-T7 Aluminum Alloy***
		James M. Boileau, Jacob W. Zindel, Larry Alan Godlewski, John E. Allison, K. A. Kofeldt, Ford Motor Co.
10:00 a.m.	***2007-01-1227***	***High Silicon Cast Iron with Mixed Graphite (MG) Shapes for Elevated Temperature Applications***
		Delin Li, Rob Logan, Gene Burger, Gangjun Liao, Rick Williams, Wescast Industries Inc.

	2007-01-1228	***Reinforced Light Metals for Automotive Applications (Written Only -- No Oral Presentation)***
		Florian Bechmann, Peter Fallboehmer, Rudolf Stauber, BMW Group; Christian Rauber, Andreas Lohmueller, Mark Hartmann, Robert F. Singer, Neue Materialien Fuerth GmbH

The papers in this session are available in a single publication, SP-2105, and also individually.

Planned by Non-Ferrous Committee / Materials Engineering Activity

Wednesday, April 18

Innovations in Steel Sheet Products and Processing

Session Code: ***M6***

Room W2-65 ***Session Time:*** ***1:30 p.m.***

Technology trends related to new automotive sheet steels include high strength steels and new vehicle design methodologies to reduce weight, improve fuel economy, and reduce emissions to the environment. Occupant safety is another important requirement, and new steel grades, as well as improved understanding of properties during collisions, are receiving considerable attention and activity. This session highlights recent advances in the steel substrate, properties, processing, performance, applications of sheet steel products for automotive body and structural applications. Papers covering a variety of current developments are scheduled for this session.

Organizers - *Stavros Fountoulakis, Mittal Steel Co.; Brandon M. Hance, Timken; Vinay C. Shah, DaimlerChrysler Vehicle Engineering; John G. Speer, Colorado School of Mines; Matthew S. Walp, DaimlerChrysler Corp.*

Time	***Paper No.***	***Title***
1:30 p.m.	***2007-01-0336***	***Hot- and Cold-Rolled Low-Carbon Manganese TRIP Steels***
		Matthew J. Merwin, U. S. Steel Corp.
2:00 p.m.	***2007-01-0337***	***Characterization of Press Tonnage Requirements During Stamping of Dual Phase Steel***
		James R. Fekete, General Motors Corp.; Stephen Kernosky, Ford Motor Co.
2:30 p.m.	***2007-01-0338***	***Forming Limit Diagram Prediction of Stainless Steel Sheets***
		Guillaume Chinouilh, Stainless Steel Products Division
3:00 p.m.	***2007-01-0339***	***AHSS Application in Roof Strength***
		Benda Yan, Liang Huang, Min Kuo, Mittal Steel USA Inc.
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-0340***	***On Formability Limitations in Stamping Involving Sheared Edge Stretching***
		Aleksy A. Konieczny, Todd L. Henderson, U. S. Steel Corp.
4:15 p.m.	***2007-01-0341***	***Development of Ultra-High Strength Steel Sheets with Tensile Strength of 980MPa***
		Nobuhiro Fujita, Toshiki Nonaka, Toshimasa Tomokiyo, Hirokazu Taniguchi, Koichi Goto, Nippon Steel Corp.; Kazumasa Yamazaki, Nippon Kinzoku Co., Ltd.
4:45 p.m.	***2007-01-0342***	***Impact Dependent Properties of Advanced and Ultra High Strength Steels***
		Matthew S. Walp, DaimlerChrysler Corp.
5:15 p.m.	***2007-01-0343***	***Determination of Weight Elasticity of Fuel Economy for ICE, Hybrid and Fuel Cell Vehicles***
		Roland Wohlecker, FKA GmbH; Martin Johannaber, Markus Espig, Institut Fuer Kraftfahrwesen

The papers in this session are available in a single publication, SP-2103, and also individually.

Planned by Ferrous Committee / Materials Engineering Activity

Wednesday, April 18

Automotive Lighting Technology (Part 4 of 5): Automotive Lighting Engineering Analysis: New Light Sources Evaluations

Session Code: ***B17***

Room W2-66 ***Session Time:*** ***9:00 a.m.***

Light sources play essential role in advancing the automotive lighting technologies. In recently years, great efforts have put spent in the LED light sources development throughout the industry world wide. Other light sources such as HID are continue to be improved. The information in this session will reflect the current status of these developments.

Organizers - *Jianzhong Jiao, North American Lighting Inc.*

Chairpersons - *Michael Hamm, Automotive Lighting*

Time	Paper No.	Title
9:00 a.m.	***2007-01-1230***	***OLED Technology and Its Possible Use in Automotive Applications***
		Albrecht Kraus, Nils Benter, Herbert Boerner, Philips Technologie GmbH
9:30 a.m.	***2007-01-1231***	***2.5 D LED: A Cost Efficient Solution for 3 D Signaling Lamps***
		Thomas Luce, Gilles Rageade, Valeo Lighting Systems
10:00 a.m.	***2007-01-1041***	***Application of LED Light Sources with Light Guide Optics***
		Thomas Tessnow, Ralph Johnson, Michael Tucker, Osram Sylvania Products
10:30 a.m.	***2007-01-1232***	***Next Steps in Environmentally Friendly Xenon HID***
		Norbert Lesch, Michael Haacke, Helmut Tiesler-Wittig, Holger Weinert, Philips Automotive Lighting
11:00 a.m.	***ORAL ONLY***	***Characteristics of LED Performance in Under-hood Applications***
		Joseph Edward Jablonski, Osram Opto Semiconductors

The papers in this session are available in a single publication, SP-2106, and also individually.

Planned by Human Factors Committee / Automobile Body Activity

Wednesday, April 18

Automotive Lighting Technology (Part 5 of 5): Automotive Lighting Product Innovation and Improvement

Session Code: ***B17***

Room W2-66 ***Session Time:*** ***1:30 p.m.***

Automotive lighting system as whole involves wide range of engineering challenges in the areas of optical, electrical, mechanical and material engineering. In the recent years, computer-aided engineering (CAE) work conducted by highly skilled experts has taken the lighting system design and analysis to an advanced level. Much more in-depth analysis, models and simulations have been presented in the past, and continued in this session, which greatly assist the lighting system performance and durability.

Organizers - *Jianzhong Jiao, North American Lighting Inc.*

Chairpersons - *John Bullough, Rensselaer Polytechnic Institute; John F. Van Derlofske, 3M Optical Systems Div.*

Time	Paper No.	Title

1:30 p.m.	***2007-01-1391***	***Development of Crystal Projector Optics***
		Motohiro Komatsu, Koito Manufacturing Co.Ltd.
2:00 p.m.	***2007-01-1389***	***New Efficient Optic ¿ Improvement of Halogen Low Beam***
		Pierre Albou, Olivier Barthomeuf, Benoit Reiss, Valeo Lighting Systems
2:30 p.m.	***2007-01-1390***	***Micro-Optics: A Novel Approach for Unique Styling***
		Thomas Luce, Gilles Rageade, Jean-Claude Gasquet, Valeo Lighting Systems
3:00 p.m.	***2007-01-0603***	***Resonant Frequency Prediction of Automotive Lamps***
		Fadi Elkhatib, Thomas Poorman, North American Lighting Inc.
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-1388***	***Heat Simulation in Lighting***
		Martin Formanek, Visteon-AUTOPAL

The papers in this session are available in a single publication, SP-2106, and also individually.

Planned by Human Factors Committee / Automobile Body Activity

Wednesday, April 18

Fire Safety (Part 4 of 5): Material Flammability and Fire Experiments

Session Code: ***B14***

Room W2-67 ***Session Time:*** ***9:00 a.m.***

Organized by the Fire Safety Committee, papers in this session will address assessment of potential fire hazards associated with fuel system leak-checking procedures, description of a database of full-scale vehicle fire tests, and a summary of laboratory flammability tests of poly(butylene terphthalate) and nylon 6,6 containing flame retardants.

Organizers - *Marc Janssens, Southwest Research Institute; Jeffrey Santrock, General Motors Corp.; R Rhoads Stephenson, Motor Vehicle Fire Research Institute*

Chairpersons - *Marc Janssens, Southwest Research Institute; Jeffrey Santrock, General Motors Corp.*

Time	***Paper No.***	***Title***
9:00 a.m.	***2007-01-1233***	***Development of a Database of Full-Scale Calorimeter Tests of Motor Vehicles***
		Marc Janssens, Southwest Research Institute
9:30 a.m.	***2007-01-1234***	***Small-Scale Flammability Testing of Polyester and Polyamide Formulations used in Electrical Connector Applications***
		Susan Duncan Landry, Albemarle Corp.; Richard Rose, Chemtura Corp.
10:00 a.m.	***2007-01-1235***	***Fuel Tank and Charcoal Canister Fire Hazards During EVAP System Leak Testing***
		Kevin Frank, M. David Checkel, Univ. of Alberta

The papers in this session are available in a single publication, SP-2097, and also individually.

Planned by Fire Safety Committee / Automobile Body Activity

Wednesday, April 18

Fire Safety (Part 5 of 5): Underhood and Electrical Fires

Session Code: ***B15***

Room W2-67 ***Session Time: 1:30 p.m.***

Organized by the Fire Safety Committee, the papers presented will address aspects of underhood fire safety. Topics include hot surface ignition (mechanisms of ignition, fluid temperatures and influential factors), and exhaust system temperatures (experimental techniques, vehicle measurements, and modeling tools).

Organizers - *Leland E. Shields, Leland E Shields Inc.; James J. Engle, Ford Motor Co.; R Rhoads Stephenson, Motor Vehicle Fire Research Institute*

Time	Paper No.	Title
1:30 p.m.	***2007-01-1042***	***Development of a DC High-Current Arc Ignition Tester*** *Richard V. Wagner, Underwriters Laboratories Inc.*
2:00 p.m.	***2007-01-1392***	***A Comparison of the Effect of E85 vs. Gasoline on Exhaust System Surface Temperatures*** *James J. Engle, Jon S. Olson, Sunil S. Sharma, Ford Motor Co.*
2:30 p.m.	***2007-01-1393***	***Under Hood Temperature Measurements*** *Edmund A. Fournier, Tim D. Bayne, Biokinetics and Associates, Ltd.*
3:00 p.m.	***2007-01-1394***	***Evaluation of Automobile Fluid Ignition on Hot Surfaces*** *Kenneth D. Byers, Origin and Cause Inc.; William Epling, Fan Cheuk, Mahmoud Kheireldin, E. J. Weckman, Univ. of Waterloo*
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-1395***	***Thermal Managment of a Vehicle's Underhood and Underbody using Appropriate Math-Based Analytical Tools and Methodologies*** *Shailendra Kaushik, General Motors Corp.*

The papers in this session are available in a single publication, SP-2097, and also individually.

Planned by Fire Safety Committee / Automobile Body Activity

Wednesday, April 18

Historical Perspectives on Sustaining Our Global Mobility (Part 1 of 2)

Session Code: ***CONG400***

Room W2-68 ***Session Time: 9:00 a.m.***

Historical perspectives can take many directions. This morning's papers will include a historical review of crankcase lubricant additives, a presentation on Sir Harry Ricardo and Charles F. Kettering, two pioneers who dealt with early problems of combustion, and a discussion of the evolution of emission control systems for passenger cars.

Organizers - *Donald C. Siegla*

Chairpersons - *Alfred D. Bosley*

Time	Paper No.	Title
9:00 a.m.	***ORAL ONLY***	***Crankcase Lubricant Additives - You Don't Leave Home Without Them*** *William Chamberlain, III, WBC LubeTech.*
10:00 a.m.	***ORAL ONLY***	***Knock, Knock. Who's There? Ricardo, Kettering and Contemporaries*** *Charles A. Amann, KAB Engineering*
11:00 a.m.	***ORAL ONLY***	***Highlights of the Evolution of Emission Control Systems for Passenger Cars*** *J. Robert Mondt, JR Engineering*

Wednesday, April 18

Historical Perspectives on Sustaining Our Global Mobility (Part 2 of 2)

Session Code: ***CONG400***

Room W2-68 ***Session Time:*** ***1:30 p.m.***

A look into the future of the automotive world will open the session, followed by a review of aviation's golden years from 1925 through 1945, and an overview of the history, development and manufacture of the pneumatic tire.

Organizers - *Donald C. Siegla*

Chairpersons - *Alfred D. Bosley*

Time	Paper No.	Title
1:30 p.m.	***ORAL ONLY***	***The Future Auto World - Round or Flat?***
		David E. Cole, Center For Automotive Research
2:30 p.m.	***ORAL ONLY***	***Aviation's Golden Years - 1925-1945***
		John Bluth, Director of Communications, National Auto History Collection
3:30 p.m.		***BREAK***
3:45 p.m.	***ORAL ONLY***	***An Overview of the History, Development and Manufacture of the Pneumatic Tire***
		Douglas Martin Butcher, Business Development Director-Tires, Chem-Trend L.P.

Wednesday, April 18

Electronic Engine Controls (Part 3 of 6)

Session Code: ***PFL17***

Room W2-69 ***Session Time:*** ***9:00 a.m.***

The Electronic Engine Controls session covers advanced control and on-board-diagnostic strategies and related topics including control-oriented system modeling, signal processing, sensors and actuators, electronic control units, system integration and implementation.

Organizers - *Patrick Leteinturier, Infineon Technologies AG; Peter J. Maloney, The MathWorks Inc.; James C. Peyton-Jones, Villanova University*

Time	Paper No.	Title
9:00 a.m.	***2007-01-1197***	***Adaptive Idle Speed Control for Spark-Ignition Engines***
		Feng-Chi Hsieh, Bo-Chiuan Chen, Yuh-Yih Wu, National Taipei Univ. of Technology
9:30 a.m.	***2007-01-1200***	***Management System for Continuously Variable Valve Lift Gasoline Engine***
		Hiroshi Tagami, Yuji Yasui, Masahiro Sato, Hisashi Ito, Honda R&D Co., Ltd.
10:00 a.m.	***2007-01-1198***	***Adaptive Air-fuel Ratio Controls for Continuously Variable Valve Lift Gasoline Engines***
		Ikue Kawasumi, Yuji Yasui, Honda R&D Co., Ltd.
10:30 a.m.	***2007-01-1201***	***An Accurate Idle Speed Control for a Gasoline Engine with a Continuously Variable Valve Actuation***
		Kosuke Higashitani, Yuji Yasui, Masahiro Sato, Honda R&D Co., Ltd.
11:00 a.m.	***2007-01-1199***	***An Innovative Control System for a 2/4 Stroke Switchable Engine***
		Andrea Baccile, Daniele Ceccarini, Ling Cheng, Alessandro Iacoponi, Tim Lake, Andrew Noble, John Stokes, Ricardo UK, Ltd.

The papers in this session are available in a single publication, SP-2087, and also individually.

Planned by Control and Calibration Committee / Powertrain Fuels and Lubricants Activity

Wednesday, April 18

Electronic Engine Controls (Part 4 of 6)

Session Code: ***PFL17***

Room W2-69 ***Session Time:*** ***1:30 p.m.***

The Electronic Engine Controls session covers advanced control and on-board-diagnostic strategies and related topics including control-oriented system modeling, signal processing, sensors and actuators, electronic control units, system integration and implementation.

Organizers - *Patrick Leteinturier, Infineon Technologies AG; Peter J. Maloney, The MathWorks Inc.; James C. Peyton-Jones, Villanova University*

Time	Paper No.	Title
1:30 p.m.	***2007-01-1342***	***An Adaptive Delay-Compensated PID Air Fuel Ratio Controller*** *E. M. Franceschi, Kenneth R. Muske, James C. Peyton-Jones, Villanova University; Imad H. Makki, Ford Motor Co.*
2:00 p.m.	***2007-01-1339***	***Preliminary Experimental Verification of an Intelligent Fuel Air Ratio Controller*** *Travis Wiens, Rich Burton, Greg Schoenau, Univ. of Saskatchewan; Mike Sulatisky, Sheldon Hill, Bryan Lung, Saskatchewan Research Council*
2:30 p.m.	***2007-01-1340***	***New Lambda - Lambda Air-Fuel Ratio Feedback Control*** *Hideki Takubo, Mitsubishi Electric Corp.; Takahiro Umeno, Hideki Goto, ICT Co., Ltd.*
3:00 p.m.	~~***2007-01-1341***~~ ***CANCELLED***	***Real-Time Exhaust and Catalyst Temperature Modeling for a Gasoline Engine Control System*** *Pin Zeng, Motorola Inc.*
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-1344***	***Estimation of Drawn Air Mass on a ICE: Implementation of a New Algorithm to Better Estimate the Atmospheric Pressure Influence*** *Ferdinando De Cristofaro, Alessandro Riegel, Umberto Di Martino, Giuseppe De Sisto, Elasis S.C.p.A*
4:15 p.m.	***2007-01-1343***	***Automatic Calibration of 1 and 2-D Look-up Tables using Recursive Least-Squares Identification Techniques*** *James C. Peyton-Jones, Kenneth Muske, Villanova University*
4:45 p.m.	***2007-01-1345***	***A Combined Physical / Neural Approach for Real-Time Models of Losses in Combustion Engines*** *Christian Wilhelm, Thomas Winsel, Mohamed Ayeb, Heinz J. Theuerkauf, Sven Brandt, Elmar Busche, Claudio Longo, Gunter D. Knoll, Universitaet Kassel*

The papers in this session are available in a single publication, SP-2087, and also individually.

Planned by Control and Calibration Committee / Powertrain Fuels and Lubricants Activity

Wednesday, April 18

Safety-Critical Systems (Part 1 of 3)

Session Code: ***AE5*** ***9:00 a.m.***

Room W2-70 ***Session Time:***

The submissions for the safety-critical systems session describe the application of standards and norms relevant to automotive development processes, explain new or enhanced methods for safety-critical software or system design processes, or are about the design, implementation, and validation of specific safety-related systems and functions in the car.

The focus of the session lies on presentations about software and systems hazard analysis, construction of safety-relevant systems and software, methods for error detetection and integration of safety requirements in the design of communication networks. Further topics covered are on simulation and prototyping experiences of safety-critical functions such as chassis control, brake-by-wire and steer-by-wire. Additional presentations are on the relation of standards for the development of safety-critical systems/software such as IEC61508 to existing and upcoming development processes in the automotive industry.

Organizers - *Brian Murray, Delphi Corp.; Markus Plankensteiner, Stefan Poledna, TTTech. Computertechnik AG; Heike Voigt, TTAutomotive Software GmbH*

Time	***Paper No.***	***Title***
9:00 a.m.	***2007-01-1491***	***Improving Hazard Identification***
		Dennis Plunkett, PBR Automotive Pty, Ltd.; Ed Kazmierczak, Tariq Mahmood, Univ. of Melbourne
9:30 a.m.	***2007-01-1483***	***Satisfying Design Constraints for Automotive Safety-Critical Systems***
		Isuruwani Herath, Clive Roberts, Theodoros N. Arvanitis, University of Birmingham, UK; Andrew Bold, TRW Conekt
10:00 a.m.	***2007-01-1493***	***Safety-Critical Software Development using Automatic Production Code Generation***
		Thomas Erkkinen, Mirko Conrad, The MathWorks Inc.
10:30 a.m.	***2007-01-1490***	***TTA-Group Steer-by-Wire Working Group: An Initiative to Set up a Reference Architecture for Steer-by-Wire in Off-Highway Industry***
		Markus Plankensteiner, Lukas Silberbauer, TTTech. Computertechnik AG
11:00 a.m.	***2007-01-1495***	***Towards Integrating Model-Driven Development of Hard Real-Time Systems with Static Program Analyzers***
		Christian Ferdinand, Reinhold Heckmann, AbsInt Angewandte Informatik GmbH; Hans-Joerg Wolff, Christian Renz, Manabendra Gupta, ETAS GmbH; Oleg Parshin, Reinhard Wilhelm, Universitaet des Saarlandes

The papers in this session are available in a single publication, SP-2121, and also individually.

Planned by Electrical and Electronic Systems Committee / Automobile Electronic Activity

Wednesday, April 18

Safety-Critical Systems (Part 2 of 3)

Session Code: ***AE5***

Room W2-70 ***Session Time:*** ***1:30 p.m.***

The submissions for the safety-critical systems session describe the application of standards and norms relevant to automotive development processes, explain new or enhanced methods for safety-critical software or system design processes, or are about the design, implementation, and validation of specific safety-related systems and functions in the car.

The focus of the session lies on presentations about software and systems hazard analysis, construction of safety-relevant systems and software, methods for error detetection and integration of safety requirements in the design of communication networks. Further topics covered are on simulation and prototyping experiences of safety-critical functions such as chassis control, brake-by-wire and steer-by-wire. Additional presentations are on the relation of standards for the development of safety-critical systems/software such as IEC61508 to existing and upcoming development processes in the automotive industry.

Organizers - *Brian Murray, Delphi Corp.; Markus Plankensteiner, Stefan Poledna, TTTech. Computertechnik AG; Heike Voigt, TTAutomotive Software GmbH*

Time	Paper No.	Title
1:30 p.m.	2007-01-1488	**Basic Single-Microcontroller Monitoring Concept for Safety Critical Systems** *Rolf Schneider, Audi AG; Simon Brewerton, Infineon Technologies; Manfred Kalhammer, Denis Eberhard, Audi AG*
2:00 p.m.	2007-01-1486	**Implementation of a Basic Single-Microcontroller Monitoring Concept for Safety Critical Systems on a Dual-Core Microcontroller** *Simon Brewerton, Infineon Technologies; Rolf Schneider, Denis Eberhard, Audi AG*
2:30 p.m.	2007-01-1494	**Safety Integrity of Memory Sub-systems in Automotive Microcontrollers** *Riccardo Mariani, Yogitech Spa; Peter Fuhrmann, Philips Research Laboratories; Federico Colucci, Yogitech Spa*
3:00 p.m.	2007-01-1497	**A Statistical Approach for Real-Time Prognosis of Safety-Critical Vehicle Systems** *Siddharth H. D'Silva, Laci Jalics, Mark Krage, Delphi Corporation*
3:30 p.m.		**BREAK**
3:45 p.m.	2007-01-1489	**SIL2 and SIL3 ECU - Safety Controller for Off-Highway** *Christiana Seethaler, Lukas Silberbauer, TTTech. Computertechnik AG*
4:15 p.m.	2007-01-1498	**Central Control Platform for Active Accident-Avoiding Vehicles** *Matthias Schütz, Continental Automotive Systems; Michael Armbruster, Eduard Zimmer, Matthias Lehmann, Henning Tjaden, Institute For Airborne Systems*
4:45 p.m.	2007-01-1485	**Encapsulation of Software-Modules of Safety-Critical Systems** *Denis Eberhard, Frank Grosshauser, Audi AG*

The papers in this session are available in a single publication, SP-2121, and also individually.

Planned by Electrical and Electronic Systems Committee / Automobile Electronic Activity

Thursday, April 19

Hybrids: How Do they Stack Up?

Session Code: ***CONG76***

Room ***FEV Powertrain Innovation Forum*** ***Session Time:*** ***9:30 a.m.***

With a significant focus of today's powertrains circling around hybrid implementation, a single question continues to remain on everyone's mind. Is hybrid implementation viable as a commercial product? Take a step sideways with us and look at hybrids from a multitude of perspectives (cost, fuel economy gains, other technological advancements, etc)

Moderators - *Donald G. Hillebrand, Director, Ctr for Trans Res, Argonne National Laboratory*

Panelists - *Hans Kemper, Chief Engr, Hybrid Tech, FEV Motorentechnik GmbH; Martin Klein, Engineering Director, Compact Power Inc.; Sherif Marakby, Chief Engineer, Global Core Hybrid Propulsion, Ford Motor Co; Andreas Truckenbrodt, Executive Director, Hybrid Dev Ctr., DaimlerChrysler AG; Justin Ward, Engr, Adv Tech Vehicles, Toyota Motor Engrg & Mfg N.A.*

Thursday, April 19

From Design to Manufacturing: The New Realities

Session Code: ***CONG66*** ***10:30 a.m.***

Room AVL Technology Theater (open to all ***Session Time:***

The search to find low cost design and manufacturing capability in the global economy involves many complex elements. Automation is always a key consideration from an internal perspective, but other regional capabilities in both engineering and manufacturing certainly are important in determining where to locate a facility today. Also there are factors such as supplier support, technology support workforce skills, overall logistics, and the combined synergies of all of these are critical when making a decision as to where to design and manufacture quality vehicles.

Moderators - *Ronald E. Harbour, President, Harbour Consulting*

Panelists - *Joe Chao, VP Adv Mfg Engineering, DaimlerChrysler; David E. Cole, Chairman, Center For Automotive Research; Akio Hamada, President & CEO, Honda of America Mfg., Inc.; Sidney Johnson, VP, Global Supply Mgmt. Delphi Corporation; David T. Szczupak, COO, Dura Automotive Systems Inc.*

Keynote Speakers - *Gary L. Convis, Exec VP, Toyota Motor Engineering & Mfg. NA Inc.*

Thursday, April 19

Automotive Filtration (Part 1 of 2)

Session Code: ***PFL42***

Room D2-08 ***Session Time:*** ***9:00 a.m.***

The Automotive Filtration Session focuses on filter design, optimization, performance and operation in applications to air, fuel, lube, crankcase emission and evaporative emissions. Both important processes in engine filtration absorption and filtration are discussed in details. Theory of filtration is used to provide understanding of filtration mechanisms applicable to engine filtration.

Organizers - *Neville J. Bugli, Visteon Corp.; Tadeusz Jaroszczyk, Fleetguard Inc.; Bruce N. McDonald, Donaldson Company Inc.*

Chairpersons - *Bruce N. McDonald, Donaldson Company Inc.; Gerard W. Bilski, Honeywell; Neville J. Bugli, Visteon Corp.; Tadeusz Jaroszczyk, Cummins Filtration; Gary B. Bessee, Southwest Research Institute*

Time	Paper No.	Title
9:00 a.m.	***2007-01-1427***	***Removal of Water Drops from Viscor 1487 Oil***
		G.G. Chase, K. Moorthy, B. Newby, The University of Akron
9:30 a.m.	***2007-01-1426***	***Evaluation & Function of Fuel Dispensing Filtration for Gasoline & Ethanol Blended Motor Fuels***
		Brent L. Birch, Champion Laboratories Inc.
10:00 a.m.	***2007-01-1428***	***Diesel Fuel Desulfurization Filter***
		Gerard W. Bilski, Honeywell Consumer Product Group
10:30 a.m.	***2007-01-1432***	***Improved Microfiber Filter Performance by Augmentation with Nanofibers***
		George Chase, The University of Akron

The papers in this session are available in a single publication, SP-2096, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Thursday, April 19

Automotive Filtration (Part 2 of 2)

Session Code: ***PFL42***

Room D2-08 ***Session Time:*** ***1:30 p.m.***

The Automotive Filtration Session focuses on filter design, optimization, performance and operation in applications to air, fuel, lube, crankcase emission and evaporative emissions. Both important processes in engine filtration absorption and filtration are discussed in details. Theory of filtration is used to provide understanding of filtration mechanisms applicable to engine filtration.

Organizers - *Neville J. Bugli, Visteon Corp.; Tadeusz Jaroszczyk, Fleetguard Inc.; Bruce N. McDonald, Donaldson Company Inc.*

Chairpersons - *Bruce N. McDonald, Donaldson Company Inc.; Gerard W. Bilski, Honeywell; Neville J. Bugli, Visteon Corp.; Tadeusz Jaroszczyk, Cummins Filtration; Gary B. Bessee, Southwest Research Institute*

Time	Paper No.	Title
1:30 p.m.	***2007-01-1433***	***Correlation for Axial Motion of Barrel Drops on Fibers*** *S. Dawar, G.G. Chase, H. Li, The University of Akron*
2:00 p.m.	***2007-01-1425***	***Performance of Combination Particulate/Gaseous Contaminant Air Filters in the Highway and Street Traffic Environment*** *Paolo Tronville, Politecnico di Torino - Department of Energetics; Richard Rivers, EQS Inc.; Piergiorgio Tronville, TEXA SpA*
2:30 p.m.	***2007-01-1430***	***Subjective Odor Evaluation in Automotive Industry*** *Samuel E. Lee, Visteon Corp.*
3:00 p.m.	***2007-01-1431***	***Investigating Cleaning Procedures for OEM Engine Air Intake Filters*** *Scott J. Flora, Visteon Powertrain Control Systems; Neville J. Bugli, Visteon Corp.*
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-1429***	***Design Considerations & Characterization Test Methods for Activated Carbon Foam Hydrocarbon Traps in Automotive Air Induction Systems*** *Scott A. Schaffer, Visteon Corp.*
4:15 p.m.	***2007-01-1434***	***Hydrocarbon Adsorber Technology*** *Philip Paul Treier, Honeywell*
5:15 p.m.	***ORAL ONLY***	***Experimental Investigations of Centrifuge Separation Performance in Applications to Diesel Engine Lube Oil System*** *Kazimierz Baczewski, Military Univ. of Technology*

The papers in this session are available in a single publication, SP-2096, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Thursday, April 19

CI and SI Power Cylinder Systems (Part 3 of 4) Power Cylinder Durability and Reliability

Session Code: ***PFL21***

Room D2-09/10 ***Session Time:*** ***9:00 a.m.***

This session discusses factors that affect durability and reliability of the power cylinder in an engine. This includes advance piston concepts as well as advanced tribological concepts.

Organizers - *Dwight A. Doig, Cummins Inc.; Mikhail A. Ejakov, Ford Motor Co.; Raj P. Ranganathan, General Motors Corp.; Dan E. Richardson, Cummins Inc.*

Chairpersons - *Dwight A. Doig, Dan E. Richardson, Cummins Inc.*

Time	Paper No.	Title

9:00 a.m.	***2007-01-1438***	***High-Performance Cast Aluminum Pistons for Highly Efficient Diesel Engines***
		Frank TH Doernenburg; Simon Reichstein, Federal Mogul Nurnberg GmbH; Rainer Weiss, Scott David Peter Kenningley, K. Lades, Federal-Mogul Corp.
9:30 a.m.	***2007-01-1441***	***Advanced Piston Cooling Efficiency: A Comparison of Different New Gallery Cooling Concepts***
		Norman Thiel, Hans-Joachim Weimar, Hartmut Kamp, KS Kolbenschmidt GmbH; Herbert Windisch, Heilbronn University
10:00 a.m.	***2007-01-1440***	***Modeling and Measurement of Tribological Parameters between Piston Rings and Liner in Turbocharged Diesel Engine***
		Philipe F. Saad, Lloyd S. Kamo, Adiabatics Inc.; Milad H. Mekari, US Army TACOM; Walter Bryzik, US Army TARDEC; Victor W. Wong, Massachusetts Institute of Technology; Nicolas Dmitrichenko, Rudolf Mnatsakanov, National Transport University Kiev Ukraine
10:30 a.m.	***2007-01-1439***	***Diesel Engine Cylinder Bore Coating for Extreme Operating Conditions***
		Philipe F. Saad, Lloyd S. Kamo, Dorsaf Saad, Adiabatics Inc.; Walter Bryzik, US Army TARDEC; Milad H. Mekari, US Army TACOM
11:00 a.m.	***2007-01-1442***	***Thermal Barrier Coatings for High Output Turbocharged Diesel Engine***
		Philipe F. Saad, Dorsaf Saad, Lloyd S. Kamo, Adiabatics Inc.; Milad H. Mekari, US Army TACOM; Walter Bryzik, US Army TARDEC; Ernest E. Schwarz, US Army TACOM; John D. Tasdemir, US Army TARDEC

The papers in this session are available in a single publication, SP-2073, and also individually.

Planned by Lubricants and Powertrain Systems Committee / Powertrain Fuels and Lubricants Activity

Thursday, April 19

CI and SI Power Cylinder Systems (Part 4 of 4) Power Cylinder Miscellaneous Topics

Session Code: ***PFL21***

Room D2-09/10 ***Session Time:*** ***1:30 p.m.***

This session includes miscellaneous topics related to the power cylinder.

Organizers - *Dwight A. Doig, Cummins Inc.; Mikhail A. Ejakov, Ford Motor Co.; Raj P. Ranganathan, General Motors Corp.; Dan E. Richardson, Cummins Inc.*

Chairpersons - *Raj P. Ranganathan, GM Powertrain; Dan E. Richardson, Cummins Inc.*

Time	***Paper No.***	***Title***
1:30 p.m.	***2007-01-1437***	***The Use of Radioactive Tracer Technology to Measure Real-Time Wear in Engines and Other Mechanical Systems***
		Martin B. Treuhaft, Douglas Eberle, Southwest Research Institute
2:00 p.m.	***2007-01-1436***	***Spatial and Temporal Temperature Distributions in a Spark Ignition Engine Piston at WOT***
		Maciej Kubicki, Mahle; Harry C. Watson, John F. Williams, Univ. of Melbourne; Peter C. Stryker, Bucknell Univ.
2:30 p.m.	***2007-01-1052***	***A Crevice Blow-by Model for a Rapid Compression Expansion Machine Used for Chemical Kinetic (HCCI) Studies***
		S. Scott Goldsborough, Marquette University
3:00 p.m.	***2007-01-1053***	***A Lubrication and Oil Transport Model for Piston Rings Using a Navier-Stokes Equation with Surface Tension***
		Jan Hronza, David Bell, Ricardo Inc.

3:30 p.m.		***BREAK***
3:45 p.m.	***ORAL ONLY***	***An Analysis of Piston Noise and Friction Behavior*** *Fanghui Shi, General Motors Corp.*

The papers in this session are available in a single publication, SP-2073, and also individually.
Planned by Lubricants and Powertrain Systems Committee / Powertrain Fuels and Lubricants Activity

Thursday, April 19

Power Boost Technology (Part 1 of 2)

Session Code: ***PFL30***

Room D2-11/12 ***Session Time:*** ***9:00 a.m.***

The papers in this session present advanced concepts in engine turbocharging and new developments in turbocharger technology.

Organizers - *Dinu Taraza, Wayne State Univ.; Arjun D. Tuteja*

Chairpersons - *Arjun D. Tuteja*

Time	***Paper No.***	***Title***
9:00 a.m.	***2007-01-1560***	***BMW High Precision Fuel Injection in Conjunction with Twin-Turbo Technology: A Combination for Maximum Dynamic and High Fuel Efficiency*** *Christoph Luttermann, Werner Mahrle, BMW Group*
9:30 a.m.	***2007-01-1561***	***Series Turbocharging for the Caterpillar Heavy-Duty On-Highway Truck Engines with ACERT Technology*** *Robert C. Griffith, Caterpillar Inc.*
10:00 a.m.	***2007-01-1564***	***Turbocharging System Design of a Sequentially Turbocharged Diesel Engine by Means of a Wave Action Model*** *Jose Galindo, Jose Lujan, Hector Climent, Carlos Guardiola, Universidad Politecnica de Valencia*
10:30 a.m.	***2007-01-1563***	***Recovering Energy from the Diesel Engine Exhaust Using Mechanical and Electrical Turbocompounding*** *Dimitrios Theofanis Hountalas, Christos Katsanos, Vasilis Lamaris, National Technical Univ. of Athens*

The papers in this session are available in a single publication, SP-2116, and also individually.
Planned by Lubricants and Powertrain Systems Committee / Powertrain Fuels and Lubricants Activity

Thursday, April 19

Power Boost Technology (Part 2 of 2)

Session Code: ***PFL30***

Room D2-11/12 ***Session Time:*** ***1:30 p.m.***

The papers in this session present advanced concepts in engine turbocharging and new developments in turbocharger technology.

Organizers - *Dinu Taraza, Wayne State Univ.; Arjun D. Tuteja*

Chairpersons - *Dinu Taraza, Wayne State Univ.*

Time	***Paper No.***	***Title***

1:30 p.m.	***2007-01-1562***	***Highly Turbocharging a Flow Restricted Two Cylinder Small Engine - Turbocharger Development***
		William Attard, Harry C. Watson, Steven Konidaris, Univ. of Melbourne
2:00 p.m.	***2007-01-1557***	***Improving Energy Extraction from Pulsating Exhaust Flow by Active Operation of a Turbocharger Turbine***
		Srithar Rajoo; Ricardo F. Martinez-Botas
2:30 p.m.	***2007-01-1559***	***Experimental Study of the Turbine Inlet Gas Temperature Influence on Turbocharger Performance***
		Jose Serrano, Carlos Guardiola, Vincente Dolz, Andres Tiseira, Universidad Politecnica de Valencia; Carmen Cervello, Consellería de Cultura, Eduación y Deporte. Generalitat Vale
3:00 p.m.	***2007-01-1558***	***Development of a Fully Variable Compressor Map Enhancer for Automotive Application***
		Neil Fraser, Tristan Fleischer, John Thornton, Mahle Powertrain, Ltd.; Joerg Rueckauf, Mahle International GmbH

The papers in this session are available in a single publication, SP-2116, and also individually.

Planned by Lubricants and Powertrain Systems Committee / Powertrain Fuels and Lubricants Activity

Thursday, April 19

Military Vehicle: Fuels and Lubes

Session Code: ***MV3***

Room D2-13/14 ***Session Time:*** ***9:00 a.m.***

The papers in this session address several interesting and perplexing challenges in the areas of fuels and lubricants today. Fuels papers reveal the effects of bio-diesel fuels on engine performance and exhaust emissions as well as the Fischer-Tropsch Iso-Paraffinic Kerosene on petroleum fuel-wetted elastomers used within fuel systems. Lubricants papers investigate and compare the long term stability of bio-based to petroleum-based hydraulic fluids and evaluate the level of corrosion protection provided by several military hydraulic fluids and engine oils.

Organizers - *Emmett A. Fox, US Army TACOM; Luis Villahermosa, US Army*

Time	***Paper No.***	***Title***
9:00 a.m.	***2007-01-1453***	***The Effect of Switch-Loading Fuels on Fuel-Wetted Elastomers***
		Patsy A. Muzzell, Eric R. Sattler, Brian J. McKay, US Army TARDEC; Leo L. Stavinoha, Stavinoha Enterprises; Ruben A. Alvarez, Southwest Research Institute
10:00 a.m.	***2007-01-1452***	***Corrosion Preventing Characteristics of Military Hydraulic Fluids, Part II***
		Rachel Jackman, Jill Tebbe, Luis Villahermosa, US Army RDECOM
10:30 a.m.	***2007-01-1450***	***Experimental Investigation Concerning the Effect of the Use of Biodiesel and F-34 (JP-8) Aviation Fuel on Performance and Emissions of a DI Diesel Engine***
		Petros Kotsiopoulos, Roussos Papagiannakis, Tzeni Tsakalou, Irine Gazinou, Hellenic Air Force Academy; Elias Yfantis, Hellenic Naval Academy
	2007-01-1451	***Evaluation of Storage Effects on Commercial, Biodegradable, Synthetic or Bio-sourced Hydraulic Fluid (Written Only -- No Oral Presentation)***
		Bridget L. Brosnan, Jill M. Tebbe, US Army RDECOM; Luis Villahermosa, US Army

The papers in this session are available in a single publication, SP-2110, and also individually.

Planned by Military Vehicle Committee / Commercial Vehicle Activity

Thursday, April 19

Military Vehicle: Human Modeling and Simulation

Session Code: ***MV1***

Room D2-13/14 ***Session Time:*** ***11:00 a.m.***

This session will discuss vehicle human modeling and simulation with military vehicle applications.

Organizers - *Kyle J. Nebel, US Army TACOM; Kelvin S. Oie, US Army Research Laboratory*

Time	Paper No.	Title
11:00 a.m.	***2006-01-2366***	***Automated Analysis of Human Factors Requirements***
	*****	*Jan M. Allbeck, Norman I. Badler, Univ. of Pennsylvania*
11:30 a.m.	***2007-01-1766***	***The Virtual Driver: Integrating Task Planning and Cognitive Simulation with Human Movement Models***
		Omer Tsimhoni, Univ. of Michigan; Matthew P. Reed, Transportation Research Institute
	2007-01-1767	***Modular Medical Evacuation Fixture for Use in Military and Disaster Response Vehicles (Written Only -- No Oral Presentation)***
		Russell Frieder, Srirangam Kumaresan, Cal-Zark LLC

The papers in this session are available in a single publication, SP-2110, and also individually.

** Previously published and/or presented at the 2006 Digital Human Modeling for Design and Engineering Conference*

Planned by Military Vehicle Committee / Commercial Vehicle Activity

Thursday, April 19

Engine Lubrication and Bearing Systems

Session Code: ***PFL35***

Room D2-13/14 ***Session Time:*** ***1:30 p.m.***

Testing and modeling results on applications including displacement vane pumps, bushings, bearings and overall engine lubrication systems will be discussed.

Organizers - *Hugh Gibson, Mahle Inc.; Warren Whitney, Federal-Mogul Corp.*

Time	Paper No.	Title
1:30 p.m.	***2007-01-1565***	***Development of an Oil Deterioration Monitoring System by Estimating Base Number***
		Koichiro Aikawa, Masashi Maruyama, Honda R&D Co., Ltd.
2:00 p.m.	***2007-01-1566***	***Engine Wear Modeling with Sensitivity to Lubricant Chemistry: A Theoretical Framework***
		B.C. Thomas, Victor W. Wong, Massachusetts Institute of Technology
2:30 p.m.	***2007-01-1567***	***Adaptation of a Variable Displacement Vane Pump to Engine Lube Oil Applications***
		David Staley, Bryan Pryor, Karl Gilgenbach, General Motors Corp.
3:00 p.m.	***2007-01-1568***	***Robust Optimization of Engine Lubrication System***
		Eysion A. Liu, Ricardo; Wei Tao, Yiqing Yuan, James D. Hill, DaimlerChrysler Corp.; Qian Zou, Gary C. Barber, Oakland Univ.
3:30 p.m.		***BREAK***

3:45 p.m.	***2007-01-1569***	***Development of Lead Free Copper Based Alloy for Bushing Under Boundary Lubrication***
		Satoru Kurimoto, Takahiro Niwa, Kenichi Kotani, Daido Metal Co., Ltd.; Kenji Sakai, Daido Metal Bellefontaine L.L.C.
4:15 p.m.	***2007-01-1570***	***Basic Characteristics of Lead-Free Aluminum Alloy Bearings with Low Frictional Property of Adhered Molybdenum Disulfide***
		Yukihiko Kagohara, Masayuki Niwa, Akira Ono, Hideo Ishikawa, Daido Metal Co., Ltd.

The papers in this session are available in a single publication, SP-2093, and also individually.

Planned by Lubricants and Powertrain Systems Committee / Powertrain Fuels and Lubricants Activity

Thursday, April 19

Homogeneous Charge Compression Ignition (HCCI) (Part 7 of 8) Gasoline HCCI

Session Code: ***PFL11***

Room D2-15 ***Session Time:*** ***9:00 a.m.***

This session presents studies on HCCI combustion in gasoline engines. Effects of injection timing, negative valve overlap, EGR and intake temperature are presented.

Organizers - *Kevin P. Duffy, Caterpillar Inc.; Bengt Johansson, Lund University; David M. Milam, Caterpillar Inc.; Nebojsa Milovanovic, Delphi Diesel Systems; Per Tunestal, Lund University; Hongming Xu, Univ. of Birmingham*

Chairpersons - *Magnus Sjoberg, Sandia National Laboratories; Per Tunestal, Lund University*

Time	***Paper No.***	***Title***
9:00 a.m.	***2007-01-0176***	***A Study on Natural Gas Fueled Homogeneous Charge Compression Ignition Engine - Expanding the Operating Range and Combustion Mode Switching***
		Hiroshi Kuzuyama, Masahiro Machida, Toyota Industries Corporation; Kazuhiro Akihama, Kazuhisa Inagaki, Matsuei Ueda, Toyota Central R&D Labs Inc.
9:30 a.m.	***2007-01-0196***	***Parametric Study on CAI Combustion in a GDI Engine with an Air-Assisted Injector***
		Yufeng Li, Ford Motor Company; Hua Zhao, Nikolaos Brouzos, Tom Ma, Brunel University Services, Ltd.
10:00 a.m.	***ORAL ONLY***	***Fuel Unmixedness Effects in a Gasoline HCCI Engine***
		R. E. Herold, D. E. Foster, J. B. Ghandhi, Univ. of Wisconsin - Madison; R.J. Iverson, Cummins, Inc.; J.A. Eng.; P.M. Najt, General Motors Corp.
10:30 a.m.	***ORAL ONLY***	***Comparing Late-cycle Autoignition Stability for Single- and Two-Stage Ignition Fuels in HCCI Engines***
		Magnus Sjoberg, John E. Dec, Sandia National Laboratories

The papers in this session are available in a single publication, SP-2100, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Thursday, April 19

Homogeneous Charge Compression Ignition (HCCI) (Part 8 of 8) Diesel HCCI

Session Code: ***PFL11***

Room D2-15 ***Session Time: 1:30 p.m.***

This session presents studies on HCCI combustion in diesel engines. Effects of injection properties, valve strategies and temperature are presented.

Organizers - *Kevin P. Duffy, Caterpillar Inc.; Bengt Johansson, Lund University; David M. Milam, Caterpillar Inc.; Nebojsa Milovanovic, Delphi Diesel Systems; Per Tunestal, Lund University; Hongming Xu, Univ. of Birmingham*

Chairpersons - *David M. Milam, Caterpillar Inc.*

Time	Paper No.	Title
1:30 p.m.	***2007-01-0215***	***Full-Load HCCI Operation with Variable Valve Actuation System in a Heavy-Duty Diesel Engine*** *Yuuichi Kodama, Izumi Nishizawa, Takumi Sugihara, Norihiko Sato, Komatsu, Ltd.; Tadashi Iijima, Tatsuya Yoshida, Industrial Power Alliance, Ltd.*
2:00 p.m.	***2007-01-0178***	***Advances in Diesel Engine Combustion: Split Combustion*** *Christian Weiskirch, Eckart Mueller, Technical Univ. of Braunschweig*
2:30 p.m.	***2007-01-0193***	***Investigation of Mixing and Temperature Effects on HC/CO Emissions for Highly Dilute Low Temperature Combustion in a Light Duty Diesel Engine*** *Richard M. Opat, Youngchul Ra, Manuel A. Gonzalez D., Roger Krieger, Rolf Reitz, David Foster, Univ. of Wisconsin Madison; Russell P. Durrett, Robert M. Siewert, GM R&D Center*
3:00 p.m.	***2007-01-0203***	***Smokeless Combustion within a Small-Bore HSDI Diesel Engine Using a Narrow Angle Injector*** *Chia-Fon F. Lee, Univ. of Illinois at Urbana-Champaign; Tiegang Fang; Robert E. Coverdill, Robert A. White, Univ. of Illinois at Urbana-Champaign*

The papers in this session are available in a single publication, SP-2100, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Thursday, April 19

Diesel Exhaust Emission Control (Part 9 of 10) SCR

Session Code: ***PFL50***

Room D3-19 ***Session Time: 9:00 a.m.***

The papers in this session describe the latest technology developments in the area of Selective Catalytic Reduction (SCR) catalysts and the integration and optimization of this technology into emission control systems. Papers in this session cover Heavy duty and Light duty engines and Retrofit systems, and include Reactor testing, CFD analysis, SCR Math modeling and Durability evaluation.

Organizers - *Brad J. Adelman, International Truck and Engine Corp.; Magdi K. Khair, Southwest Research Institute; Rahul Mital, General Motors Corp.; Mehboob H. Sumar, Bodycote Testing Group; Danan Dou, John Deere Product Engineering Center; Kevin F. Brown, Engine Control Systems*

Time	Paper No.	Title
9:00 a.m.	***2007-01-1572***	***The Influence of Ammonia Slip Catalysts on Ammonia, N2O and NOx Emissions for Diesel Engines*** *James Girard, Giovanni Cavataio, Christine K. Lambert, Ford Motor Co.*
9:30 a.m.	***2007-01-1573***	***Laboratory Studies and Mathematical Modeling of Urea SCR Catalyst Performance*** *Jeong Y. Kim, Giovanni Cavataio, Joseph E. Patterson, Paul M. Laing, Christine K. Lambert, Ford Motor Co.*

10:00 a.m.	***2007-01-1574***	***Is Closed-Loop SCR Control Required to Meet Future Emission Targets?***
		Frank Willems, Robert Cloudt, Edwin van den Eijnden, Marcel van Genderen, Ruud Verbeek, TNO Automotive; Bram de Jager, Wiebe Boomsma, Eindhoven University of Technology; Ignace van den Heuvel, DAF Trucks NV
10:30 a.m.	***2007-01-1575***	***Laboratory Testing of Urea-SCR Formulations to Meet Tier 2 Bin 5 Emissions***
		Giovanni Cavataio, James Girard, Joseph Eli Patterson, Clifford Montreuil, Yisun Cheng, Christine K. Lambert, Ford Motor Co.
11:00 a.m.	***2007-01-1576***	***The Study of NOx and PM Reduction Using an Urea Selective Catalytic Reduction System for a Heavy Duty Diesel Engine***
		Mitsuru Hosoya, Yoshihiro Kawada, Shinya Sato, Masatoshi Shimoda, Hino Motors, Ltd.
11:30 a.m.	***2007-01-1577***	***Innovative Substrate Technology for High Performance Heavy Duty Truck SCR Catalyst Systems***
		Michael E. Rice, Jan Kramer, Klaus Mueller-Haas, Raimund Mueller, Emitec Inc.
12:00 p.m.	***2007-01-1582***	***Laboratory and Engine Study of Urea-Related Deposits in Diesel Urea-SCR After-Treatment Systems***
		Lifeng Xu, William Watkins, Rachel Snow, George Graham, Robert McCabe, Christine Lambert, R. O. Carter III, Ford Motor Co.

The papers in this session are available in a single publication, SP-2080, and also individually.

Planned by Exhaust Aftertreatment and Emissions Committee / Powertrain Fuels and Lubricants Activity

Thursday, April 19

Diesel Exhaust Emission Control (Part 10 of 10) SCR

Session Code: ***PFL50***

Room D3-19 ***Session Time:*** ***1:30 p.m.***

The papers in this session describe the latest technology developments in the area of Selective Catalytic Reduction (SCR) catalysts and the integration and optimization of this technology into emission control systems. Papers in this session cover Heavy duty and Light duty engines and Retrofit systems, and include Reactor testing, CFD analysis, SCR Math modeling and Durability evaluation.

Organizers - *Brad J. Adelman, International Truck and Engine Corp.; Magdi K. Khair, Southwest Research Institute; Rahul Mital, General Motors Corp.; Mehboob H. Sumar, Bodycote Testing Group; Danan Dou, John Deere Product Engineering Center; Kevin F. Brown, Engine Control Systems*

Time	***Paper No.***	***Title***
1:30 p.m.	***2007-01-1578***	***3-D Numerical Study of Flow Mixing in Front of SCR for Different Injection Systems***
		Xiaogang Zhang, Martin Romzek, Eberspaecher North America Inc.
2:00 p.m.	***2007-01-1579***	***Laboratory Postmortem Analysis of 120k mi Engine Aged Urea SCR Catalyst***
		Yisun Cheng, Lifeng Xu, Jon Hangas, Christine K. Lambert, Ford Motor Co.
2:30 p.m.	***2007-01-1580***	***Modeling Study of Urea SCR Catalyst Aging Characteristics***
		Jeong y. Kim, Yisun Cheng, Joseph E. Patterson, Paul M. Laing, Christine K. Lambert, Ford Motor Co.

3:00 p.m.	***2007-01-1581***	***The Influence of Ammonia to NOx Ratio on SCR Performance***
		James Girard, Rachel Snow, Giovanni Cavataio, Christine K. Lambert, Ford Motor Co.

The papers in this session are available in a single publication, SP-2080, and also individually.

Planned by Exhaust Aftertreatment and Emissions Committee / Powertrain Fuels and Lubricants Activity

Thursday, April 19

Transmission and Drivelines (Part 7 of 8) IVT/CVT

Session Code: ***PFL22***

Room D3-20/21 ***Session Time:*** ***9:00 a.m.***

The session presents the latest progress taking place across the complete range of CVT technologies, including work in new production CVTs, new methods for analyzing CVTs, and CVT efficiency sensitivity.

Organizers - *Robert A. Smithson, FallBrook Technologies Inc.; Nicholas D. Vaughan, Cranfield Univ.*

Chairpersons - *Robert A. Smithson, FallBrook Technologies Inc.; Nicholas D. Vaughan, Cranfield Univ.*

Time	***Paper No.***	***Title***
9:00 a.m.	***2007-01-1455***	***Analysis of a Hybrid Multi-Mode Hydromechanical Transmission***
		Douglas R. Fussner, Glenn Wendel, Christopher Wray, Southwest Research Institute
9:30 a.m.	***2007-01-1457***	***Efficiency Optimization of the Pushbelt CVT***
		Francis Van der Sluis, Tom van Dongen, Gert-Jan van Spijk, Arie van der Velde, Ad van Heeswijk, Van Doorne's Transmissie - Bosch Group
10:00 a.m.	***2007-01-1458***	***The Algebraic Design of Transmissions & EVTs***
		Madhu Raghavan, Norman Bucknor, GM R&D Center; Joel Maguire, James Hendrickson, Tejinder Singh, GM Powertrain
10:30 a.m.	***2007-01-1454***	***Analysis of a Continuously Variable Transmission Based on a Twin Epicyclic, Power Split Device***
		Qinglian Ren, Sunderland University; David A. Crolla, Univ. of Leeds
11:00 a.m.	***2007-01-1456***	***Vane Pump for New Generation CVT***
		Hiroyuki Nishiyama, Kazuya Murota, Shingo Hirotsu, Katsutoshi Amano, Eiji Isoyama, JATCO, Ltd.

The papers in this session are available in a single publication, SP-2134, and also individually.

Planned by Transmission and Driveline Committee / Powertrain Fuels and Lubricants Activity

Thursday, April 19

Transmission and Drivelines (Part 8 of 8) Simulation / Analysis

Session Code: ***PFL22***

Room D3-20/21 ***Session Time:*** ***1:30 p.m.***

This session presents papers pertaining to simulation and correlation of integrated vehicle, transmission and driveline models to study, assess, and benchmark vehicle shift quality subjected to nonlinear dynamics of the vehicle response due to transmission shift. Serious effort has also been undertaken to determine the main effects and interaction of shift feel and cabin sound that influence the driver's perception of a "sporty" gear shift.

Organizers - *Paras M. Mehta, Chin-Yuan Perng, Ford Motor Co.*

Chairpersons - *Chin-Yuan Perng, Ford Motor Co.*

Time	***Paper No.***	***Title***

1:30 p.m.	***2007-01-1583***	***Integrated Vehicle and Driveline Modeling***
		Federico Cheli, Marco Pedrinelli, Andrea Zorzutti, Politecnico di Milano, Italy
2:00 p.m.	***2007-01-1584***	***An Objective Evaluation of the Comfort during the Gear Shift Process***
		Aldo Sorniotti, Enrico Galvagno, Andrea Morgando, Mauro Velardocchia, Politecnico di Torino; Fabrizio Amisano, Magneti Marelli
2:30 p.m.	***2007-01-1585***	***Measurement and Analysis of European Sports Cars for Elective Gear Shift Quality and Cabin Sound for Sporting Character***
		Jon. Wheals, Marco Fracchia, Bill Weston, Matt. Maunder, Ricardo Driveline and Transmission Systems, Ricardo Plc.
3:00 p.m.	***2007-01-1586***	***Finite Element Model of a Double-Stage Helical Gear Reduction***
		Sinisa Draca, Bruce Minaker, Univ. of Windsor
	2007-01-1588	***Support Vector Machine Theory Based Shift Quality Assessment for Automated Mechanical Transmission (AMT) (Written Only -- No Oral Presentation)***
		Jian Wang, Konghui Guo, Yulong Lei, College of Automotive Engineering, Jilin University; Hua Tian, Pan Asia Technical Automotive Center Co.,Ltd.

The papers in this session are available in a single publication, SP-2134, and also individually.

Planned by Transmission and Driveline Committee / Powertrain Fuels and Lubricants Activity

Thursday, April 19

Variable Valve Actuation (Part 2 of 3)

Session Code: ***PFL36***

Room D3-22/23 ***Session Time:*** ***9:00 a.m.***

Variable Valve Actuation mechanisms, devices, systems and the impact of such systems on thermodynamics, combustion, fuel economy, emissions and controls.

Organizers - *Timothy W. Kunz, Delphi Corp.; Ronald Pierik, GM Powertrain*

Time	***Paper No.***	***Title***
9:00 a.m.	***2007-01-1298***	***A New Hydraulic Servo Variable Valve Actuation Concept - Simulation Studies***
		Raghav Venkatesan
9:30 a.m.	***2007-01-1297***	***Model Reference Adaptive Control of a Pneumatic Valve Actuator for Infinitely Variable Valve Timing and Lift***
		Jia Ma
10:00 a.m.	***2007-01-1295***	***Camless Variable Valve Actuation Designs with Two-Spring Pendulum and Electrohydraulic Latching***
		Zheng David Lou, LGD Technology LLC
10:30 a.m.	***2007-01-1291***	***Air Hybrid Diesel with Camless Valvetrain***
		Michael B. Levin, Harold H. Sun, Ford Motor Co.; Michael M. Schechter, Advanced Energy Systems; Xiaoyong Wang, Tsu-Chin Tsao, Univ. of California-Los Angeles
11:00 a.m.	***2007-01-1289***	***The Electro-Hydraulic Valve Actuation (EHVA) for Medium Speed Diesel Engines - Development Steps with Simulations and Measurements***
		Mika Herranen, Kalevi Huhtala, Matti Vilenius, Tampere Univ. of Technology; Gösta Liljenfeldt, Wärtsilä Finland Oy

The papers in this session are available in a single publication, SP-2135, and also individually.

Planned by Control and Calibration Committee / Powertrain Fuels and Lubricants Activity

Thursday, April 19

Variable Valve Actuation (Part 3 of 3)

Session Code: ***PFL36***

Room D3-22/23 ***Session Time:*** ***1:30 p.m.***

Variable Valve Actuation mechanisms, devices, systems and the impact of such systems on thermodynamics, combustion, fuel economy, emissions and controls.

Organizers - *Timothy W. Kunz, Delphi Corp.; Ronald Pierik, GM Powertrain*

Time	Paper No.	Title
1:30 p.m.	***2007-01-1292***	***Active Fuel ManagementTM Technology: Hardware Development on a 2007 GM 3.9L V6 OHV SI Engine***
		Mark Stabinsky, Bill Albertson, Jim Tuttle, General Motors Corp.; David Kehr, James Westbrook III, Henning Karbstein, Mario Kuhl, Schaeffler Group (INA)
2:00 p.m.	***2007-01-1290***	***Technology for Improving Engine Performance Using Variable Mechanisms***
		Takanobu Sugiyamam, Nissan Motor Co., Ltd.
2:30 p.m.	***2007-01-1285***	***Design and Development of a 2-Step Rocker Arm***
		Nick Hendriksma, Timothy Kunz, Cynthia Greene, Delphi

The papers in this session are available in a single publication, SP-2135, and also individually.

Planned by Control and Calibration Committee / Powertrain Fuels and Lubricants Activity

Thursday, April 19

General Emissions (Part 3 of 4) - Diesel Emissions

Session Code: ***PFL2***

Room D3-24/25 ***Session Time:*** ***9:00 a.m.***

This session will address a variety of subjects including: catalyst substrates and converter technology, traffic effects on emissions, aftertreatment, Euro emissions, ethanol blends and some aspects of modeling.

Organizers - *Brian E. Mace, Volvo Powertrain North America; Matthew S. Newkirk, Afton Chemical Corp.*

Time	Paper No.	Title
9:00 a.m.	***2007-01-1087***	***Emissions, Performance, and Duty Cycle Measurements of Diesel Powered TRUs***
		H. A. Dwyer, P. Mader, C. Kulkarni, C. J. Brodrick, Univ. of California-Davis
9:30 a.m.	***2007-01-1082***	***Strategy to Meet Euro IV Emission Norms on Common Rail Sports Utility Vehicle***
		Mahesh Babu, Mahajan Ravindra, Sagar Behere, Sachin Bahl, Mahindra & Mahindra Ltd.
10:00 a.m.	***2007-01-1083***	***An Investigation of EGR Treatment on the Emission and Operating Characteristics of Modern Diesel Engines***
		Ming Zheng, Usman Asad, Raj Kumar, Graham T. Reader, Mwila C. Mulenga, Meiping Wang, Univ. of Windsor; Jimi S. Tjong, Ford Motor Co.

10:30 a.m.	***2007-01-1080***	***Neural Network Modeling of Emissions from Medium-Duty Vehicles Operating on Fisher-Tropsch Synthetic Fuel*** *Mario G. Perhinschi, W. Scott Wayne, Nigel N. Clark, Donald W. Lyons, West Virginia Univ.*
11:00 a.m.	***2007-01-1076***	***Reduction of Soot Emissions from a Direct Injection Diesel Engine using Water-in-Diesel Emulsion and Microemulsion Fuels*** *Anna Lif, Akzo Nobel Surface Chemistry; Magnus Skoglundh, Savo Gjirja, Ingemar G. Denbratt, Chalmers Univ. of Technology*

The papers in this session are available in a single publication, SP-2090, and also individually.

Planned by Exhaust Aftertreatment and Emissions Committee / Powertrain Fuels and Lubricants Activity

Thursday, April 19

General Emissions (Part 4 of 4) - Other Emissions

Session Code: ***PFL2***

Room D3-24/25 ***Session Time:*** ***1:30 p.m.***

This session will address a variety of subjects including: catalyst substrates and converter technology, traffic effects on emissions, aftertreatment, Euro emissions, ethanol blends and some aspects of modeling.

Organizers - *Brian E. Mace, Volvo Powertrain North America; Matthew S. Newkirk, Afton Chemical Corp.*

Time	***Paper No.***	***Title***
1:30 p.m.	***2007-01-1073***	***Continued Studies of the Causes of Engine Oil Phosphorus Volatility - Part 2*** *Richard J. Bosch, Phosphorus Derivatives Inc.; Theodore W. Selby, Savant Inc.; Darrell C. Fee, Phosphorus Derivatives Inc.*
2:30 p.m.	***2007-01-1089***	***(Nano) Particles from 2-S Scooters: SOF / INSOF; Improvements of Aftertreatment; Toxicity*** *J. Czerwinski, P. Comte, Univ. of Applied Sciences - Biel; M. Astorga-Llorens, M. Rey, European Commission Joint Research Center; A. Mayer, TTM; F. Reutimann, BAFU*
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-1075***	***Rapid Fuel Injection Re-Pressurization*** *Ross Pursifull, Visteon Corp.*
4:15 p.m.	***2007-01-1090***	***The Design for Six Sigma Approach for the Development of a Carbon Canister for Tier II, LEV II and PZEV Emission Levels*** *Douglas J. Mancini, Ford Motor Co.*
	2007-01-1079	***Genetic Algorithm for Dynamic Calibration of Engine's Actuators. (Written Only -- No Oral Presentation)*** *Rabih Omran, Ecole Centrale de Lyon; Rafic Younes, Lebanese University; Jean-Claude Champoussin, Ecole Centrale de Lyon; Danitza Fedeli, Francois Masson, Noureddine Guerrassi, Delphi Diesel Systems*
	2007-01-1084	***Parametric Study into the Effects of Factors Affecting Real-World Vehicle Exhaust Emission Levels (Written Only -- No Oral Presentation)*** *S. Samuel, D. Morrey, Oxford Brookes Univ.; D.H.C. Taylor, Loughborough Univ.; M. Fowkes, MIRA, Ltd.*

The papers in this session are available in a single publication, SP-2090, and also individually.

Planned by Exhaust Aftertreatment and Emissions Committee / Powertrain Fuels and Lubricants Activity

Thursday, April 19

Modeling of SI and Diesel Engines (Part 7 of 7) - Modeling of Engine Mechanical Systems

Session Code: ***PFL37***

Room D3-26/27 ***Session Time:*** ***9:00 a.m.***

Modeling of Engines for Control Applications

Organizers - *Thomas Morel, Gamma Technologies Inc.*

Chairpersons - *Raj P. Ranganathan, GM Powertrain*

Assistant Chairpersons - *John Abraham, Purdue Univ.*

Time	Paper No.	Title
9:00 a.m.	***2007-01-1461***	***Dynamical Analysis of Hydraulic Chain Tensioners - Experiments and Simulations*** *Karin Krueger, Thomas Engelhardt, Lucas Ginzinger, Heinz Ulbrich, Institute of Applied Mechanics, Technical University Munich*
9:30 a.m.	***2007-01-1459***	***Numerical Investigation in Rotor Motion and Elasto-Hydrodynamic Rotor Bearing Behavior of a Rotary Engine Using Flexible Multi-Body Dynamics*** *Thomas Resch, Christoph Schweiger, Guenter Offner, AVL LIST GmbH; Yuma Miyauchi, Mazda Motor Corp.*
10:00 a.m.	***2007-01-1462***	***Modeling of Power Parasitic Losses in IC Reciprocating Engines*** *Eysion A. Liu, Ricardo*
10:30 a.m.	***2007-01-1460***	***Engine Friction Model for Transient Operation of Turbocharged, Common Rail Diesel Engines*** *Dinu Taraza, Naeim A. Henein, Radu Ceausu, Wayne State Univ.; Walter Bryzik, US Army TARDEC*

The papers in this session are available in a single publication, SP-2079, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Thursday, April 19

Hydrogen IC Engines

Session Code: ***PFL32***

Room D3-28 ***Session Time:*** ***9:00 a.m.***

This session covers several aspects of hydrogen as a fuel for internal combustion engines. Theoretical and experimental studies on pure hydrogen as well as dual fuel operation in SI and CI engines are presented. Advances in application of optical diagnostics in hydrogen engines are shown and results of hydrogen combustion simulation are discussed.

Organizers - *Brad A. Boyer, Ford Motor Co.; Stephen A. Ciatti, Robert P. Larsen, Thomas Wallner, Argonne National Laboratory*

Chairpersons - *Brad A. Boyer, Vance Zanardelli, Ford Motor Co.*

Time	Paper No.	Title
9:00 a.m.	***ORAL ONLY***	***Engineering the Ford H2 IC Engine Powered E-450 Shuttle Bus*** *Ravi Gopalakrishnan, Ford Motor Co.*
9:30 a.m.	***ORAL ONLY***	***The Ford 6.8L Hydrogen IC Engine for the E- 450 Shuttle Van*** *Robert J. Natkin, Ford Research*

10:00 a.m.	***2007-01-1464***	***Investigation of Injection Parameters in a Hydrogen DI Engine Using an Endoscopic Access to the Combustion Chamber***
		Thomas Wallner, Stephen A. Ciatti, Bipin Bihari, Argonne National Laboratory
10:30 a.m.	***2007-01-1467***	***A Qualitative Evaluation of Mixture Formation in a Direct-Injection Hydrogen-Fuelled Engine***
		Christopher Michael White, Sandia National Laboratories
11:00 a.m.	***2007-01-1466***	***Wall Interactions of Hydrogen Flames Compared with Hydrocarbon Flames***
		Rebecca Owston, Vinicio Magi, John Abraham, Purdue Univ.
11:30 a.m.	***2007-01-1468***	***An Investigation of the Hydrogen Addition Effects to Gasoline Fueled Spark Ignition Engine***
		Constantin Pana, Niculae Negurescu, Marcel Popa, Alexandru Cernat, Dorin Soare, Univ. Politehnica Bucuresti
12:00 p.m.	***2007-01-1465***	***Experimental Investigation of Hydrogen Fuel Injection in DI Dual Fuel Diesel Engine***
		N Saravanan, G. Nagarajan, College of Engrg, Guindy, Anna Univ., Chennai; C. Dhanasekaran, K M Kalaiselvan, PG Scholars, College of Engrg, Guindy, Anna Univ., Chennai

Planned by Advanced Power Sources Committeee / Powertrain Fuels and Lubricants Activity

Thursday, April 19

Direct Injection SI Engine Technology (Part 2 of 3)

Session Code: ***PFL12***

Room M2-29 ***Session Time:*** ***9:00 a.m.***

Direct injection spark ignition (DISI) engines will play a major role in improving the fuel efficiency of today's vehicles. The papers in this session will explore the latest advancements in DISI engine technology, including spray formation and mixing, injection technology and modeling strategies, and their application to next-generation engines.

Organizers - *Matthew J. Brusstar, US Environmental Protection Agency; James W G Turner, Lotus Engineering, Ltd.; Jianwen Yi, Ford Motor Co.*

Time	***Paper No.***	***Title***
9:00 a.m.	***2007-01-1417***	***Spray Structure Generated by Multi-Hole Injectors for Gasoline Direct-Injection Engines***
		N. Mitroglou, J.M. Nouri, Y. Yan, M. Gavaises, C. Arcoumanis, City University London
9:30 a.m.	***2007-01-1406***	***Internal Flow and Spray Characteristics of a Pintle-Type Outwards Opening Piezo Injectors for Gasoline Direct-Injection Engines***
		A. Marchi, J.M. Nouri, Y. Yan, C. Arcoumanis, City University London
10:00 a.m.	***2007-01-1409***	***Spray Shape and Atomization Quality of an Outward-Opening Piezo Gasoline DI Injector***
		Mikael Skogsberg; Petter Dahlander, Ingemar G. Denbratt, Chalmers Univ. of Technology
10:30 a.m.	***2007-01-1411***	***A High Speed Flow Visualization Study of Fuel Spray Pattern Effect on Mixture Formation in a Low Pressure Direct Injection Gasoline Engine***
		David L.S. Hung, Guoming G. Zhu, James Winkelman, Visteon Corp.; Tom Steucken, Harold Schock, Michigan State University; Andrew Fedewa, Mid-Michigan Research LLC

11:00 a.m.	***2007-01-1415***	***Experimental and Theoretical Study of an Air Assisted Fuel Injector for a D.I.S.I. Engine***
		A. A. Boretti, ACART @ University of Melbourne; S. H. Jin, G. Zakis, M. J. Brear, W. Attard, H. C. Watson, Univ. of Melbourne; H. Carlisle, Orbital Australia Pty. Ltd.; W. Bryce, Holden Limited, Australia

The papers in this session are available in a single publication, SP-2084, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Thursday, April 19

Direct Injection SI Engine Technology (Part 3 of 3)

Session Code: ***PFL12***

Room M2-29 ***Session Time:*** ***1:30 p.m.***

Direct injection spark ignition (DISI) engines will play a major role in improving the fuel efficiency of today's vehicles. The papers in this session will explore the latest advancements in DISI engine technology, including spray formation and mixing, injection technology and modeling strategies, and their application to next-generation engines.

Organizers - *Matthew J. Brusstar, US Environmental Protection Agency; James W G Turner, Lotus Engineering, Ltd.; Jianwen Yi, Ford Motor Co.*

Time	***Paper No.***	***Title***
1:30 p.m.	***2007-01-1416***	***Direct Injection Systems for Otto Engines***
		Alberto E. Funaioli, Siemens VDO Automotive Corp.; Erwin Achleitner, Siemens VDO Automotive AG; Harald Baecker, Siemens AG
2:00 p.m.	***2007-01-1410***	***DI Boost: Application of a High Performance Gasoline Direct Injection Concept***
		David W. Woldring, Tilo Landenfeld, Robert Bosch Corp.; Mark Christie, Ricardo Inc.
2:30 p.m.	***2007-01-1414***	***Unthrottled Engine Operation using Variable Valve Actuation: The Impact on the Flow Field, Mixing and Combustion***
		Philip A. Stansfield, Graham Wigley, Colin Garner, Loughborough Univ.; Rishin Patel, Nicos Ladommatos, University College London; Graham Pitcher, Jamie Turner, Lotus Engineering; Hans Nuglish, Jerome Helie, Siemens VDO Automotive
3:00 p.m.	***2007-01-1408***	***Ethanol Direct Injection on Turbocharged SI Engines - Potential and Challenges***
		Paul E. Kapus, Alois Fuerhapter, H. Fuchs, Guenter K. Fraidl, AVL LIST GmbH
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-1404***	***New Generation Multi-hole Fuel Injector for Direct-Injection SI Engines - Optimization of Spray Characteristics by Means of Adapted Injector Layout and Multiple Injection***
		Thomas Stach, Robert Bosch Corporation; Joerg Schlerfer, Marco Vorbach, Robert Bosch GmbH
4:15 p.m.	***2007-01-1413***	***Spray Guided DISI Using Side Mounted Multi-Hole Injector***
		Hiroyuki Yamashita, Masatoshi Seto, Noriyuki Ota, Yasushi Murakami, Hiroyuki Yamamoto, Mazda Motor Corp.

4:45 p.m.	***2007-01-1420***	***S.I. Engine Combustion Flame Propagation Measurement and Knocking Analysis by Ion Current Probes Including Moving Intake and Exhaust Valve Faces*** *Yuichi Suzuki, Daijiro Tanaka, Nishigaki Masato, Tsukahara Ei, Yamaha Motor Co., Ltd.*

The papers in this session are available in a single publication, SP-2084, and also individually.

Planned by Combustion and Fuels Committee / Powertrain Fuels and Lubricants Activity

Thursday, April 19

Vehicle Diagnostics (Part 1 of 2)

Session Code: ***AE11***

Room M2-30 ***Session Time:*** ***9:00 a.m.***

The session is focused on electronic diagnostics, but covers all aspects of vehicle diagnostics from enabling technologies to applications and strategies used in vehicle engineering, manufacturing and service activities. Additional topics include diagnostic communication protocols, off-board testers, diagnostics in telematics, flash programming, management of diagnostic information, legislated diagnostic requirements (OBD), standardization activities and future trends.The session is focused on electronic diagnostics, but covers all aspects of vehicle diagnostics from enabling technologies to applications and strategies used in vehicle engineering, manufacturing and service activities. Additional topics include diagnostic communication protocols, off-board testers, diagnostics in telematics, flash programming, management of diagnostic information, legislated diagnostic requirements (OBD), standardization activities and future trends.

Organizers - *Mark D. Jensen, Vector CANtech Inc.*

Time	***Paper No.***	***Title***
9:00 a.m.	***2007-01-1474***	***Analysis of Open-Switch Fault Two Level Three Phase Voltage Inverter Behaviour and Automatic Detection and Location Using Zero Harmonic Component*** *Tarak Benslimane, tarak*
9:30 a.m.	***2007-01-1473***	***Problems in Assessing Road Vehicle Driveability Parameters Determined with the Aid of Accelerometer*** *Jerzy Jantos, Sebastian Brol, Jaroslaw Janusz Mamala, Opole University of Technology*
10:00 a.m.	***2007-01-1470***	***A Portable Hybrid Ultrasound-Eddy Current NDI System for Metal Matrix Composite Track Shoes*** *Xiaoliang Zhao; Bao Mi, Tao Qian, Intelligent Automation Inc.*
10:30 a.m.	***2007-01-1475***	***Fault Diagnosis of Lead-Acid Battery for Automotive Electrical System*** *Pierluigi Pisu, Ohio State Univ.*
11:00 a.m.	***2007-01-1476***	***On-Board Battery Condition Diagnostics Based on Mathematical Modeling of an Engine Starting System*** *Moshe Averbukh, Negev Academic College; Boris Rivin, Jan Vinogradov, Ben-Gurion Univ.*

The papers in this session are available in a single publication, SP-2137, and also individually.

Planned by Electrical and Electronic Systems Committee / Automobile Electronic Activity

Thursday, April 19

Vehicle Diagnostics (Part 2 of 2)

Session Code: ***AE11***

Room M2-30 ***Session Time:*** ***1:30 p.m.***

The session is focused on electronic diagnostics, but covers all aspects of vehicle diagnostics from enabling technologies to applications and strategies used in vehicle engineering, manufacturing and service activities. Additional topics include diagnostic communication protocols, off-board testers, diagnostics in telematics, flash programming, management of diagnostic information, legislated diagnostic requirements (OBD), standardization activities and future trends.The session is focused on electronic diagnostics, but covers all aspects of vehicle diagnostics from enabling technologies to applications and strategies used in vehicle engineering, manufacturing and service activities. Additional topics include diagnostic communication protocols, off-board testers, diagnostics in telematics, flash programming, management of diagnostic information, legislated diagnostic requirements (OBD), standardization activities and future trends.

Organizers - *Mark D. Jensen, Vector CANtech Inc.*

Time	Paper No.	Title
1:30 p.m.	***2007-01-1603***	***Fault Diagnostics for Internal Combustion Engines - Current and Future Techniques***
		Geoffrey McCullough, Neil McDowell, George Irwin, Queen's Univ. of Belfast
2:00 p.m.	***ORAL ONLY***	***Future WWH-OBD Global Technical Regulation and related Communication Standards***
		Christoph Saalfeld, DaimlerChrysler AG
2:30 p.m.	***2007-01-1604***	***Impacts and Benefits of ODX in the Diagnostic Tool Chain***
		Ansgar Schleicher, DSA GmbH
3:00 p.m.	***ORAL ONLY***	***Benefits & Impacts of Supporting the Modular VCI Standard***
		Gangolf Feiter

The papers in this session are available in a single publication, SP-2137, and also individually.

Planned by Electrical and Electronic Systems Committee / Automobile Electronic Activity

Thursday, April 19

Multi-Media Systems (Part 1 of 2)

Session Code: ***AE3***

Room M3-31 ***Session Time:*** ***9:00 a.m.***

The SAE Multi-media Systems Session, formerly the Audio Systems Session, covers topics relating to vehicular entertainment and information systems. Specific subjects include FM diversity and satellite radio reception, antennas, navigation, displays, audio amplifiers and loudspeakers.

Organizers - *Richard S. Stroud, Stroud Audio Inc.*

Chairpersons - *Robert E. Klacza, DaimlerChrysler Corp.*

Assistant Chairpersons - *Thomas Hermann, Ford Motor Co.*

Time	Paper No.	Title
9:00 a.m.	~~***2007-01-1445***~~ ***ORAL ONLY***	***Application-driven Power Management for Telematics and Infotainment Systems***
		Randy Q. Martin, Sheridan Ethier, QNX Software Systems, Ltd.
9:30 a.m.	~~***2007-01-1446***~~ ***ORAL ONLY***	***3D Graphics for In-Car Navigation and Infotainment Systems***
		Randy Q. Martin, QNX Software Systems, Ltd.
10:00 a.m.	***2007-01-1447***	***Fast Booting Techniques for In-Car Telematics and Infotainment***
		Andy Gryc, Randy Q. Martin, QNX Software Systems, Ltd.
10:30 a.m.	***2007-01-1448***	***Software Design Choices for Multimedia-Enabled Infotainment Systems***
		Randy Q. Martin, QNX Software Systems, Ltd.

Planned by Electrical and Electronic Systems Committee / Automobile Electronic Activity

Thursday, April 19

Multi-Media Systems (Part 2 of 2)

Session Code: ***AE3***

Room M3-31 ***Session Time:*** ***1:30 p.m.***

The SAE Multi-media Systems Session, formerly the Audio Systems Session, covers topics relating to vehicular entertainment and information systems. Specific subjects include FM diversity and satellite radio reception, antennas, navigation, displays, audio amplifiers and loudspeakers.

Organizers - *Richard S. Stroud, Stroud Audio Inc.*

Chairpersons - *Robert E. Klacza, DaimlerChrysler Corp.*

Assistant Chairpersons - *Thomas Hermann, Ford Motor Co.*

Time	Paper No.	Title
1:30 p.m.	***2007-01-1449***	***Building Secure Survivable Telematics and Infotainment Systems*** *Andy Gryc, Mark Roberts, QNX Software Systems, Ltd.*
2:00 p.m.	***ORAL ONLY***	***Reference vs. Preference Issues in Audio Reproduction*** *Richard S. Stroud, Stroud Audio Inc.*
2:30 p.m.	***ORAL ONLY***	***Codecs for Digital Radio*** *Kevin Heber, Delphi Energy and Chassis*
3:00 p.m.	***2007-01-1731***	***Automotive FM Diversity Systems, Part I: Propagation Channel Modeling and Multipath Review*** *Raed Shatara, Delphi Electronics and Safety; Jeffrey J. Marrah, Delphi Energy and Chassis*
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-1732***	***Automotive FM Diversity Systems, Part 2: Analog Systems*** *Raed Shatara, Delphi Electronics and Safety; Jeffrey J. Marrah, Delphi Energy and Chassis*
4:15 p.m.	***2007-01-1734***	***Automotive FM Diversity Systems, Part 3: Digital Systems*** *Raed Shatara, Delphi Electronics; Matt A. Boytim, Delphi Corp.; Jeffrey J. Marrah, Delphi Energy and Chassis*

Planned by Electrical and Electronic Systems Committee / Automobile Electronic Activity

Thursday, April 19

Diesel Exhaust Emission Control Modeling (Part 3 of 4)

Session Code: ***PFL4***

Room M3-32 ***Session Time:*** ***9:00 a.m.***

This year, we have a very special offering from both industry, consultants and universities and government labs, with a mix of topics as they relate to this session. The authors contributions are numerous, and they span from very fundamental science models, to very applied ones. They cover topics ranging from fundamental soot morphology to system optimization. Though still dominating, topics of interest now go beyond Particulate Filter modeling. The reader will find very interesting papers on LNT, SCR, Controls and System Simulation as well. As the 2010 / Tier IV regulations are right around the corner, I look forward to a broader spectrum of modeling interest.

Organizers - *Colin P. Garner, Loughborough Univ.; George G. Muntean; Cornelius N. Opris, Caterpillar Inc.*

Time	Paper No.	Title
9:00 a.m.	***2007-01-1134***	***Modeling of Catalyst Sintering and Study of Accelerated Aging Based on Pt/Al2O3 as a Model Catalyst*** *Ken Nagashima, Makoto Nagata, N E Chemcat Corp.*

9:30 a.m.	***2007-01-1141***	***3-D Transient Elastic Thermal Stress Field During Diesel Particulate Filter Regeneration***
		Zhenhua Guo, Zhaoyan Zhang, Wen Peng, Univ. of Nebraska-Lincoln
10:00 a.m.	***2007-01-1143***	***3D Simulation of Soot Loading and Regeneration of Diesel Particulate Filter Systems***
		Christof Hinterberger, Mark Olesen, Rolf Kaiser, ArvinMeritor Emissions Technologies GmbH
10:30 a.m.	***2007-01-1132***	***3D Unsteady Modelling of the Loading Process in a Diesel Engine PM-Filter***
		Vincenzo Mulone, Stefano Cordiner, Univ. di Roma Tor Vergata
11:00 a.m.	***2007-01-1135***	***Numerical Simulation of Gas-Particle Two-Phase Flow Characteristic During Deep Bed Filtration Process***
		Jinke Gong, Yunqing Liu, Longyu Cai, Hunan Univ.
11:30 a.m.	***2007-01-1140***	***1-D Dynamic Diesel Particulate Filter Model for Unsteady Pulsating Flow***
		Patrick Cunningham, Peter Meckl, Purdue Univ.

The papers in this session are available in a single publication, SP-2140, and also individually.

Planned by Exhaust Aftertreatment and Emissions Committee / Powertrain Fuels and Lubricants Activity

Thursday, April 19

Diesel Exhaust Emission Control Modeling (Part 4 of 4)

Session Code: ***PFL4***

Room M3-32 ***Session Time:*** ***1:30 p.m.***

This year, we have a very special offering from both industry, consultants and universities and government labs, with a mix of topics as they relate to this session. The authors contributions are numerous, and they span from very fundamental science models, to very applied ones. They cover topics ranging from fundamental soot morphology to system optimization. Though still dominating, topics of interest now go beyond Particulate Filter modeling. The reader will find very interesting papers on LNT, SCR, Controls and System Simulation as well. As the 2010 / Tier IV regulations are right around the corner, I look forward to a broader spectrum of modeling interest.

Organizers - *Colin P. Garner, Loughborough Univ.; George G. Muntean; Cornelius N. Opris, Caterpillar Inc.*

Time	***Paper No.***	***Title***
1:30 p.m.	***2007-01-1123***	***A Study of the Filtration and Oxidation Characteristics of a Diesel Oxidation Catalyst and a Catalyzed Particulate Filter***
		Kiran C. Premchand, John H. Johnson, Song-Lin Yang, Michigan Technological Univ.; Antonio P. Triana, Kirby J. Baumgard, John Deere Power Systems
2:00 p.m.	***2007-01-1137***	***Advanced Simulation Technologies for Diesel Particulate Filters, A Modeling Study on Asymmetric Channel Geometries***
		Johann C. Wurzenberger, Susanne Kutschi, AVL LIST GmbH
2:30 p.m.	***2007-01-1124***	***Optimizing the Advanced Ceramic Material for Diesel Particulate Filter Applications***
		Heather E. Dillon, Mark Stewart, Gary Maupin, Thomas R. Gallant, Pacific Northwest National Labs; Cheng G. Li, Frank Mao, Aleksander Pyzik, Ravi Ramanathan, Dow Automotive
3:00 p.m.	***2007-01-1118***	***Using an Integrated Diesel Engine, Emissions, and Exhaust Aftertreatment System Level Model to Simulate Diesel Particulate Filter Regenerations***
		Stephen England

3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-1127***	***Control Strategies for Peak Temperature Limitation in DPF Regeneration Supported by Validated Modeling*** *G. C. Koltsakis, O. Haralampous, Z. C. Samaras, Aristotle University Thessaloniki; L. Kraemer, F. Heimlich, K. Behnk, IAV GmbH Ingenieursgesellschaft Auto & V*
4:15 p.m.	***2007-01-1138***	***Development of an Integrated Diesel Exhaust Aftertreatment Simulation Tool with Applications in Aftertreatment System Architecture Design*** *Yongsheng He, GM R&D Center*

The papers in this session are available in a single publication, SP-2140, and also individually.

Planned by Exhaust Aftertreatment and Emissions Committee / Powertrain Fuels and Lubricants Activity

Thursday, April 19

Vehicle Aerodynamics (Part 6 of 6): Aeroacoustics, Buffeting and Crosswinds

Session Code: ***B34***

Room O2-33 ***Session Time:*** ***9:00 a.m.***

These six sessions, organized by the Vehicle Aerodynamics Committee, discuss the latest technology advancements in aerodynamics and aero-acoustics for automotive design. Wind-tunnel simulation of the on-road condition and Computational Fluid Dynamic (CFD) methodologies are essential to an effective product development process.

Organizers - *Mark E. Gleason, DaimlerChrysler Corp.; William S. Gulker, Ford Motor Co.; Thomas N. Ramsay, Kurt A. Zielinski, Honda R&D Americas Inc.*

Chairpersons - *Mark E. Gleason, DaimlerChrysler Corp.*

Time	***Paper No.***	***Title***
9:00 a.m.	***2007-01-1547***	***Aerodynamic Performance of Vehicles in Platoons: The Influence of Backlight Angles*** *Riccardo M. Pagliarella, RMIT Univ.*
9:30 a.m.	***2007-01-1548***	***On Various Aspects of the Unsteady Aerodynamic Effects on Cars Under Crosswind Conditions*** *Jochen Mayer, Michael Schrefl, Rainer Demuth, BMW Group*
10:00 a.m.	***2007-01-1550***	***Modeling and Calibration of an Aerodynamic Cross-Wind Gust Test Facility*** *John A. Sedarous, Ahmed Soliman, Ohio State Univ.; Milton Dunlop, Transportation Research Center Inc.*
10:30 a.m.	***2007-01-1549***	***Laminar Flow Whistle on a Vehicle Side Mirror*** *Todd H. Lounsberry, Mark E. Gleason, Mitchell M. Puskarz, DaimlerChrysler Corp.*
11:00 a.m.	***2007-01-1551***	***Aeroacoustic Measurements in Turbulent Flow on the Road and in the Wind Tunnel*** *Norbert Lindener, Hans Miehling, Audi AG; Antonello Cogotti, Pininfarina Spa; Francesca Cogotti, Marco Maffei, Pininfarina S.p.A*
11:30 a.m.	***2007-01-1552***	***Sunroof Buffeting Suppression Using a Dividing Bar*** *Chang-Fa An, Kanwerdip Singh, DaimlerChrysler Corp.*

The papers in this session are available in a single publication, SP-2066, and also individually.

Planned by Vehicle Aerodynamics Committee / Automobile Body Activity

Thursday, April 19

Occupant Restraints

Session Code: ***B27***

Room O2-33 ***Session Time:*** ***1:30 p.m.***

This session includes papers on the design and performance of occupant restraints. Topics include computational modeling, field performance, and laboratory studies of restraint systems and components. A special subsection of papers on the subject of child restraints and protection of the pediatric population in the automotive environment will be presented.

Organizers - *Chris A. Van Ee, Design Research Engineering*

Chairpersons - *Chris A. Van Ee, Design Research Engineering; Robert Mehl, Exponent Failure Analysis*

Time	Paper No.	Title
1:30 p.m.	***2007-01-1505***	***A Multi-Objective Optimization and Robustness Assessment Framework for Passenger Airbag Shape Design***
		Yan Fu, Guosong Li, Ren-Jye Yang, Ming-Yi Wu, Matthew Makowski, Ford Motor Co.
2:30 p.m.	***2007-01-1504***	***Real Time Control of Restraint Systems in Frontal Crashes***
		Gabriella Griotto, Paul Lemmen, Edwin van den Eijnden, Arjan van Leijsen, TNO Science and Industry; Cees van Schie, John Cooper, TNO Automotive Safety Solutions (TASS)
3:00 p.m.	***2007-01-1500***	***The Numerical Study for the Adaptive Restraint System***
		Haesung Shin
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-1503***	***The Effect of Occupant Size on Head Displacement in Frontal Collisions***
		David Raymond, Paul Begeman, Hai-Chun Chien, Cynthia Bir, Wayne State Univ.
4:15 p.m.	***2007-01-1501***	***Physical Evidence Associated with Seatbelt Entanglement During a Collision***
		Elizabeth Raphael, Robert Piziali, Hanhtrinh Le, Piziali & Associates; John E. Hinger, Hinger Engineering, Inc.; Eddie Cooper, B33 Consulting Inc.; Jeffrey Croteau, Exponent Inc.
4:45 p.m.	***2007-01-1502***	***Modelling the Effects of Seat Belts on Occupant Kinematics and Injury Risk in the Rollover of a Sports Utility Vehicle (SUV)***
		Yuanzhi Hu, Clive E. Neal-Sturgess, A.M. Hassan, Rong Guo, Univ. of Birmingham
	2007-01-1770	***A CAE Methodology to Simulate Testing a Rearward Facing Infant Seat during FMVSS208 Low Risk Deployment (Written Only -- No Oral Presentation)***
		Wookeun Lee, Ford Motor Co.

The papers in this session are available in a single publication, SP-2122, and also individually.

Planned by Occupant Protection Committee / Automobile Body Activity

Thursday, April 19

Spotlight Session on Transportation Sustainability in China

Session Code: ***ENV6***

Room O2-37 ***Session Time:*** ***9:00 a.m.***

This ½ day session will present and discuss the status of sustainability activities in the transportation manufacturing and supply industry in China. Presentations and discussion are proposed to include U.S. and Chinese representatives position on development of sustainable management policy and regulation in China. Industry and NGO representatives will elaborate on their efforts to evaluate and incorporate sustainability into product development, manufacturing and supplier industry in China and the U.S.

Organizers - *Terry Cullum, General Motors Corp.; Richard Paul, Automotive Recycling Consultant*

Chairpersons - *Richard Paul, Automotive Recycling Consultant; Duan Weng, Tsinghua Univ.*

Panelists - *Xiaowen Dai, General Motors Corp.; Michael Q. Wang, Argonne National Laboratory; Duan Weng, Tsinghua Univ.*

Time	Paper No.	Title
9:00 a.m.	***ORAL ONLY***	***Sustainable Development Policy of Automobile in China***
		Duan Weng, Tsinghua Univ.
9:30 a.m.	***ORAL ONLY***	***Challenges and Opportunities to Build a Sustainable Automotive Industry in China - GM's Perspective***
		Xiaowen Dai, GM China Advanced Technology Mgmt. Group
10:00 a.m.	***ORAL ONLY***	***Projection of Chinese Vehicle Growth and Resultant Oil Use and CO2 Emissions Through 2050***
		Michael Q. Wang, Argonne National Laboratory

Planned by Environmental Activity / EMB Land and Sea Group

Thursday, April 19

Life Cycle Analysis/Energy or Emissions Modeling

Session Code: ***ENV7***

Room O2-37 ***Session Time:*** ***1:30 p.m.***

An assessment of various competing automotive technologies from energy and emission perspectives is essential in the transportation sector. This session presents a variety of analytical tools including life cycle analysis used for the assessment of vehicle technologies and transportation fuels.

Organizers - *Sujit Das, Oak Ridge National Lab.*

Time	Paper No.	Title
1:30 p.m.	***2007-01-1607***	***Original Method for Car Life Cycle Assessment (LCA) and its Application to LADA Cars***
		Roman L. Petrov, Autovaz Lada
2:00 p.m.	***2007-01-1606***	***Policy Considerations Derived from Transportation Fuel Life Cycle Assessment***
		Jesse Severs Fleming, Vernel Stanciulescu, Peter J. Reilly-Roe, Natural Resources Canada
2:30 p.m.	***2007-01-1609***	***Tank-to-Wheels Preliminary Assessment of Advanced Powertrain and Alternative Fuel Vehicles for China (Written Only -- No Oral Presentation)***
		Stella Papasavva, Trudy Weber, Steven H. Cadle, General Motors Corp.
3:30 p.m.		***BREAK***

3:45 p.m.	***2007-01-1605***	***Comparative Analysis of Automotive Powertrain Choices for the Next 25 Years*** *Emmanuel Kasseris, John B. Heywood, Massachusetts Institute of Technology - Sloan Auto Lab.*
4:15 p.m.	***2007-01-1608***	***Development of a Roadside Air Quality Simulation Model in JCAP II*** *Yasuo Yoshikawa, Nissan Research Center; Seiji Hayashi, Akiyoshi Ito, Japan Automobile Research Institute; Shigeo Terada, Toyota Central R&D Labs Inc.*
4:45 p.m.	***2007-01-1610***	***Experimental Measurement of On-Road CO2 Emission and Fuel Consumption Functions*** *Yutong Gao, M. David Checkel, Univ. of Alberta*
	~~2007-01-1612~~ ***CANCELLED***	***Diesel Particulate Filter and their Economic/Environmental Effect on the Life Cycle of a Heavy Duty Truck/Passenger Car*** *Frank E. Mark, Hein J. Koelman, Ingo Mikulic, Dow Automotive R&D*

The papers in this session are available in a single publication, SP-2091, and also individually.

Planned by Environmental Activity / EMB Land and Sea Group

Thursday, April 19

Distributed Embedded Systems Engineering (Part 1 of 2)

Session Code: ***AE9***

Room O2-38 ***Session Time:*** ***9:00 a.m.***

This technical session concentrates on the systems engineering aspects of vehicle electronic systems that are distributed using multiple vehicle networks and partitioned across a variety of different electronic modules. The session covers both current and future related technologies and targets technical, business, and legal issues.

Additional topics include current and future vehicle electronic systems architectures, distributed embedded systems behavior, multiple vehicle networking, distributed in-vehicle diagnostic systems, smart sensor/actuator sub-systems, and systems issues surrounding x-by-wire.

Organizers - *Bruce Emaus, Tom Guthrie, Vector CANtech Inc.*

Assistant Chairpersons - *Bruce Emaus, Richard Lotoczky, Vector CANtech Inc.; Kenneth P. Orlando, General Motors Corp.; Eric Paton, Ford Motor Co.*

Time	***Paper No.***	***Title***
9:00 a.m.	***2007-01-1613***	***A Process Membership Service for Active Safety Systems*** *Carl Bergenhem, SP Swedish National Testing and Research; Johan Karlsson, Chalmers Univ. of Technology; Hakan Sivencrona, Mecel Engine Systems AB*
9:30 a.m.	***2007-01-1618***	***Writing Software Specifications Using Interface Matrix*** *Dev G. Raheja, Design for Competitiveness Inc.*
10:00 a.m.	***2007-01-1614***	***TOYOTA Electronic Architecture and AUTOSAR Pilot*** *Kazuhiro Kajio, Toyota Motor Europe NV/SA*
10:30 a.m.	***ORAL ONLY***	***A Proposal Towards Standard Flexray Software and Hardware*** *Terry Compton, Delphi Automotive Systems*
11:00 a.m.	***2007-01-1621***	***A Hierarchical Flexray Bus and Task Scheduler*** *Sri Kanajan, General Motors*

The papers in this session are available in a single publication, SP-2085, and also individually.

Planned by Electrical and Electronic Systems Committee / Automobile Electronic Activity

Thursday, April 19

Distributed Embedded Systems Engineering (Part 2 of 2)

Session Code: ***AE9***

Room O2-38 ***Session Time:*** ***1:30 p.m.***

This technical session concentrates on the systems engineering aspects of vehicle electronic systems that are distributed using multiple vehicle networks and partitioned across a variety of different electronic modules. The session covers both current and future related technologies and targets technical, business, and legal issues.

Additional topics include current and future vehicle electronic systems architectures, distributed embedded systems behavior, multiple vehicle networking, distributed in-vehicle diagnostic systems, smart sensor/actuator sub-systems, and systems issues surrounding x-by-wire.

Organizers - *Bruce Emaus, Tom Guthrie, Vector CANtech Inc.*

Assistant Chairpersons - *Bruce Emaus, Richard Lotoczky, Vector CANtech Inc.; Kenneth P. Orlando, General Motors Corp.; Eric Paton, Ford Motor Co.*

Time	Paper No.	Title
1:30 p.m.	***2007-01-1622***	***From Algorithms to Software -- A Practical Approach to Model-Driven Design***
		Robert Baillargeon, General Motors Corp.; Rick Flores, General Motors
2:00 p.m.	***2007-01-1620***	***A Generic Approach to Hazard Analysis for Programmable Automotive Systems***
		Keith Leslie Longmore, Lotus Cars England; David D. Ward, MIRA, Ltd.; Roger Rivett, Land Rover, Ltd.
2:30 p.m.	***2007-01-1617***	***A Prototype Distributed Architecture for Safety Critical Automotive Systems***
		Peter Miller, Ricardo Inc.
3:00 p.m.	***ORAL ONLY***	***System Integration Labs and the Development of Distributed Embedded Systems for Military Ground Vehicles***
		Scott C. James, Applied Dynamics International
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-1619***	***Power Saving in Body Applications at High Temperatures***
		Axel Freiwald, Infineon; Patrick Leteinturier, Infineon Technologies AG
4:15 p.m.	***2007-01-1615***	***Controller Grid: Real-Time Load Balancing of Distributed Embedded Systems***
		Akihiko Hyodo, Fumio Arakawa, Naoki Kato, Hitachi, Ltd.
4:45 p.m.	***2007-01-1625***	***Formalized Design Procedure for Networked Control Systems***
		Minsuk Shin, Hanyang Univ.; Jaehyun Han; Jeamyoung Youn; Myoungho Sunwoo
5:15 p.m.	~~***2007-01-1616***~~	***What's Driving Commodity Software?***
	ORAL ONLY	*Eric Paton, Ford Motor Co.*
	2007-01-1626	***Dynamic Control for a Distributed Embedded Electro-Hydraulics System (Written Only -- No Oral Presentation)***
		QingHui Yuan, Sorin Bengea, Damrongrit Piyabongkarn, Eaton Corp. Innovation Center; Paul Brenner, Eaton Hydraulics Inc.

The papers in this session are available in a single publication, SP-2085, and also individually.

Planned by Electrical and Electronic Systems Committee / Automobile Electronic Activity

Thursday, April 19

Simulation and Modeling Mechatronics (Part 1 of 2)

Session Code: ***AE15*** ***9:00 a.m.***

Room O2-44 ***Session Time:***

Historically, simulation and modeling efforts have typically been domain specific, independently modeling the behavior of electronic, electrical, or mechanical subsystems. As the complexity of these subsystems and their inter-domain interactions increase, it is imperative that the inter-domain behaviors and effects are taken into account when modeling and simulating the resulting, Mechatronic, system.

Organizers - *Shuvra Das, Univ. of Detroit Mercy; Nils L. Johnson, Christopher Paul Rosebrugh, Synopsys Inc.*

Time	Paper No.	Title
9:00 a.m.	***2007-01-1632***	***A Multi-Threaded Computing Algorithm for Pure Simulation of Complex Systems in SIMULINK***
		Benjamin Snyder, Cummins Inc.; Sohel Anwar, Purdue Univ-Indianapolis
9:30 a.m.	***2007-01-1628***	***Neural Network-Based Model Reference Adaptive Control for Electronic Throttle Systems***
		Salem Al-Assadi, IAV Automotive Engineering Inc.
10:00 a.m.	***2007-01-1638***	***VHDL-AMS Based Control Design for Automotive Systems***
		Xin Wu; Marius Rosu, Ansoft Corp.
10:30 a.m.	***2007-01-1634***	***Development of High Fidelity Combustion-Driven Vehicle Models for Driveability Using Advanced Multi-Body Simulations***
		Kazuhiko Gotoh, Toyota Motor Corp.; Refaat Y. Yakoub, LMS North America
11:00 a.m.	***2007-01-1636***	***Development of the Physical Layer and Signal Integrity Analysis of FlexRay Design Systems***
		Thorsten Gerke, Synopsys Inc.; David Bollati, University Of Applied Sciences

The papers in this session are available in a single publication, SP-2111, and also individually.

Planned by Computer Applications Committee / Automobile Electronic Activity

Thursday, April 19

Simulation and Modeling Mechatronics (Part 2 of 2)

Session Code: ***AE15***

Room O2-44 ***Session Time:*** ***1:30 p.m.***

Historically, simulation and modeling efforts have typically been domain specific, independently modeling the behavior of electronic, electrical, or mechanical subsystems. As the complexity of these subsystems and their inter-domain interactions increase, it is imperative that the inter-domain behaviors and effects are taken into account when modeling and simulating the resulting, Mechatronic, system.

Organizers - *Shuvra Das, Univ. of Detroit Mercy; Nils L. Johnson, Christopher Paul Rosebrugh, Synopsys Inc.*

Time	Paper No.	Title
1:30 p.m.	***2007-01-1631***	***Electrothermal Behavior of a Complete Alternator Assembly within a Battery Charging System using Virtual Prototyping Techniques***
		Bryan Kelly, Synopsys Inc.; Voiko Loukanov, V. Velikov, D&V Electronics Ltd.; J. Duliere, Synopsys Inc.
2:00 p.m.	***2007-01-1640***	***Robust Design of a Valve Train Cam Phasing Controller using Virtual Prototyping Techniques***
		Dale Witt, Createch, Inc.; Bryan Kelly, Synopsys Inc.

2:30 p.m.	***2007-01-1630***	***A Full Vehicle Simulation of an HEV Starter-Generator Concept with the SmartElectricDrives Library***
		Johannes Vinzenz Gragger, Dragan Simic, Christian Kral, Franz Pirker, Arsenal Research
3:00 p.m.	***2007-01-1637***	***Bond Graph Modeling and Simulation of a Closed-Loop Feed Drive System for a CNC Machine***
		Pariksha Tomar; Shuvra Das, Univ. of Detroit Mercy

The papers in this session are available in a single publication, SP-2111, and also individually.

Planned by Computer Applications Committee / Automobile Electronic Activity

Thursday, April 19

Biomechanics (Part 3 of 3)

Session Code: ***B26***

Room O3-45 ***Session Time:*** ***9:00 a.m.***

This session will present current research on the biomechanics of impact and injury. Paper topics will include dummy biofidelity assessment, analysis of restraint performance, development of injury criteria and tolerances for the head, spine, chest and extremities, injury mechanisms, and clinical studies of injury outcome.

Organizers - *William N. Newberry, Exponent Inc.; Tony R. Laituri, Ford Motor Co.; Michael Prange, Exponent Failure Analysis*

Chairpersons - *Tony R. Laituri, Ford Motor Co.; Michael Prange, Exponent Failure Analysis; William Newberry, Exponent Inc.*

Time	***Paper No.***	***Title***
9:00 a.m.	***2007-01-1156***	***Wavelet-Based Non-parametric Estimation of Injury Risk Functions***
		Zhiqing Cheng, General Dynamics Advanced Information Systems; Joseph A. Pellettiere, US Air Force Research Lab.; Annette L. Rizer, General Dynamics Advanced Information Systems
9:30 a.m.	***2007-01-1158***	***An Application of CODES Data Linkages for Crashworthiness Computations***
		Heather Rothenberg, Univ. of Massachusetts Amherst
10:00 a.m.	***2007-01-1165***	***Drivers Involved in Crashes Killing Older Road Users***
		Leonard Evans, Science Serving Society
10:30 a.m.	***2007-01-1157***	***Effectiveness of Side-Airbags for Front Struckside Belted Car Occupants in Lateral Impact Conditions - An In-Depth-Analysis by GIDAS***
		Dietmar Otte, Tobias Huefner, Hannover Medical School

The papers in this session are available in a single publication, SP-2068, and also individually.

Planned by Occupant Protection Committee / Automobile Body Activity

Thursday, April 19

Software/Hardware Systems

Session Code: ***AE17***

Room O3-45 ***Session Time:*** ***1:30 p.m.***

Hardware and Software Systems session is intended to share the up-to-date technology in the area of data analysis and computing possibilities. The main objective for this session is to facilitate the sharing of this technology in a constructive manner so interested researchers have a paved road to follow and build upon it.

Organizers - *Hassan El-hor, DaimlerChrysler Corp.*

Time	Paper No.	Title
1:30 p.m.	***2007-01-1641***	***Optimum DC Micro Engine Projection For Interior of the Automobile*** *Eduard Lyubimov, Nikolay Shulakov, State Technical University Perm Russia; Sergey Gladyshev, Univ. of Michigan-Dearborn*
2:00 p.m.	***2007-01-1643***	***Memory Checking Method Based on Priority of Content (practical approach to automotive electronic system)*** *SeungHyun Roh, Mando Corp.*
2:30 p.m.	***2007-01-1644***	***Design of a Digital Dash-Panel using a TFT LCD Panel and Blackfin Processor.*** *Dominick O'Brien, Gavin Walsh, Waterford Institute of Technology*
	2007-01-1645	***Large Scale Modeling and Simulation of Propulsion Systems (Written Only -- No Oral Presentation)*** *Siva Nadarajah, The MathWorks Inc.*

The papers in this session are available in a single publication, SP-2126, and also individually.

Planned by Computer Applications Committee / Automobile Electronic Activity

Thursday, April 19

Friction Stir Welding (Part 1 of 2)

Session Code: ***M15***

Room O3-46 ***Session Time:*** ***9:00 a.m.***

This session provides a unique opportunity to learn about the fundamental features of friction stir welding/processing, how these processes are being applied in the manufacturing of automotive components, and the performance that can be expected from welded/processed materials.

Organizers - *Glenn J. Grant, Pacific Northwest National Labs; Michael L. Santella, Oak Ridge National Lab.*

Time	Paper No.	Title
9:00 a.m.	***2007-01-1702***	***Friction Stir Spot Welding (FSSW) - A Literature Review*** *Tsung-Yu Pan, Ford Motor Co.*
9:30 a.m.	***2007-01-1699***	***Effect of Tool Thermal Expansion and Durability in Friction Stir Spot Welding*** *Harsha Badarinarayan, Frank Hunt, Kazutaka Okamoto, Hitachi America, Ltd.*
10:00 a.m.	~~***2007-01-1705***~~ ***ORAL ONLY***	***A Comparative Study of Tool Geometries for Friction Stir Spot Welding*** *Nicholas J. Blundell, Warwick Manufacturing Group*
10:30 a.m.	***2007-01-1707***	***FSW Patents - A Stirring Story*** *Iain James Smith, Daniel D R Lord, TWI, Ltd.*
11:00 a.m.	***2007-01-1703***	***Spot Friction Welding of Aluminum to Steel*** *Toshiyuki Gendo, Katsuya Nishiguchi, Motoyasu Asakawa, Shinichi Tanioka, Mazda Motor Corp.*

The papers in this session are available in a single publication, SP-2139, and also individually.

Planned by Materials Modeling and Testing Committee / Materials Engineering Activity

Thursday, April 19

Friction Stir Welding (Part 2 of 2)

Session Code: ***M15***

Room O3-46 ***Session Time:*** ***1:30 p.m.***

This session provides a unique opportunity to learn about the fundamental features of friction stir welding/processing, how these processes are being applied in the manufacturing of automotive components, and the performance that can be expected from welded/processed materials.

Organizers - *Glenn J. Grant, Pacific Northwest National Labs; Michael L. Santella, Oak Ridge National Lab.*

Time	Paper No.	Title
1:30 p.m.	***2007-01-1704***	***Fatigue Behaviour of Friction Stir Joined Aluminum Alloy NG5754 and AA6111 Sheets*** *Li Han, Nic Blundell, Univ. of Warwick; Zongjin Lu, Mike Shergold, Jaguar & Land Rover; Andreas Chrysanthou, Univ. of Hertfordshire*
2:00 p.m.	***2007-01-1700***	***Eutectic Segregation and Cracking in AZ91 Friction Stir Spot Welds*** *Motomichi Yamamoto, P. Su, Adrian Gerlich, T. H. North, Univ. of Toronto*
2:30 p.m.	***2007-01-1701***	***Joining Aluminum to Nylon using Frictional Heat*** *Karthik N. Balakrishnan; H. T. Kang, P. K. Mallick, Univ. of Michigan-Dearborn*
3:00 p.m.	***2007-01-1706***	***Effects of Surface Treatment (Lubricant) on Spot Friction Welded Joints Made of 6111-T4 Aluminum Sheets*** *Senthil Arul, Tsung-Yu Pan, W. Schwartz, Ford Motor Co.; Albert J. Shih, Univ. of Michigan; Pankaj K. Mallick, Univ. of Michigan-Dearborn*

The papers in this session are available in a single publication, SP-2139, and also individually.

Planned by Materials Modeling and Testing Committee / Materials Engineering Activity

Thursday, April 19

Design Optimization - Methods and Applications (Part 1 of 2)

Session Code: ***B4***

Room Safety/Testing Pavilion (on the exhibi ***Session Time:*** ***9:00 a.m.***

This session will focus on the tools and methodology for optimizing the process and products related to automotive applications.

Organizers - *Vesna Savic, GM Technical Center; Pattabhi Sitaram, General Motors Corp.; Donald D. Parker, Exponent Inc.*

Time	Paper No.	Title
9:00 a.m.	***2007-01-1539***	***Delivering Design for Manufacturing Excellence*** *Robert J. Axtman, Lance Murphy, Dassault Systemes Americas Corp.*
9:30 a.m.	***2007-01-1537***	***A Comparison of Techniques to Forecast Consumer Satisfaction for Vehicle Ride*** *Elizabeth A. Cudney, David Drain, Kenneth M. Ragsdell, Univ. of Missouri-Rolla; Kioumars Paryani, General Motors Corp.*
10:00 a.m.	***2007-01-1541***	***LS-DYNA Based Optimization to Satisfy FMVSS 207/210*** *Joanna Rakowska, Shavinder Grewal, Hai Truong, Swami Perumalswami, Ford Motor Co.*
10:30 a.m.	***2007-01-1543***	***An Optimization and Trade-Off Process for Crashworthiness with Multiple Responses*** *Ching-Hung Chuang, Guosong Li, Ren-Jye Yang, Ford Motor Co.*

11:00 a.m.	***2007-01-1542***	***Deformation Analysis and Optimization of an Automotive Wheel Bearing Seal Lip*** *Heon Young Kim, Hyungil Moon, Kangwon National Univ.; Young Tae Kim, Jihun Park, Jong Soon Lim, ILJIN*

The papers in this session are available in a single publication, SP-2078, and also individually.

Planned by Body Engineering Committee / Automobile Body Activity

Thursday, April 19

Written Only

Session Code: ***CONG100***

Room TBD ***Session Time:***

Time	***Paper No.***	***Title***
	2007-01-1554	***Availability of Improved PM Steels by Secondary Operations According to Different Requirements for Each Application (Written Only -- No Oral Presentation)*** *Koki Kanno, Hoganas Japan KK*
	~~2007-01-1555~~ ***CANCELLED***	***Workforce Entreprise Modeling (NASA KSC Case Study) (Written Only -- No Oral Presentation)*** *Mario F. Marin*
	2007-01-1556	***New Improvements in Materials Used to Manufacture Powder Forged Connecting Rods*** *Edmond Ilia, Metaldyne Sintered Components Inc.; Kevin Tutton, Metaldyne; Michael O'Neill, Metaldyne Sintered Components Inc.; George Lanni, Metaldyne; Steven M. Letourneau, Metaldyne Sintered Components Inc.*
	2007-01-1781	***Practical Devices for Heavy Truck Aerodynamic Drag Reduction (Written Only -- No Oral Presentation)*** *Ronald E. Schoon, Fongloon Pan, International Truck and Engine Corp.*

Thursday, April 19

Dimethyl Ether on the Path to a Hydrogen Economy

Session Code: ***WEC1-5***

Room TBD ***Session Time:***

Panelists - *Elana M. Chapman, Penn State University*

Thursday, April 19

Load Simulation and Analysis in Automotive Engineering (Part 3 of 4) - Tire Modeling and Simulation

Session Code: ***M20***

Room W1-51 ***Session Time:*** ***9:00 a.m.***

Focusing on tire modeling for loads simulation, effective road profile development, road profile characterization, tire model parameter identification, tire test equipment development, interaction between tire and suspension/steering/brake systems, comparison of different tire models, sensitivity of tire parameters, full vehicle model virtual simulation, etc.

Organizers - *Yin-ping Chang, Oakland Univ.; Sunrong Gong, Goodyear Technical Center; Jonah Lee, Univ. of Alaska Fairbanks; James C. Tebbe, General Motors Corp.; Xiaobo Yang, DaimlerChrysler Corp.*

Time	Paper No.	Title
9:00 a.m.	***2007-01-1511***	***Prediction of Tire-Snow Interaction Forces using Metamodeling***
		Jing Li, Zissimos P. Mourelatos, Oakland Univ.; Jonah Lee, Qing Liu, Univ. of Alaska Fairbanks
9:30 a.m.	***2007-01-1512***	***Tire Model by Using Modal Parameters Directly (MPTM)***
		Dihua Guan, Tsinghua Univ.
10:00 a.m.	***2007-01-1513***	***Radial-Ply vs. Bias-Ply Tires' Transmissibility***
		Yin-ping Chang, Oakland Univ.
10:30 a.m.	***2007-01-1514***	***Analysis of Non-Steady State Tire Cornering Properties Based on String-Concept Deformation and Geometric Relationship of Contact Patch***
		Qing Liu, Univ. of Alaska; Jonah Lee, Univ. of Alaska Fairbanks; Konghui Guo
11:00 a.m.	***2007-01-1515***	***Design of Hybrid Electric Vehicle Braking Control System with Target Wheel Slip Ratio Control***
		Dong Peng, Shanghai Jiaotong Univ.

The papers in this session are available in a single publication, SP-2107, and also individually.

Planned by Materials Modeling and Testing Committee / Materials Engineering Activity

Thursday, April 19

Load Simulation and Analysis in Automotive Engineering (Part 4 of 4) - CAE-Based General Loads and Durability Analysis

Session Code: ***M20***

Room W1-51 ***Session Time:*** ***1:30 p.m.***

The first half session focusing on the comparison of the simulation results between rigid and flexible modeling approaches, flexible body modes selection, mount loads predictions for vehicle body, frame/sub-frame, leaf-spring, exhaust system, driveline, powertrain, the comparison of the modeling techniques between vehicle dynamics simulation and durability loads simulation, optimal development process considering vehicle dynamics and durability loads, data processing and analysis techniques, loads sensitivity analyses for various model parameters, DOE and optimal design techniques for loads minimization, prediction of manufacturing tolerance effects on loads, robust design methods, etc.
The second half session focusing on durability CAE application in automotive engineering, the process development of durability analysis, equivalent method for customer usage and proving ground durability test, duty cycle determination, CAE durability modeling technique to achieve reliable result, stress analysis method, fatigue theory to the crack prediction.

Organizers - *Yin-ping Chang, Oakland Univ.; Joseph A. Schudt, General Motors Corp.; Guangtian Gavin Song, DaimlerChrysler Corp.; Yuzhao Song, Ford Motor Co.; James C. Tebbe, General Motors Corp.; Hui Wang; Xiaobo Yang, DaimlerChrysler Corp.*

Time	Paper No.	Title
1:30 p.m.	***ORAL ONLY***	***Suspension Component Stresses Computation Using Nonlinear System Models***
		Yongquan Liu, Ford Motor Co.
2:00 p.m.	***2007-01-1646***	***Methodology to Derive Reliable Laboratory Tests using Limited Service Load Data***
		Chandrakant Mahaling Awate, Tata Motors, Ltd.; Colin Dodds, Dodds & Associates

2:30 p.m.	***2007-01-1647***	***Effect of Braking on Suspension Loads in Potholes*** *Dexin Wang, Ford Motor Co.*
3:00 p.m.	***2007-01-1650***	***Regarding Influences of Production Processes on Material Parameters in Fatigue Life Prediction*** *Werner Aichberger, Harald Riener, Helmut Dannbauer, MAGNA Powertrain ECS*
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-1649***	***CAE Analyses for Suspension System and Full Vehicle Under Durability Road Load Conditions*** *Shih-Huang Lin, Chung-Guang Cheng, Ching-Yun Liao, China Motor Corp.; Yi-Fan Shan, Haitec*
4:15 p.m.	***2007-01-1204***	***Finite Element Analyses of Fastened Joints in Automotive Engineering*** *Michael Guo, DaimlerChrysler Corp.*
4:45 p.m.	~~***2007-01-1651***~~ ***ORAL ONLY***	***Automotive Structural Design with Consideration of Durability*** *Hui Wang*
5:15 p.m.	~~***2007-01-1652***~~ ***ORAL ONLY***	***CAE Method Investigation with Test for Door Slam in Nonlinear Dynamic Stress and Fatigue Life Analysis*** *Guangtian Gavin Song, DaimlerChrysler Corp.*

The papers in this session are available in a single publication, SP-2107, and also individually.

Planned by Materials Modeling and Testing Committee / Materials Engineering Activity

Thursday, April 19

Reliability and Robust Design in Automotive Engineering (Part 10 of 14) - Part 1A - Fatigue Reliability

Session Code: ***M18***

Room W1-52 ***Session Time:*** ***9:00 a.m.***

Program Chairs: Zissimos Mourelatos, Oakland Univ.; Yung-Li Lee, DaimlerChrysler; Efstratios Nikolaidis, Univ. of Toledo; Ren-Jye Yang, Ford Motor Co.; Yih-Chyun Sheu, General Motors Corp.

This session presents papers on recent development of reliability-based fatigue damage model, determination of statistical fatigue properties, models to account for loading variability, and reliability-based fatigue design methodologies.

Organizers - *Grzegorz Glinka, Univ. of Waterloo; Yung-Li Lee, DaimlerChrysler Corp.*

Chairpersons - *Yung-Li Lee, DaimlerChrysler Corp.; Om P. Yadav, North Dakota State Univ.*

Time	***Paper No.***	***Title***
9:00 a.m.	***ORAL ONLY***	***Part I: The Stress Analysis of Welded Structures and Fatigue*** *Grzegorz Glinka, Univ. of Waterloo*
9:30 a.m.	***2007-01-1657***	***Fatigue and Reliability of Welded Structures*** *Hieronim Jakubczak, Warsaw Univ. of Technology; Greg Glinka, Univ. of Waterloo; Mohamad S. El Zein, Deere & Co.*
10:00 a.m.	***2007-01-1658***	***Probabilistic Fatigue Life Prediction and Inspection of Railroad Wheels*** *Yongming Liu, Brant Stratman, Liming Liu, Sankaran Mahadevan, Vanderbilt Univ.*
10:30 a.m.	***2007-01-1656***	***Data Fusion and Modeling for Fatigue Crack Growth Prediction*** *D.Gary Harlow, Lehigh Univ.*

11:00 a.m.	***2007-01-1654***	***A Fatigue Crack Growth Simulation Algorithm in Consideration of Parametric Variability***
		Wen-Fang Wu, Cheng Chung Lu, National Taiwan Univ.

The papers in this session are available in a single publication, SP-2119, and also individually.

Planned by Materials Modeling and Testing Committee / Materials Engineering Activity

Thursday, April 19

Reliability and Robust Design in Automotive Engineering (Part 12 of 14) - Part 1B - Fatigue Reliability

Session Code: ***M18***

Room W1-52 ***Session Time:*** ***1:30 p.m.***

Program Chairs: Zissimos Mourelatos, Oakland Univ.; Yung-Li Lee, DaimlerChrysler; Efstratios Nikolaidis, Univ. of Toledo; Ren-Jye Yang, Ford Motor Co.; Yih-Chyun Sheu, General Motors Corp.

This session presents papers on recent development of reliability-based fatigue damage model, determination of statistical fatigue properties, models to account for loading variability, and reliability-based fatigue design methodologies.

Organizers - *Grzegorz Glinka, Univ. of Waterloo; Yung-Li Lee, DaimlerChrysler Corp.*

Chairpersons - *Yung-Li Lee, DaimlerChrysler Corp.; Om P. Yadav, North Dakota State Univ.*

Time	***Paper No.***	***Title***
1:30 p.m.	***2007-01-1774***	***Microstructural Models to Predict Creep Fatigue Reliability***
		Vikram Bhamidipati, Robert G. Tryon, Richard Holmes, Vextec
2:00 p.m.	***2007-01-1653***	***Reliability-Based Test Track Schedule Development for a Vehicle Suspension System***
		Salman Haq, Yung-Li Lee, DaimlerChrysler Corp.; Jerry L. Larsen, DaimlerChrysler Chelsea Proving Grounds; Marvin Frinkle, DaimlerChrysler Corp.; Bindu Akkala, LMS North America
2:30 p.m.	***2007-01-1768***	***Mechanical Testing - Still Necessary!***
		Michael Franke, FEV Engine Technology Inc.; Andreas Küsters, Thomas Rinkens, Franz J. Maassen, Hans Brüggemann, FEV Motorentechnik GmbH
3:00 p.m.	***2007-01-1769***	***Why We Have Problems with Effective Reliability Testing Performance?***
		Lev Klyatis, Eugene Klyatis, ECCOL Inc.
3:30 p.m.		***BREAK***
4:15 p.m.	***ORAL ONLY***	***Reliability Prediction for Advanced Vehicle System Design and Maintenance***
		Dan M. Ghiocel, GP Technologies Inc.

The papers in this session are available in a single publication, SP-2119, and also individually.

Planned by Materials Modeling and Testing Committee / Materials Engineering Activity

Thursday, April 19

Experiments in Automotive Engineering (Part 7 of 8) - Part 3A - Optical Techniques I

Session Code: ***M19***

Room W1-54 A ***Session Time:*** ***9:00 a.m.***

Program Chairs - Lianxiang Yang, Oakland Univ.; Darryl Taylor, Kah Wah Long, DaimlerChrysler Corp.

This session offers scientists and engineers timely, peer-reviewed researches and applications in the areas of Optical Techniques in Automotive, Aeronautic and Aerospace Engineering. It also serves as a forum to share the latest advances and novel applications of coherent and non-coherent optical methods for shape and dimension gauging of components; stress and strain analysis; experimental mechanics; nondestructive testing; design verification and optimization; correlation between experiment and theory; interaction between modeling, simulation, and experiment; and beyond.

Organizers - *Andreas Ettemeyer, Munich Univ. of Science; Kah Wah Long, DaimlerChrysler Corp.; Lianxiang Yang, Oakland Univ.*

Time	Paper No.	Title
9:00 a.m.	***ORAL ONLY***	***Keynote Address: Optical Metrology: Developments and Applications in the Automotive Industry***
		Frank Chen, Ford Motor Co.
9:30 a.m.	***2007-01-1212***	***Methodology of Measuring Residual Strain and Stress Distribution in Automotive Parts with Image Correlation and Holographic Interferometry***
		Andrzej K. Sikorski, Vataliy Grabovskiy, Magna Intl. Inc.; Viktor Yashnyk, Magna Powertrain
10:00 a.m.	***2007-01-1213***	***Inspection of Debonds in Adhesive Joints and Loosened Mechanical Fasteners Using Shearography with Multiple Frequency Vibrational Excitation***
		Michael Hung, City Univ. of Hong Kong; H. M. Shang, Nanyang Technological Univ.
10:30 a.m.	***2007-01-1214***	***Optical Measurements in the Automotive Test Lab***
		John Tyson, Trilion Quality Systems
11:00 a.m.	***2007-01-1215***	***Initial Stress and Manufacture Stress Testing in Transparent Material***
		Xinhua Ji, Lijun Shi, Wenyun Zhao, Jinlong Chen, Yuwen Qin, Tianjin Univ.

The papers in this session are available in a single publication, SP-2094, and also individually.

Planned by Materials Modeling and Testing Committee / Materials Engineering Activity

Thursday, April 19

Experiments in Automotive Engineering (Part 8 of 8) - Part 3B - Optical Techniques II

Session Code: ***M19***

Room W1-54 A ***Session Time:*** ***1:30 p.m.***

Program Chairs - Lianxiang Yang, Oakland Univ.; Darryl Taylor, Kah Wah Long, DaimlerChrysler Corp.

This session will explore the use of optical techniques to study adhesive-bonded joints, forming limits for sheet metal, in-cylinder flow characteristics and many others.

Organizers - *Andreas Ettemeyer, Munich Univ. of Science; Kah Wah Long, DaimlerChrysler Corp.; Lianxiang Yang, Oakland Univ.*

Time	Paper No.	Title
1:30 p.m.	***2007-01-1378***	***Complex Approach, FE Simulation / Testing, for Strain / Stress Analysis in the Walls of a Water Pump Weep Chamber***
		Iulian Danut Radu, Vitaliy Grabovskyy, Romulus Crisan, Magna Powertrain Engine Technologies Group
2:00 p.m.	***2007-01-1380***	***A New Calibration Method for Digital 3D Profilometry System***
		Sheng Liu, Praveen Samala, Zhaojing Zhu, Lianxiang Yang, Oakland Univ.

2:30 p.m.	***2007-01-1381***	***Three-Dimensional Structure of Portevin-Le Chatelier Bands and Shear Bands in Strip Cast AA5754 Sheets Using Digital Image Correlation*** *Jidong Kang, David S. Wilkinson, Mukesh Kumar Jain, McMaster Univ.; Raja K. Mishra, GM R&D Center*
3:00 p.m.	***2007-01-1382***	***High-Speed Non-Contact Measurement Solution "A New Vision in Coordinate Measurement"*** *Marc Viala, CTO ActiCM*
3:30 p.m.		***BREAK***
3:45 p.m.	***ORAL ONLY***	***Application of Optical Technique to Determine Forming Limit for Sheet Metal*** *Praveen Samala, Lianxiang Yang, Oakland Univ.*
4:15 p.m.	***2007-01-1383***	***Experimental Study of Springback Emulation System with High Precision*** *Guobiao Yang, Fang Ru-Hua, Zeng Wei-Ming, Zhu Qi-Rong, Tong Ji Univ.*

The papers in this session are available in a single publication, SP-2094, and also individually.

Planned by Materials Modeling and Testing Committee / Materials Engineering Activity

Thursday, April 19

Adhesives, Sealings, and Gaskets

Session Code: ***M14***

Room W1-54 B ***Session Time:*** ***9:00 a.m.***

As sealing and adhesive technical requirements increase in automotive applications, the community has responded with greater system analysis, failure mechanism determination and prevention, and improved components with greater value added. This year's Adhesives, Sealings, and Gaskets Technical Session presents new technical solutions to performance and compliance issues, and greater analysis of interface systems.

Organizers - *Bruce L. Murden, Parker Seals*

Time	***Paper No.***	***Title***
9:00 a.m.	***2007-01-1516***	***Low VOC Water Borne Pressure Sensitive Double Coated Tape*** *Akiko Miyano, Nitto Denko Corp.; Hanna Kushioka, Permacel; Kazuyuki Yagura, Nitto Denko Corp.*
9:30 a.m.	***2007-01-1517***	***Reliability Analysis of Adhesive for PBT-Epoxy Interface*** *Kazuo Kato, Takashi Aoki, DENSO Corp.; Yasushi Okamoto, Japan Chemical Innovation Inst.; Keiji Tanaka*
10:00 a.m.	***2007-01-1519***	***Rubber Peeling Mechanism of SOFT METAL for CHG*** *Masaaki Kanamori, H. Tokumitsu, NOK Corp.*
10:30 a.m.	***2007-01-1520***	***A New High Temperature Exhaust Sealing System*** *Thomas O. Zurfluh, Federal-Mogul Corp.; Stephen Bond, Federal-Mogul Sealing Systems*
11:00 a.m.	***2007-01-1521***	***Measurement Method of Pumping Ability of Radial Lip Seals for Small Shaft Diameters*** *Hirotaka Mizuta, Hideyuki Furuyama, Yuki Sato, NOK Corp.*

Planned by Polymers and Coatings Committee / Materials Engineering Activity

Thursday, April 19

Reliability and Robust Design in Automotive Engineering (Part 13 of 14) - Design of Experiments (DOE)

Session Code: ***M18***

Room W1-54 B ***Session Time:*** ***1:30 p.m.***

Program Chairs: Zissimos Mourelatos, Oakland Univ.; Yung-Li Lee, DaimlerChrysler; Efstratios Nikolaidis, Univ. of Toledo; Ren-Jye Yang, Ford Motor Co.; Yih-Chyun Sheu, General Motors Corp.

Design and modeling for computer experiments have been an interesting and challenging topic for research in the design of the automobile, including design for reduction of engine noise. Many people have worked in these exciting areas. This session will bring audiences the recent development of design and modeling for computer experiments.

Organizers - *Runze Li, Pennsylvania State Univ.; Ming-Wei Lu, DaimlerChrysler Corp.*

Chairpersons - *Runze Li, Pennsylvania State Univ.; Ming-Wei Lu, DaimlerChrysler Corp.*

Time	Paper No.	Title
1:30 p.m.	***2007-01-1660***	***One-Factor-at-a-Time Screening Designs for Computer Experiments*** *Aijun Zhang, Univ. of Michigan*
2:00 p.m.	***2007-01-1655***	***Modeling Computer Experiments with Multiple Responses*** *Zhe Zhang, Bank of America; Runze Li, Pennsylvania State Univ.; Agus Sudjianto, Bank of America*
2:30 p.m.	***2007-01-1661***	***DOE Analysis of Factors Affecting Ultimate Strength of Multiple Resistance Spot Welded Joints*** *Xin Zhang, Mark E. Barkey, Univ. of Alabama; Yung-Li Lee, Ming-Wei Lu, Eric Pakalnins, DaimlerChrysler Corp.; C. J. Orsette, W. Trojanowski, Fusion Welding Solution*
3:00 p.m.	***2007-01-1662***	***Model Simulation Study of Central Composite Design and Uniform Design*** *Ming-Wei Lu, Marlon Forrest, Cheng Julius Wang, DaimlerChrysler Corp.*
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-1659***	***A Robust Design Process of Exhaust System for Idle Vibration of a Vehicle*** *Hyosig Kim, Seongho Yoon, Hyojin Cho, Renault Samsung Motors Co.*
4:15 p.m.	***ORAL ONLY***	***Modeling Computer Experiment with Functional Response using Spatial-Temporal Model*** *Runze Li, Pennsylvania State Univ.*

The papers in this session are available in a single publication, SP-2119, and also individually.

Planned by Materials Modeling and Testing Committee / Materials Engineering Activity

Thursday, April 19

Sheet/Hydro/Gas Forming Technology and Modeling (Part 2 of 3)

Session Code: ***M9***

Room W1-55 A ***Session Time:*** ***9:00 a.m.***

This session will discuss draw die designs, forming processes, stamping developments on applications such as roof panels, strain gages and body panels.

Organizers - *Ching-Kuo Hsiung, Thomas J. Oetjens, Thomas Stoughton, General Motors Corp.; Michael J. Worswick, Univ. of Waterloo; Z. Cedric Xia, Ford Motor Co.*

Time	Paper No.	Title

9:00 a.m.	***2007-01-1693***	***Prediction of Stretch Flangeability Limits of Advanced High Strength Steels using the Hole Expansion Test***
		Ming F. Shi, Xiao Ming Chen, U.S. Steel Corp.
9:30 a.m.	***2007-01-1694***	***Die Wear Severity Diagram and Simulation***
		Z. Cedric Xia, Feng Ren, Ford Motor Co.
10:00 a.m.	***2007-01-1680***	***Stamping Die Strain Measurements***
		Al Conle, Amber Wang, Ford Motor Co.
10:30 a.m.	***2007-01-1696***	***Stamping Effect on Oil Canning and Dent Resistance Performances of an Automotive Roof Panel***
		Sheng-Dong Liu, Xiao Xiao, Generalety, LLC; Li Zhang, Francisco Landeros, DaimlerChrysler Corp.
11:00 a.m.	***2007-01-1692***	***Effect of Draw Beads on the Mechanical Properties of Steel Sheet***
		Bernard S. Levy, B.S. Levy Consultants; Chester J. Van Tyne, Colorado School of Mines
11:30 a.m.	***2007-01-1679***	***Optimal Designs of Automotive Stamping Dies via Integrated Forming Simulations and Die Structural Analysis***
		Venkat Aitharaju, Jennifer J. Dong, Jimmy J. Zhang, Chuan-Tao Wang, General Motors Corp.

The papers in this session are available in a single publication, SP-2103, and also individually.

Planned by Ferrous Committee / Materials Engineering Activity

Thursday, April 19

Sheet/Hydro/Gas Forming Technology and Modeling (Part 3 of 3)

Session Code: ***M9***

Room W1-55 A ***Session Time:*** ***1:30 p.m.***

This session will discuss draw die designs, forming processes, stamping developments on applications such as roof panels, strain gages and body panels.

Organizers - *Ching-Kuo Hsiung, Thomas J. Oetjens, Thomas Stoughton, General Motors Corp.; Michael J. Worswick, Univ. of Waterloo; Z. Cedric Xia, Ford Motor Co.*

Time	***Paper No.***	***Title***
1:30 p.m.	***2007-01-1674***	***Analysis and Design Bulb Shield Progressive Drawing by FEM Simulation***
		Zi Qiang Sheng, Richard Taylor, Michael Strazzanti, Isatec Technical Center
2:00 p.m.	***2007-01-1675***	***Forming Simulation and Validation of Laminated Steel Panels***
		Zhong Zhao, Ching-Kuo Hsiung, Xinran Xiao, General Motors Corp.
2:30 p.m.	***2007-01-1678***	***Lead-time Reduction in Stamping CAE and Die Face Development using Massively Parallel Processing in Forming Simulations***
		Jeffrey John Gress, General Motors Corp.
3:00 p.m.	***2007-01-1684***	***Rating Potential Surface Distortions During Early Surface Development of a Vehicle Using FEA Simulation***
		Yinong Shen, Laurent B. Chappuis, Carl Kauppila, Ford Motor Co.

The papers in this session are available in a single publication, SP-2103, and also individually.

Planned by Ferrous Committee / Materials Engineering Activity

Thursday, April 19

Reliability and Robust Design in Automotive Engineering (Part 11 of 14) Decision under Uncertainty and Uncertainty Modeling

Session Code: ***M18***

Room W1-55 B ***Session Time:*** ***9:00 a.m.***

Program Chairs: Zissimos Mourelatos, Oakland Univ.; Yung-Li Lee, DaimlerChrysler; Efstratios Nikolaidis, Univ. of Toledo; Ren-Jye Yang, Ford Motor Co.; Yih-Chyun Sheu, General Motors Corp.

This session presents methods for modeling uncertainty and for making decisions under uncertainty in engineering design. The papers in this session cover the following topics; a) modeling uncertainty when limited information is available, b) making decisions with multiple objectives and c) probability bounds and sensitivity analysis. These methods are demonstrated on real-life design problems.

Organizers - *Zissimos Mourelatos, Oakland Univ.; Efstratios Nikolaidis, Univ. of Toledo*

Chairpersons - *Zissimos Mourelatos, Oakland Univ.; Efstratios Nikolaidis, Univ. of Toledo*

Time	Paper No.	Title
9:00 a.m.	2007-01-1481	***Managing Multiple Sources of Epistemic Uncertainty in Engineering Decision Making*** *Jeffrey Schlosser, Christiaan J. J. Paredis, Georgia Institute of Technology*
9:30 a.m.	2007-01-1480	***Probability Bounds Analysis as a General Approach to Sensitivity Analysis in Decision Making Under Uncertainty*** *Jason Matthew Aughenbaugh, Applied Research Laboratories, Univ. of Texas at Austin; Christiaan J. J. Paredis, Georgia Institute of Technology*
10:00 a.m.	2007-01-1479	***A Multi-Criteria Decision Making Model for the Design of Machine Structures*** *Sreeram TR, Caterpillar; V.A. Katti, Caterpillar Engineering Design Center*
10:30 a.m.	2007-01-1482	***Discretization Error in Boundary Element Analysis Using Interval Methods*** *Bart F. Zalewski, Robert L. Mullen, Case Western Reserve Univ.*

The papers in this session are available in a single publication, SP-2119, and also individually.

Planned by Materials Modeling and Testing Committee / Materials Engineering Activity

Thursday, April 19

Reliability and Robust Design in Automotive Engineering (Part 14 of 14) - Model Validation and Verification

Session Code: ***M18***

Room W1-55 B ***Session Time:*** ***1:30 p.m.***

Program Chairs: Zissimos Mourelatos, Oakland Univ.; Yung-Li Lee, DaimlerChrysler; Efstratios Nikolaidis, Univ. of Toledo; Ren-Jye Yang, Ford Motor Co.; Yih-Chyun Sheu, General Motors Corp.

Model Validation and Verification invite papers that deal with the theoretical and/or applied aspects of one or more of the following representative topics: model development, model correlation/calibration, model verification, model validation, uncertainty quantification, validation metrics, predictive capability assessment, etc.

Organizers - *Roger W. Logan, Lawrence Livermore National Lab.; Ren-Jye Yang, Ford Motor Co.*

Chairpersons - *Mary Fortier, General Motors Corp.; Yan Fu, Ford Motor Co.; Roger W. Logan, Lawrence Livermore National Lab.; Shih-Chung Tsai, General Motors Corp.*

Time	Paper No.	Title
1:30 p.m.	ORAL ONLY	***Keynote Address: Verification and Validation: Synergy of the New ASME V&V Guidelines and the SAE Reliability and Robust Design Forum*** *Roger W. Logan, Lawrence Livermore National Lab.*

2:00 p.m.	***2007-01-1740***	***Analytical Approach to Planning Validation of Carry-over Parts*** *Rachel Itabashi-Campbell, TRW Automotive*
2:30 p.m.	***2007-01-1742***	***Model Based Reusable and Reliable Software Validation for Functional Coverage using Virtual ECUs*** *Naveen Gautam, DaimlerChrysler Corp.; Sivapalan Balanayagam, DaimlerChrysler AG*
3:00 p.m.	***2007-01-1743***	***Model Error Quantification for Reliability-based Design*** *Sankaran Mahadevan, Vanderbilt Univ.; Ramesh Rebba, General Motors Corp.*
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-1744***	***Model Update and Correlation Metrics for Automotive Crash Simulations*** *Jiulong Sun, Michigan Engineering Services, LLC; Nickolas Vlahopoulos, Univ. of Michigan*
4:15 p.m.	***2007-01-1745***	***FEA Model Verification and Validation: Correlating Model with Field Test Data by Optimization Analysis*** *Jing Heng Wen, E-Z-GO, A Textron Company*
4:45 p.m.	***2007-01-1746***	***A Paradigm of Model Validation and Validated Models for Best-Estimate-Plus-Uncertainty Predictions in Systems Engineering*** *Vicente Romero, Sandia National Labs.*
5:15 p.m.	***2007-01-1741***	***A Parametric Vehicle Fuel Tank Filling System Model*** *Antoine Godbille, Martin Thomas Bayliss, Cranfield Univ.; Steven Pierson, Jaguar Cars, Ltd.*

The papers in this session are available in a single publication, SP-2119, and also individually.

Planned by Materials Modeling and Testing Committee / Materials Engineering Activity

Thursday, April 19

Vehicle Sensors and Actuators (Part 3 of 4)

Session Code: ***AE2***

Room W2-62 ***Session Time:*** ***9:00 a.m.***

Modern automotive customers need safer vehicles with little or no impact to the environment. This purpose of this session is to present the latest research and development on novel sensors, actuators, and sensor fusion that are critical to deliver the function of today's complex automotive systems.

Organizers - *Serdar H. Yonak, Toyota Motor Engineering and Manufacturing North America*

Time	***Paper No.***	***Title***
9:00 a.m.	***2007-01-0396***	***Cost Efficient Side Airbag Chip Set with Improved Signal Integrity*** *Dirk Hammerschmidt, Timo Dittfeld, Gerhard Pichler, Hubert Rothleitner, Michael Strasser, Derek Bernardon, Infineon Technologies AG*
9:30 a.m.	***2007-01-0393***	***Integrated Design and Functional Solution for a Camera Front-End in the Windshield Sensor Cluster*** *Frank Bläsing, Leopold Kostal GmbH & Co*
10:00 a.m.	***2007-01-0406***	***Wide Field of View (FOV) and High-Resolution Lidar for Advanced Driver Assistance Systems*** *Satoru Arita, David Goff, Omron Automotive Electronics Inc.; Hidenori Miyazaki, Wataru Ishio, Omron Corp.*

10:30 a.m.	***2007-01-0405***	***Stereo Vision System for Advanced Vehicle Safety System***
		Masayuki Usami, Kenichi Ohue, Hideo Ikai, Toyota Motor Corp.; Mitsuhiko Ohta, Toyota Central R&D Labs.; Tomoyasu Tamaoki, Toyota Technical Development corp.
11:00 a.m.	***2007-01-0402***	***The Advanced Sensor Fusion Algorithm for Pre-Crash Safety System***
		Jun Tsuchida, Setsuo Tokoro, Hiroaki Fujinami, Masayuki Usami, Toyota Motor Corporation

The papers in this session are available in a single publication, SP-2124, and also individually.

Planned by Electrical and Electronic Systems Committee / Automobile Electronic Activity

Thursday, April 19

Vehicle Sensors and Actuators (Part 4 of 4)

Session Code: ***AE2***

Room W2-62 ***Session Time:*** ***1:30 p.m.***

Modern automotive customers need safer vehicles with little or no impact to the environment. This purpose of this session is to present the latest research and development on novel sensors, actuators, and sensor fusion that are critical to deliver the function of today's complex automotive systems.

Organizers - *Serdar H. Yonak, Toyota Motor Engineering and Manufacturing North America*

Time	***Paper No.***	***Title***
1:30 p.m.	***2007-01-0403***	***An Experiment to Non-Intrusively Collect Physiological Parameters towards Driver State Detection***
		Yingzi Lin, Northeastern University; H. Cai, Northwestern Univ.
2:00 p.m.	***ORAL ONLY***	***Tuning Fork Sensors for In Situ Oil Condition Monitoring***
		Mark Uhrich, Visyx Technologies Inc.
2:30 p.m.	***2007-01-0392***	***Multiparameter Oil Condition Sensor Based on the Tuning Fork Principle***
		Uwe Knipper; Heiko Dobrinski, Andreas Buhrdorf, Olaf Ludtke, Hella Fahrzeugsysteme GmbH
3:00 p.m.	***2007-01-0399***	***A New Sensors Array for the Measurement of the Content of Fuel Dissolved in the Engine Oil***
		Antonio Paolo Carlucci, Universita degli Studi di Lecce; Simona Capone, Luca Francioso, Dominique Sara Presicce, Pietro Siciliano, CNR IMM
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-0394***	***Novel Fuel Sensor - Innovation for Cold Start Improvement and for the Prevention of Misfuelling***
		Hagen Mueller, Juergen Krome, Uwe Kuehnau, Hella KGaA Hueck & Co.

The papers in this session are available in a single publication, SP-2124, and also individually.

Planned by Electrical and Electronic Systems Committee / Automobile Electronic Activity

Thursday, April 19

Vehicle Dynamics and Simulation (Part 5 of 5): Vehicle Dynamics Simulations

Session Code: ***AC3***

Room W2-63 ***Session Time:*** ***9:00 a.m.***

This section presents some of the recent research done in the industry and academia in vehicle dynamics modeling and VDS software development. Effects of vehicle components like the shock absorber and ABS will also be presented.

Organizers - *Mohamed Kamel Salaani, Transportation Research Center Inc.; W. Riley Garrott, National Hwy Traffic Safety Admin; Mark Heitz, Transportation Research Center Inc.; Gary J. Heydinger, SEA, Ltd.; Janice K. Cooper, Transportation Research Center Inc.*

Chairpersons - *Mark Heitz, Transportation Research Center Inc.; Gary J. Heydinger, SEA, Ltd.*

Time	Paper No.	Title
9:00 a.m.	***2007-01-0810***	***Improvement of Vehicle Lateral Stability During Overtaking Process by Active Front Steering System***
		Walid Abdel Hady Oraby, Helwan Univ.
9:30 a.m.	***2007-01-0815***	***Development and Implementation of Path-Following Algorithm for an Autonomous Vehicle***
		Anmol Sidhu, David Mikesell, Ohio State Univ.; Ronald Bixel, Gary Heydinger, SEA, Ltd.; Dennis Guenther, Ohio State Univ.
10:00 a.m.	***2007-01-0818***	***Parameter Determination and Vehicle Dynamics Modeling for the National Advanced Driving Simulator of the 2006 BMW 330i***
		Mohamed Kamel Salaani, Transportation Research Center Inc.; Chris W. Schwarz, National Advanced Driving Simulator; Gary J. Heydinger, SEA, Ltd.; Paul A. Grygier, National Hwy Traffic Safety Admin.
10:30 a.m.	***2007-01-0823***	***A Study on Effects of Transient Steering Efforts Characteristics on Driver's Steering Behavior***
		Hiroshi Mouri, Masahiro Kubota, Nami Horiguchi, Nissan Motor Co., Ltd.
11:00 a.m.	***2007-01-0833***	***Using Quasi-Linearization for Real Time Dynamic Simulation of Quarter Vehicle Suspension***
		Stamat Stamatov, dSPACE Inc.; Mohan Krishnan, Sandra Yost, Univ. of Detroit Mercy
11:30 a.m.	***2007-01-0839***	***Refinements of a Heavy Truck ABS Model***
		Matthew Shurtz, Dennis A. Guenther, Gary J. Heydinger, Ohio State Univ.; Scott B. Zagorski, Transportation Research Center Inc.
	2007-01-0817	***Model Validation of the 2006 BMW 330i for the National Advanced Driving Simulator (Written Only -- No Oral Presentation)***
		Gary J. Heydinger, Ohio State Univ.; Chris W. Schwarz, National Advanced Driving Simulator; Mohamed Kamel Salaani, Transportation Research Center Inc.; Paul A. Grygier, National Hwy Traffic Safety Admin.
	2007-01-0822	***Vehicle-Trailer Handling Dynamics and Stability Control - an Engineering Review (Written Only -- No Oral Presentation)***
		Xiaodi Kang, Quantech Global Services; Weiwen Deng, General Motors Corp.
	2007-01-0841	***Enhanced Vehicle Lateral Stability in Crosswind by Limited State Kalman Filter Four Wheel Steering System (Written Only -- No Oral Presentation)***
		M.A. El-Nashar, M. B. Abdelhady, Walid Abdel Hady Oraby, S. R. El-Sinawy, Helwan Univ.
	2007-01-0845	***Evaluation of a Shock Model for Vehicle Simulation (Written Only -- No Oral Presentation)***
		Youngwook Ko, The Ohio State Univ.; Gary J. Heydinger, Dennis A. Guenther, SEA, Ltd.
	2007-01-0848	***Prediction Control Algorithm Based on Dynamic Stability Matrix Method for DSC (Written Only -- No Oral Presentation)***
		Liang Li, Jian Song, Cai Yang, Liangyao Yu, Tsinghua Univ.

The papers in this session are available in a single publication, SP-2138, and also individually.

Planned by Steering, Chassis and Suspension Committee / Automobile Chassis Activity

Thursday, April 19

Taste of Convergence 2006

Session Code: ***CONG200***

Room W2-64 ***Session Time:*** ***9:00 a.m.***

Advances have been remarkable since microprocessors first became part of the automobile in the 1970s, launching a new era of technological integration. The theme of Convergence 2006 was "Reinvent the Automobile" focused on the latest automotive electronics. Dr. Larry Burns, VP of R&D and Strategic Planning for GM and General Chair for the Conference fashioned the event around Powertrain, Safety and Connectivity electronics. This session consists of a selection of the best papers as nominated for Convergence awards as well as best presentations. Don't miss this chance to stay abreast of the leading electronic technologies and meet the authors.The Convergence Conference is owned by the Convergence Transportation Electronics Association (CTEA) and administered by SAE International.

Chairpersons - *Mark S. Rauchfuss, MSR Consulting and Engineering Inc.*

Time	Paper No.	Title
9:00 a.m.	***2006-21-0030 ****	***Wireless Communications for Vehicle Safety: Radio Link Performance and Wireless Connectivity Methods*** *Brian Gallagher, Hidehiko Akatsuka, DENSO International America, Inc.; Hideaki Suzuki, DENSO Corp.*
9:30 a.m.	***2006-21-0034 ****	***Digital Connectivity Trends for In-vehicle Systems*** *Fawaz S. Baltaji, Eric J. Olsen, Yazaki North America Inc.*
10:00 a.m.	***2006-21-0081 ****	***Driver State Assessment and Driver Support Systems*** *Harry Zhang, Motorola Research Labs; Matthew R. Smith, Gerald J. Witt, Delphi Electronics and Safety*
10:30 a.m.	***2006-21-0006 ****	***Key Factors to Improve Microcontroller Performance and Features*** *Patrick Leteinturier, Infineon Technologies AG*
11:00 a.m.	***2006-21-0017 ****	***A Shift From Providing to Enabling In-Car Infotainment in the Future*** *Wieland Holfelder, DaimlerChrysler RTNA Inc.; Matthias Stuempfle, DaimlerChrysler AG*

** Previously published and/or presented at the Convergence 2006*

Planned by Convergence Transportation Electronics Association Board / Board Permanent Committees Program O

Thursday, April 19

Achieving Lightweight Vehicles (Part 1 of 2)

Session Code: ***M4***

Room W2-65 ***Session Time:*** ***9:00 a.m.***

This session will feature the applications of various light-weight materials, including: polypropylene foams, aluminum, ductile iron castings, etc., to achieve light weight vehicles.

Organizers - *Gale Armstrong, Ford Motor Co.; Ken D. Forsythe, Alcoa Mill Products; James B. Goff, Ford Motor Co.; Seishi Kimura, General Motors Corp.*

Time	Paper No.	Title

9:00 a.m.	***2007-01-1720***	***Achieving Lightweight Flexible Rear Seat Systems Utilizing Expanded Polypropylene Foam***
		Satoru Shioya, Tom Gillette, Masaki Yokoyama, Masakazu Sakaguchi, Yasuhiko Yoneyama, JSP Corp.
9:30 a.m.	***2007-01-1721***	***Strategies for Managing Vehicle Mass throughout the Development Process and Vehicle Lifecycle***
		Thomas B. Glennan, General Motors Corp.
10:00 a.m.	***2007-01-1729***	***Development of Plastic Rear Seat Cushion Frame Using PP-LFT***
		Jonghyun Kim, Hyundai & Kia Corp.; Sangwoo Kim, Hyundai Motor Co. & KIA Motors Corp.; Chihoon Choi, Taewon Hwang, Hyundai Motor Co.; Inho Lee, Dymos; Sangnam Park, DYMOS Co.
10:30 a.m.	***2007-01-1723***	***Pickup Box Floor Assembly ¿ Design Sensitivity Studies***
		Kiran Mallela, Raj Sohmshetty, Jason Falenski, Paul E. Geck, Ford Motor Co.
11:00 a.m.	***2007-01-1727***	***IMPACT Phase II ¿ Study to Remove 25% of the Weight from a Pick-Up Truck***
		Paul Geck, James B. Goff, Raj Sohmshetty, Ford Motor Co.; Keith R. Laurin, Mittal Steel Corp.; Glen Prater, Univ. of Louisville; Vickie Furman, US Army, TACOM

The papers in this session are available in a single publication, SP-2105, and also individually.

Planned by Non-Ferrous Committee / Materials Engineering Activity

Thursday, April 19

Achieving Lightweight Vehicles (Part 2 of 2)

Session Code: ***M4***

Room W2-65 ***Session Time:*** ***1:30 p.m.***

This session will feature the applications of various light-weight materials, including: polypropylene foams, aluminum, ductile iron castings, etc., to achieve light weight vehicles.

Organizers - *Gale Armstrong, Ford Motor Co.; Ken D. Forsythe, Alcoa Mill Products; James B. Goff, Ford Motor Co.; Seishi Kimura, General Motors Corp.*

Time	***Paper No.***	***Title***
1:30 p.m.	***2007-01-1722***	***Mechanical Response of Composite Reinforced Aluminum Foam Sandwich Structures for Automotive Structures***
		German Reyes-Villanueva, A. Rasheed, A. Al Mutar, E. Farha, N. Lofti, Univ. of Michigan-Dearborn
2:00 p.m.	***2007-01-1724***	***Multi-Objective Design Optimization Applied to Light Weighting a GM Equinox Rear Cradle***
		K.E. Brister, M.F. Horstemeyer, Mississippi State Univ.; H. Fang, Univ. of North Carolina, Charlotte; C.L. Whitt, Mississippi State Univ.

Planned by Non-Ferrous Committee / Materials Engineering Activity

Thursday, April 19

Women Leading the Way in Renewable and Non-Petroleum Fuels and Associated Technologies

Session Code: ***WEC1***

Room W2-66 ***Session Time: 9:00 a.m.***

From their affiliate's vantage point, this session's panel will address the current state of many renewable fuels and fuels from non-petroleum sources including associated technologies to use these fuels. The fractions of fuels and oils from renewable and non-petroleum sources are providing challenges for those who make them as well as the end customers who use them. The topic crosses all categories of SAE: aerospace, on-road and off-road transportation, small engines. The panel will highlight women leading the way with these fuels and technologies.

Organizers - *Elana M. Chapman, Penn State University*

Time	Paper No.	Title
	Panel	***Barriers to Market Penetration for Biodiesel***
		Panelists - *Wendy Clark, National Renewable Energy Laboratory*
	Panel	***Using Renewable Alternatives to Lessen our Dependence on Fossil Fuels: But Let's Do it the Right Way***
		Panelists - *Rodica Baranescu, International Truck and Engine Corp.*
	Panel	***The Effects of Hydrogen Addition on Gasoline and Natural Gas Combustion and Emissions, in a Single-Cylinder SI Engine***
		Panelists - *Melanie Fox, Penn State University*
	Panel	***GM and Bio Fuels***
		Panelists - *Mary Beth Stanek, General Motors Corp.*
	Panel	***Next Generation Fuels and Caterpillar's Social Responsibility Initiatives***
		Panelists - *Hind Abi-Akar, Caterpillar Inc.*
	Panel	***Fueling U.S. Army Tactical Ground Vehicles with Unconventional Fuels***
		Panelists - *Patsy Muzzell, U.S. Army TARDEC National Automotive Center*

Thursday, April 19

Design Optimization - Methods and Applications (Part 2 of 2)

Session Code: ***B4***

Room W2-66 ***Session Time: 1:30 p.m.***

This session will focus on the tools and methodology for optimizing the process and products related to automotive applications.

Organizers - *Vesna Savic, GM Technical Center; Pattabhi Sitaram, General Motors Corp.; Donald D. Parker, Exponent Inc.*

Time	Paper No.	Title
1:30 p.m.	***2007-01-1544***	***Establishment of the Specification Design Technique by Multiple-Purpose Optimization of Sound Proof Package***
		Hiroko Tada, Fumihiko Ide, Honda R&D Co., Ltd.; Tadashi Sasaki, Jun Hsu, Engineous Software
2:00 p.m.	***2007-01-1538***	***Establishment of a Method for Predicting and Confirming Fuel Tank Sloshing Noise***
		Masashi Kamei, Junichi Hanai, Wataru Fukasawa, Takaomi Makino, Nissan Motor Co., Ltd.
2:30 p.m.	***2007-01-1540***	***A Design Process Using Body Panel Beads for Structure-Borne Noise***
		Hyosig Kim, Seongho Yoon, Renault Samsung Motors Co.

	2007-01-1545	***Design Optimization of a Plug-In Hybrid Electric Vehicle (Written Only -- No Oral Presentation)***
		Sam Golbuff

The papers in this session are available in a single publication, SP-2078, and also individually.

Planned by Body Engineering Committee / Automobile Body Activity

Thursday, April 19

Tire and Wheel Technology

Session Code: ***AC4***

Room W2-67 ***Session Time:*** ***9:00 a.m.***

The Tire Wheel Technology session will be a half-day program with papers on a broad range of topics. Wheel finishes and corrosion features of aluminum wheels will be the themes for wheels. Tire papers on the subjects of modeling, runflat technology, rubber properties, and noise prediction will be presented.

Organizers - *John D. Andrus, General Motors Corp.; Timothy A. Marantis, Bridgestone/Firestone NA Tire Co.; Rick S. Wallace, General Motors Corp.; Saied Taheri, Goodyear Tire & Rubber Co.; Neel K. Mani, Bridgestone Americas Holding Inc.*

Time	***Paper No.***	***Title***
9:00 a.m.	***2007-01-1530***	***Coatings Durability and Mechanical Reliability of PVD - Bright Chrome Coated Aluminum Wheels***
		Charles J. Russo, Textron
9:30 a.m.	***2007-01-1532***	***Runflat-Technology and its Impact on Design and Durability of Wheels***
		Ruediger Heim, Ivo Krause, Steffen Weingaertner, Fraunhofer Institute LBF
10:00 a.m.	***2007-01-1529***	***Tire Rolling Resonance from Cleat Impact***
		Yitzong (Jim) Chern, Rena L. Basch, Ford Motor Co.
10:30 a.m.	***2007-01-1533***	***Vehicle Interior Noise Prediction Using Tire Characteristics and Vehicle Transmissibility***
		Takanari Saguchi, Bridgestone Corp.; Paul Zakelj, Bridgestone Firestone Inc.; Keita Yumii, Bridgestone Corp.
	2007-01-1527	***Experimental and Theoretical Studies of Rubber Properties; The Application to Tyre Tread Rubber (Written Only -- No Oral Presentation)***
		Hiroshi Yokohama, Stephen D. Hall, Robert B. Randall, Univ. of New South Wales

Planned by Tire and Wheel Committee / Automobile Chassis Activity

Thursday, April 19

Intelligent Transportation Systems-Safer, Smarter, Faster

Session Code: ***AE26***

Room W2-67 ***Session Time:*** ***1:30 p.m.***

Intelligent Transportation Systems (ITS) includes smart vehicles, smart roads and infrastructure, and wired and wireless communications to link them together. This session will provide insights and progress reports on the latest ITS research, development, and deployment around the world.

Organizers - *Richard J. Weiland, Ygomi LLC*

Time	***Paper No.***	***Title***

1:30 p.m.	***2007-01-1738***	***Advanced Driver Assistance: Chances and Limitations on the Way to Improved Active Safety***
		Klaus Kompass, Werner Huber, BMW Group
2:00 p.m.	***2007-01-1737***	***An Analysis of Differences between the Evolving United States and European Dedicated Short Range Communications (DSRC) Systems***
		C. Christopher Kellum, General Motors Corp.; Matthias Deegener, Adam Opel GmbH
2:30 p.m.	***2007-01-1736***	***Flexible Low Cost Lane Departure Warning System***
		Kurt J. Oster, Matthew Fornero, Dan Lingenfelter, Sahm Litkouhi, Ryan Ong, Univ. of Michigan-Ann Arbor
3:00 p.m.	***2007-01-1739***	***Adaptive In-Vehicle Information Systems and Their Usability Evaluation***
		Cui Li; Blair Nonnecke, Judi McCuaig, Univ. of Guelph

Planned by Electrical and Electronic Systems Committee / Automobile Electronic Activity

Thursday, April 19

Thermal Systems Components

Session Code: ***HX3***

Room W2-68 ***Session Time:*** ***9:00 a.m.***

Session HX3 consists of papers relating to thermal management components addressing design and/or application topics.

Organizers - *Ronald Semel, Ricardo Inc.*

Time	***Paper No.***	***Title***
9:00 a.m.	***2007-01-1523***	***Double-pipe Internal Heat Exchanger for Efficiency Improvement in Front Automotive Air Conditioning System***
		Shun Kurata, Takahisa Suzuki, Kenji Ogura, DENSO Corp.
9:30 a.m.	***2007-01-1522***	***Flow Induced Noise Emanating from Evaporator Tube Plates***
		Sunil Mehendale, Delphi Corp.; David C. Adams, Norman R. Miller, Creative Thermal Solutions Inc.
10:00 a.m.	***2007-01-1526***	***Feasibility Study of Polypropylene Based Compounds for Radiator Tank Applications***
		Sameer Desai, Mohammed M. Ansari, Valeo Engine Cooling Inc.
10:30 a.m.	***2007-01-1525***	***Experimental Study of Automotive Cooling Fan Aerodynamics***
		Nicholas Gifford, Eric Savory, Univ. of Western Ontario; Robert Martinuzzi, Univ. of Calgary

The papers in this session are available in a single publication, SP-2132, and also individually.

Planned by Vehicular Thermal Management Activity / EMB Land and Sea Group

Thursday, April 19

Advances in Coating Technology

Session Code: ***M12***

Room W2-68 ***Session Time:*** ***1:30 p.m.***

Coatings used for metal substrates are the focus for the 2007 SAE Advances in Coatings Technology session. Papers will be given on several types of applications. The papers range from new conductive primers for the auto body to durable diamond like coatings or ecoat bath filtration systems to autodeposition coatings.

Organizers - *William J. Welland, Hyundai America Technical Center Inc.*

Time	Paper No.	Title
1:30 p.m.	***2007-01-1753***	***Novel Filtration System Improves Performance of Pre-Treatment and Electro-Deposition Stages of an Automotive Assembly Plant***
		Pauline Paul, Cuno Inc., A 3M Company
2:00 p.m.	***2007-01-1751***	***Autodeposition Coatings: How and Why They Perform***
		William E. Fristad, Omar Abu-Shanab, Henkel Corp.
2:30 p.m.	***2007-01-1750***	***Performance of Conductive Pre-Primers Applied on Galvanized Steel Sheets for Automotive Bodies***
		D. Santos, H. Raminhos, M. R. Costa, T. Diamantino, INETI; Frank E. Goodwin, Intl. Lead Zinc Research Organization
3:00 p.m.	***2007-01-1748***	***Development of High Wear Resistant and Durable Coatings for Al Valve Spring Retainer***
		Jeong Uk Ahn, Seung-Kyun Ahn, Jong-Dae Lim, Hyundai Motor Co.
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-1752***	***The Development of Hydrogen-Free DLC Coated Valve-Lifter***
		Yutaka Mabuchi, Takahiro Hamada, Hiroyuki Izumi, Yoshiteru Yasuda, Nissan Motor Co. Ltd.; Makoto Kano, Kanagawa Industrial Technology Center
	2007-01-1755	***New Selectively Absorbing and Scattering Heat-Insulating Coatings of the Combustion Chamber for the Low-Heat-Rejection Diesel (Written Only -- No Oral Presentation)***
		Vladimir Merzlikin, Oleg Sidorov, Marcos Gutierrez, Timonin Vladimir, Moscow State Technical Univ.

The papers in this session are available in a single publication, SP-2074, and also individually.

Planned by Polymers and Coatings Committee / Materials Engineering Activity

Thursday, April 19

Electronic Engine Controls (Part 5 of 6)

Session Code: ***PFL17***

Room W2-69 ***Session Time:*** ***9:00 a.m.***

The Electronic Engine Controls session covers advanced control and on-board-diagnostic strategies and related topics including control-oriented system modeling, signal processing, sensors and actuators, electronic control units, system integration and implementation.

Organizers - *Patrick Leteinturier, Infineon Technologies AG; Peter J. Maloney, The MathWorks Inc.; James C. Peyton-Jones, Villanova University*

Time	Paper No.	Title
9:00 a.m.	***2007-01-1508***	***Knock Indexes Thresholds Setting Methodology***
		Enrico Corti, Davide Moro, University of Bologna
9:30 a.m.	***2007-01-1509***	***Knock Signal Conditioning using the Discrete Fourier Transform and Variable Detection Window Length***
		Matthew J. Kearney, Delphi
10:00 a.m.	***2007-01-1507***	***A Real Time Statistical Method for Engine Knock Detection***
		Gang Wu, Visteon Corp.

10:30 a.m.	***2007-01-1510***	***Individual Cylinder Combustion Control based on Real-Time Processing of Ion Current Signals***
		Nicolo Cavina, Davide Moro, University of Bologna; Luca Poggio, Daniele Zecchetti, Ferrari Auto SpA; Riccardo Nanni, Andrea Gelmetti, Eldor Corporation SpA
11:00 a.m.	***2007-01-1506***	***Downsized SI Engine Control : A Torque-Based Design from Simulation to Vehicle***
		Guenael Le Solliec, Fabrice Le Berr, Gilles Corde, IFP, France; Guillaume Colin, LME, France

The papers in this session are available in a single publication, SP-2087, and also individually.

Planned by Control and Calibration Committee / Powertrain Fuels and Lubricants Activity

Thursday, April 19

Electronic Engine Controls (Part 6 of 6)

Session Code: ***PFL17***

Room W2-69 ***Session Time:*** ***1:30 p.m.***

The Electronic Engine Controls session covers advanced control and on-board-diagnostic strategies and related topics including control-oriented system modeling, signal processing, sensors and actuators, electronic control units, system integration and implementation.

Organizers - *Patrick Leteinturier, Infineon Technologies AG; Peter J. Maloney, The MathWorks Inc.; James C. Peyton-Jones, Villanova University*

Time	***Paper No.***	***Title***
1:30 p.m.	***2007-01-1597***	***Engine Crankshaft Position Tracking Algorithms Applicable for Given Arbitrary Cam- and Crank-Shaft Position Signal Patterns***
		Junmin Wang, Jayant V. Sarlashkar, Southwest Research Institute
2:00 p.m.	***2007-01-1599***	***Speed and Acceleration Filters/Estimators for Powertrain and Vehicle Controls***
		Jyh-Shin Chen, General Motors Corp.
2:30 p.m.	***2007-01-1596***	***A Control Strategy Based on Exact Linearization for Electromagnetic Valve Actuation***
		Yudong Zhao, Rongwei Huang, Tsinghua Univ.
3:00 p.m.	***2007-01-1600***	***Laser Spark Plug Development***
		Dustin L. McIntyre, Steven Douglas Woodruff, Steven W. Richardson, Michael H. McMillian, U.S. Dept. of Energy; Mridul Gautam, West Virginia Univ.
3:30 p.m.		***BREAK***
3:45 p.m.	***2007-01-1598***	***Design of Engine Control Systems for Large Heavy Duty Applications***
		Johan Pensar, Wärtsilä Finland Oy
4:15 p.m.	***2007-01-1601***	***A User Configurable Powertrain Controller with Open Software Management***
		Matthew Rhoads, John R. Wagner, Clemson University
	2007-01-1602	***A Distributed Engine Management System for Formula SAE (Written Only -- No Oral Presentation)***
		Johan Eriksson, Per Lindgren, Jan van Deventer, Lulea University of Technology

The papers in this session are available in a single publication, SP-2087, and also individually.

Planned by Control and Calibration Committee / Powertrain Fuels and Lubricants Activity

Thursday, April 19

Safety-Critical Systems (Part 3 of 3)

Session Code: ***AE5***

Room W2-70 ***Session Time:*** ***9:00 a.m.***

The submissions for the safety-critical systems session describe the application of standards and norms relevant to automotive development processes, explain new or enhanced methods for safety-critical software or system design processes, or are about the design, implementation, and validation of specific safety-related systems and functions in the car.

The focus of the session lies on presentations about software and systems hazard analysis, construction of safety-relevant systems and software, methods for error detetection and integration of safety requirements in the design of communication networks. Further topics covered are on simulation and prototyping experiences of safety-critical functions such as chassis control, brake-by-wire and steer-by-wire. Additional presentations are on the relation of standards for the development of safety-critical systems/software such as IEC61508 to existing and upcoming development processes in the automotive industry.

Organizers - *Brian Murray, Delphi Corp.; Markus Plankensteiner, Stefan Poledna, TTTech. Computertechnik AG; Heike Voigt, TTAutomotive Software GmbH*

Time	Paper No.	Title
9:00 a.m.	***~~2007-01-1496~~*** ***ORAL ONLY***	***A New Approach to Diagnostics based on the Statistical Correlation of Sensors*** *Siddharth H. D'Silva, Laci Jalics, Mark Krage, Delphi Corporation*
9:30 a.m.	***2007-01-1487***	***ESCAPE CAN Limitations*** *Brendan Hall, Michael Paulitsch, Kevin R. Driscoll, Honeywell; Hakan Sivencrona, Mecel Engine Systems AB*
10:00 a.m.	***2007-01-1492***	***FlexRay BRAIN Fusion A FlexRay-Based Braided Ring Availability Integrity Network*** *Brendan Hall, Honeywell International; Michael Paulitsch, Kevin R. Driscoll, Honeywell*
	2007-01-1499	***Enforcing Fail-silence in the Entire FlexRay Communication Cycle (Written Only -- No Oral Presentation)*** *Kai Wang*

The papers in this session are available in a single publication, SP-2121, and also individually.

Planned by Electrical and Electronic Systems Committee / Automobile Electronic Activity

Thursday, April 19

Front and Rear Bumper Systems

Session Code: ***M13***

Room W2-70 ***Session Time:*** ***1:30 p.m.***

An update on new developments within front and rear bumper systems. Three papers address some of the regulations and advancements in lower leg pedestrian impact. Two of the papers address the new IIHS low speed impact test protocol and what factors contribute to good results for this test.

Organizers - *David Chon, Netshape LLC*

Time	Paper No.	Title

1:30 p.m.	***2007-01-1758***	***Prototype Design and Testing of a Global Energy Absorber for Coupled Pedestrian and Vehicle Protection***
		E. Jaarda, GE Plastics; D. Nagwanshi, GE India Technology Center
2:00 p.m.	***2007-01-1760***	***Corner Protection in Low-Speed Crashes***
		David A. Aylor, Joseph M. Nolan, Insurance Institute for Highway Safety; Matthew J. Avery, Motor Insurance Repair Research Centre; Alix Mary Weekes, Thatcham MIRRC
2:30 p.m.	***2007-01-1762***	***Development of Expanded Polypropylene (EPP) Bumper Systems to Meet Emerging Performance and Safety Standards***
		Robert Doerr, Nurul Huda, JSP International; Gavin Newlands, Tim Keer, Arup
3:00 p.m.	***2007-01-1763***	***Energy Absorber Developments and Correlation for Lower Leg Pedestrian Impacts***
		David Chon, Dhiraj Uikey, Raheem Mohammed, Netshape International, LLC
	2007-01-1764	***Design and Optimization of a New Automotive Foam Energy Absorbing Bumper System with Composite Shell (Written Only -- No Oral Presentation)***
		Ali Khadiv, Mehdi Amiri, TARH NEGASHT Co.

The papers in this session are available in a single publication, SP-2117, and also individually.

Planned by Polymers and Coatings Committee / Materials Engineering Activity