FINAL ANNOUNCEMENT

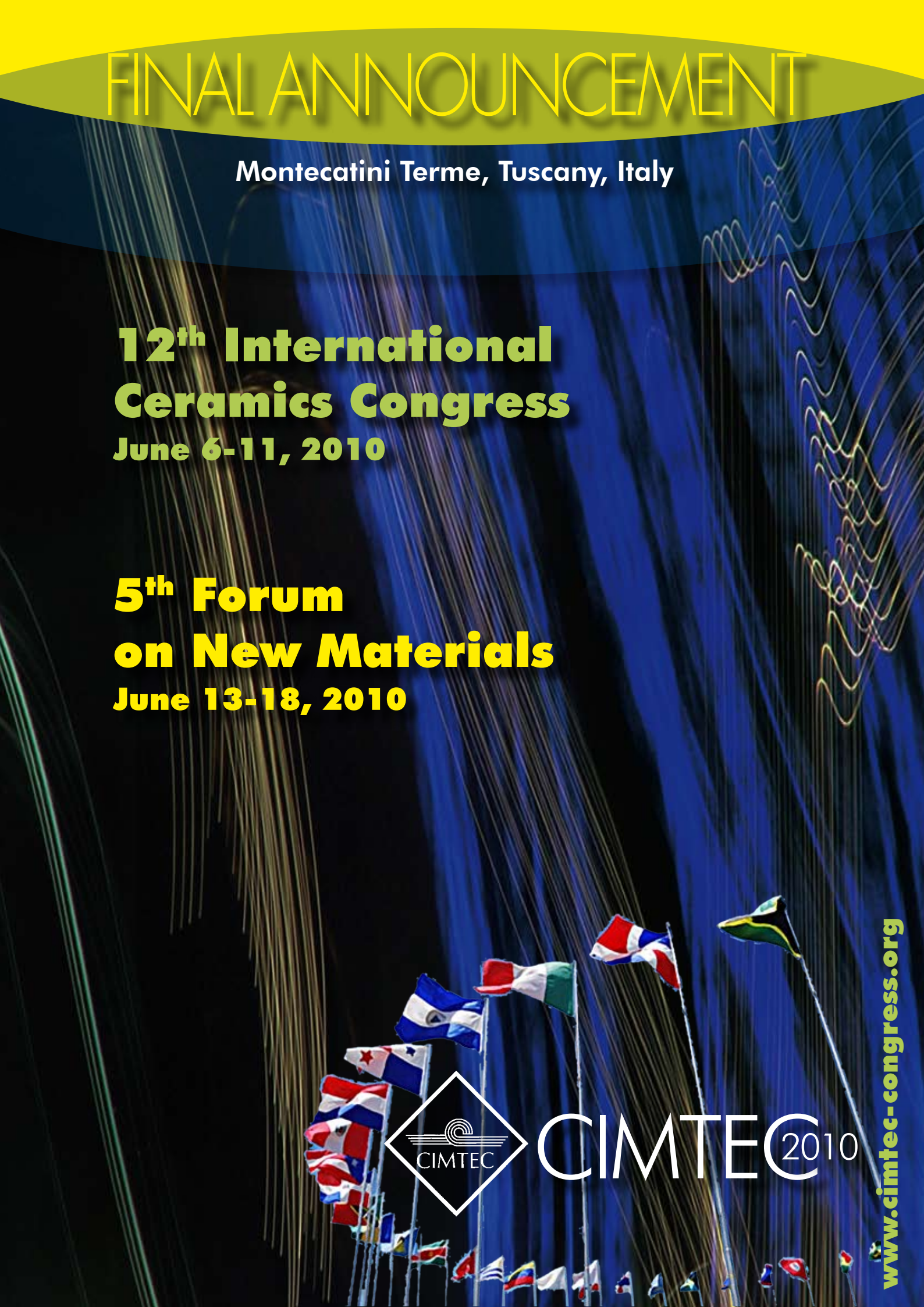
Montecatini Terme, Tuscany, Italy

12th International Ceramics Congress

June 6-11, 2010

5th Forum on New Materials

June 13-18, 2010



CIMTEC 2010

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CIMTEC 2010

12th INTERNATIONAL CERAMICS CONGRESS

Flowsheet

	JUNE 6		JUNE 7		JUNE 8		JUNE 9		JUNE 10		JUNE 11	
	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
REGISTRATION												
SYMPOSIUM CA				CA	CA	CA	CA		CA	CA	CA	
SYMPOSIUM CB				CB	CB	CB	CB		CB	CB	CB	
Focused Session CB-11				CB-11	CB-11	CB-11	CB-11		CB-11	CB-11	CB-11	
Focused Session CB-12				CB-12	CB-12	CB-12			CB-12	CB-12		
SYMPOSIUM CC							CC			CC	CC	
SYMPOSIUM CD				CD	CD		CD		CD			
SYMPOSIUM CE				CE	CE	CE	CE		CE	CE	CE	
SYMPOSIUM CF				CF	CF	CF	CF		CF	CF	CF	
SYMPOSIUM CG				CG	CG	CG	CG		CG	CG	CG	
SYMPOSIUM CH				CH	CH	CH	CH		CH	CH	CH	
Focused Session CH-6				CH-6		CH-6	CH-6		CH-6	CH-6	CH-6	
SYMPOSIUM CI				CI	CI	CI	CI		CI	CI	CI	
SYMPOSIUM CJ				CJ	CJ	CJ	CJ		CJ	CJ	CJ	
SYMPOSIUM CK				CK	CK	CK	CK		CK	CK	CK	
SYMPOSIUM CL				CL	CL	CL	CL		CL			
CONFERENCE CM				CM	CM	CM	CM		CM	CM	CM	
CONFERENCE CN					CN	CN	CN		CN	CN	CN	
POSTER MOUNTING		◆	◆	◆								
POSTER DISCUSSION										◆		
SOCIALS				●				●			●	●

PLENARY SESSION

● OPENING CONCERT ● TOUR TO FLORENCE ● TOUR TO PISA ● CONFERENCE DINNER

Invitation to attend

The 12th edition of the International Conferences on Modern Materials and Technologies (CIMTEC 2010) to be held in Montecatini Terme, Tuscany, Italy will consist of the 12th International Ceramics Congress (June 6-11) and of the 5th Forum on New Materials (June 13-18). Celebrating forty years of its long standing involvement as a major event for the international materials community, CIMTEC will again gather together a large and qualified attendance of materials scientists and of experts of a wide range of the most demanding uses of modern materials, from the molecular and nanoscales to large complex integrated systems. Most relevant areas whose progress and implementation is crucial for a vital and sustainable world economy will be covered by the about two thousand contributions presented by experts from over 60 Countries.

The Chair, Co-chairs and CIMTEC 2010 Committees invite you to foster progress in the field by participating in what promises to be a premier event for the world materials community, and to enjoy the unique artistic heritage and wonderful landscape of Tuscany.

Pietro Vincenzini
General Chair CIMTEC Conferences
Chairman World Academy of Ceramics (WAC)

Co-chairs CIMTEC 2010
Akio Makishima
President International Ceramic Federation (ICF)
Robert P.H. Chang
General Secretary International Union of Materials Research Societies (IUMRS)

Welcome to CIMTEC 2010!

SUMMARY

CONGRESS COMMITTEES

Chair

Pietro Vincenzini
World Academy of Ceramics

Co-Chair

Akio Makishima
International Ceramic Federation

Advisory Boards

SYMPOSIUM CA - Ceramic Powders: Synthesis, Processing and Sintering

Programme Chair: Jean François Baumard, *France* *Members:* Mufit Akinc, *USA* Lennart Bergstrom, *Sweden* Stuart Blackburn, *UK* Aldo R. Boccaccini, *Germany* Paul Bowen, *Switzerland* Francis J. Cambier, *Belgium* W. Roger Cannon, *USA* C. Barry Carter, *USA* I-Wei Chen, *USA* Hans-Eckart Exner, *Germany* Gideon Grader, *Israel* Krzysztof Haberko, *Poland* Stuart Hampshire, *Ireland* Juergen G. Heinrich, *Germany* Yoshihiro Hirata, *Japan* Junichi Hojo, *Japan* Hae Jin Hwang, *Korea* Frank Kern, *Germany* Doh-Yeon Kim, *Korea* Mikito Kitayama, *Japan* Sridhar Komarneni, *USA* Fred Lange, *USA* Romano Lapasin, *Italy* Rodrigo Moreno, *Spain* Eugene A. Olevsky, *USA* Momcilo M. Ristic, *Serbia* Jürgen Rödel, *Germany* Andreas Roosen, *Germany* Yoshio Sakka, *Japan* Saburo Sano, *Japan* C.C. Sorrell, *Australia* Satoshi Tanaka, *Japan* Veena Tikare, *USA* Jose Arana Varela, *Brazil* Koji Watari, *Japan* Guo-Jun Zhang, *China*

SYMPOSIUM CB - Novel Routes for Ceramics Synthesis and Processing

Programme Chair: Ralf Riedel, *Germany* *Members:* Dinesh K. Agrawal, *USA* David Avnir, *Israel* Florence Babonneau, *France* Joachim Bill, *Germany* J.P.G. Binner, *UK* Christian Bonhomme, *France* Raj Bordia, *USA* Jin-Ho Choy, *Korea* Mark M. De Guire, *USA* Etienne Duguet, *France* Mohan Edirisinghe, *UK* Nahum Frage, *Israel* Takashi Goto, *Japan* Peter Greil, *Germany* Keijiro Hiraga, *Japan* Nicola Huesing, *Germany* Hubert Huppertz, *Austria* Leonard V. Interrante, *USA* Edwin Kroke, *Germany* Terence G. Langdon, *USA* Ya-Li Li, *China* Yoshitake Masuda, *Japan* Gary Messing, *USA* Philippe Miele, *France* Kazuki Nakanishi, *Japan* Takeshi Okutani, *Japan* Clément Sanchez, *France* Tsugio Sato, *Japan* Toshimori Sekine, *Japan* Yoshiyuki Sugahara, *Japan* Yoko Suyama, *Japan* Naresh N. Thadhani, *USA* Omer Van Der Biest, *Belgium* Monika Willert-Porada, *Germany* Masahiro Yoshimura, *Japan*

Focused Session CB-11 - Self-propagating High-temperature Synthesis of Ceramics

Chair: Alexander G. Merzhanov, *Russia* *Coordinator:* Hamazasp E. Grigoryan, *Russia* *Members:* Frédéric Bernard, *France* Inna P. Borovinskaya, *Russia* Giacomo Cao, *Italy* Elazar Gutmanas, *Israel* Suren Kharatyan, *Armenia* Evgeny Levashov, *Russia* Jerzy Lis, *Poland* Alexander Mukasyan, *USA* Zuhair A. Munir, *USA* Manshi Ohyanagi, *Japan* Roman Pampuch, *Poland* Alexander E. Sytschev, *Russia* Galina Xanthopoulou, *Greece*

Focused Session CB-12 - Layered and Functionally Graded Materials

Chair: Changchun GE, *P.R. China* *Members:* Serkan Dag, *Turkey* Moshe P. Dariel, *Israel* Martin Friess, *Germany* Michael M. Gasik, *Finland* Jae-Ho Jeon, *Korea* Akira Kawasaki, *Japan* Jeong-Ho Kim, *USA* Kiyotaka Matsuura, *Japan* Luis Augusto Rocha, *Portugal* Alexander S. Rogachev, *Russia*

SYMPOSIUM CC - Progress in the Understanding and Control of Ceramics Surfaces for Tribology and Corrosion

Programme Chair: Mark Hadfield, *UK* *Members:* Koshi Adachi, *Japan* Yasuhisa Ando, *Japan* Christopher Dellacorte, *USA* Jay Fineberg, *Israel* Mike Graham, *Canada* Richard H.J. Hannink, *Australia* Kiyoshi Hirao, *Japan* Masami Ikeyama, *Japan* Lars-Gunnar Johansson, *Sweden* Thomas Klassen, *Germany* Tapio Mantyla, *Finland* Denis Mazuyer, *France* Ronald A. Mccauley, *USA* James D. Mcguffin-Cawley, *USA* Kouji Miura, *Japan* Klaus G. Nickel, *Germany* Nobuo Ohmae, *Japan* Andreas A. Polycarpou, *USA* W. Mark Rainforth, *UK* W. Gregory Sawyer, *USA* James L. Smialek, *USA* Mineo Suzuki, *Japan* Karl-Heinz Zum Gahr, *Germany*

SYMPOSIUM CD - Ceramic Joining

Programme Chair: Alberto Passerone, Italy *Members:* Mathieu Brochu, *Canada* Robin A.L. Drew, *Canada* Christian Elsaesser, *Germany* Nikos Eustathopoulos, *France* John A. Fernie, *UK* Natalya

Froumin, *Israel* Masahiro Fukumoto, *Japan* Andreas Glaeser, *USA* Mark Hoffman, *Australia* Wayne Kaplan, *Israel* Kevin M. Knowles, *UK* Charles Lewinsohn, *USA* Y. Naidich, *Ukraine* Kiyoshi Nogi, *Japan* Ivar E. Reimanis, *USA* Manfred Roth, *Switzerland* Natalia Sobczak, *Poland* Tadatomo Suga, *Japan* Katsuaki Suganuma, *Japan* Shun-Ichiro Tanaka, *Japan* Antoni P. Tomsia, *USA*

SYMPOSIUM CE - Ceramics and Composites in Extreme Environments

Programme Chair: Sheldon Wiederhorn, Nist, *USA* *Members:* Fritz Aldinger, *Germany* Narottam P. Bansal, *USA* Michel Barsoum, *USA* Theodore M. Besmann, *USA* Philippe Colomban, *France* Robert Danzer, *Austria* Goffredo De Portu, *Italy* Jan Dusza, *Slovakia* William A. Ellingson, *USA* Gilbert Fantozzi, *France* Adrian Goldstein, *Israel* Georg Grathwohl, *Germany* Greg Hilmas, *USA* Michael J. Hoffmann, *Germany* Karl Jakus, *USA* Sylvia Johnson, *USA* Katsutoshi Komeya, *Japan* Edgar Lara-Curzio, *USA* Laura Montanaro, *Italy* Mats Nygren, *Sweden* Giuseppe Pezzotti, *Japan* Abel Rousset, *France* Pavol Sajgalík, *Slovakia* Gerold Schneider, *Germany* Vincenzo M. Sglavo, *Italy* Vladimir Ja Shevchenko, *Russia* Rolf Steinbrech, *Germany* Tierry Tiegs, *USA* Wei-Hsing Tuan, *Taiwan* Fumihiro Wakai, *Japan* Yanchun Zhou, *China*

SYMPOSIUM CF - Ceramics for Chemical, Electrochemical and Environmental Applications

Programme Chair: Paolo Colombo, *Italy* *Members:* Sheikh A. Akbar, *USA* Florence Ansart, *France* Mario Aparicio, *Spain* Alan Atkinson, *UK* Juana Benavente Herrera, *Spain* Henny J.M. Bouwmeester, *The Netherlands* Carlo Cantalini, *Italy* M.D. De Mello Innocentini, *Brazil* Sylvain Deville, *France* Scott W. Donne, *Australia* Jose L.G. Fierro, *Spain* Ludwig Gauckler, *Switzerland* Tatsumi Ishihara, *Japan* Saiful Islam, *UK* Ellen Ivers-Tiffee, *Germany* Yuji Iwamoto, *Japan* Nitin Labhsetwar, *India* Jan Luyten, *Belgium* Alessandro Martucci, *Italy* Kazushige Ohno, *Japan* Alain Pierre, *France* Aleksander Pyzik, *USA* Armin Reller, *Germany* Yoshihiko Sadaoka, *Japan* Michael Scheffler, *Germany* Richard Sisson, *USA* Fabio Spizzo, *Italy* Jeffry W. Stevenson, *USA* Henk Verweij, *USA* Anil V. Virkar, *USA* Ulrich Vogt, *Switzerland* Toshiya Watanabe, *Japan* Anthony R. West, *UK* Sujanto Widjaja, *USA* Wojtek Wlodarski, *Australia* Atsuo Yamada, *Japan* Jinhua Ye, *Japan*

SYMPOSIUM CG - Ceramic Thin Films and Coatings for Protective, Tribological and Multifunctional Applications

Programme Chair: Ghislain Montavon, *France* *Members:* Sergey E. Alexandrov, *Russia* Samir Aouadi, *USA* Christoper C. Berndt, *Australia* Maher I. Boulos, *Canada* Raymond (Reuven) Boxman, *Israel* Viorel T. Braic, *Romania* Yip-Wah Chung, *USA* W.J. Clegg, *UK* Diederik Depla, *Belgium* Dongfeng Diao *China* Izhak Etsion, *Israel* Martin Fenker, *Germany* Steven L. Girshick, *USA* Wayne L. Gladfelter, *USA* Gregory Goh, *Singapore* Vladimir Gorokhovsky, *USA* Philippe Goudeau, *France* Papken Hovsepian, *UK* Ulf Jansson, *Sweden* Kwang-Ho Kim, *South Korea* Yoshinori Koga, *Japan* Seiji Kuroda, *Japan* Nadhira Laidani, *Italy* Erich Lugscheider, *Germany* Christian Mitterer, *Austria* Christian Moreau, *Canada* Javad Mostaghimi, *Canada* Chris Muratore, *USA* Daniel Nelias, *France* Paolo M. Ossi, *Italy* Nitin P. Padture, *USA* Joerg Patscheider, *Switzerland* Sophoclis Patsias, *UK* Rosendo Sanjines, *Switzerland* Naruo Sasaki, *Japan* Jochen M. Schneider, *Germany* Uwe Schulz, *Germany* Fuh-Sheng Shieu, *Taiwan* Dmitry V. Shtansky, *Russia* José Filipe Vilela Vaz, *Portugal* Bogdan G. Wendler, *Poland* Ping Xiao, *UK* Xian Ting Zeng, *Singapore* Sam Zhang, *Singapore*

SYMPOSIUM CH - Advances in Electrical, Magnetic and Optical Ceramics

Programme Chair: Vojislav V. Mitic, *Serbia* *Members:* Jun Akedo, *Japan* Neil Alford, *UK* Wolfgang Benecke, *Germany* Amar Bhalla, *USA* Guozhong Cao, *USA* Xiang Ming Chen, *China* Jose Maria De Teresa, *Spain* Brahim Elouadi, *France* Mohammed Es-Souni, *Germany* Albert Figueras, *Spain* Robert Freer, *UK* Daniel Guyomar, *France* Hajime Haneda, *Japan* Heli Jantunen, *Finland* Peter Kazansky, *UK* Eung Soo Kim, *Korea* Toshio Kimura, *Japan* Hermann Kohlstedt, *Germany* Makoto Kuwabara, *Japan* Alexander A. Lebedev, *Russia* Yongxiang Li, *China* Longtu Li, *China* Bill Milne, *UK* Sahn Nahm, *Korea* Toshio Ogawa, *Japan* Maria Lorena Pardo Mata, *Spain* David A. Payne, *USA* Gary R. Pickrell, *USA* Shashank Priya, *USA* Jianrong Qiu, *China* Vito Raineri, *Italy* Ramamoorthy Ramesh, *USA* Ahmad Safari, *USA* Nava Setter, *Switzerland* Yuichi Shimakawa, *Japan* Derek C. Sinclair, *UK* Arthur W. Sleight, *USA* Mas Subramanian, *USA* Danilo Suvorov, *Slovenia* Philippe Tailhades, *France* Yuri D. Tretyakov, *Russia* Susan Trolier-Mckinstry, *USA* Hong Wang, *China* Zuo-Guang Ye, *Canada* Ki Hyun Yoon, *Korea* Weiguang Zhu, *Singapore*

Focused Session CH-6 - Multiferroics

Chair: Alois Loidl, *Germany* *Members:* Agnes Barthelemy, *France* Mirza I. Bichurin, *Russia* Mark Blamire, *UK* Long-Qing Chen, *USA* Sang-Wook Cheong, *USA* Manfred Fiebig, *Germany* Michael Karkut, *France* Michel Kenzelmann, *Switzerland* Andrei L. Kholkin, *Portugal* Ce-Wen Nan, *China* Beatriz Noheda, *The Netherlands* Masanori Okuyama, *Japan* Ernie Pan, *USA* Juan-Manuel Perez-Mato, *Spain* J.F. Scott, *UK* Gopalan Srinivasan, *USA* Pam A. Thomas, *UK* Yoshinori Tokura, *Japan* Dwight Viehland, *USA*

CONGRESS COMMITTEES

SYMPOSIUM CI - Magnetic and Transport Properties of Oxides

Programme Chair: Dino Fiorani, *Italy* *Members:* Emilio Bellingeri, *Italy* Ami Berkowitz, *USA* Maurizio Ferretti, *Italy* Josep Fontcuberta, *Spain* Atsushi Fujimori, *Japan* Tomoji Kawai, *Japan* Tsuyoshi Kimura, *Japan* Hideomi Koinuma, *Japan* David Look, *USA* Fabio Miletto Granozio, *Italy* Liliana Mitoseriu, *Romania* Takashi Mizokawa, *Japan* Isabelle Monot-Laffez, *France* Satishchandra B. Ogale, *India* Giorgio Piccaluga, *Italy* Bernard Raveau, *France* Naurang L. Saini, *Italy* D.S. Schmool, *Portugal* Jean-Marc Triscone, *Switzerland* David Vanderbilt, *USA* Yonggang Zhao, *P.R. China*

SYMPOSIUM CJ - Science and Technology for Silicate Ceramics

Programme Chair: Michele Dondi, *Italy* *Members:* Magdi F. Abadir, *Egypt* Nitin V. Afzulpurkar, *Thailand* George N. Angelopoulos, *Greece* Giovanni Baldi, *Italy* Philippe Blanchart, *France* Anselmo O. Boschi, *Brazil* Richard Bowman, *Australia* William M. Carty, *USA* Kausik Dana, *India* Swapan Kumar Das, *India* Vilma Ducman, *Slovenia* B. Eftekhari Yekta, *Iran* Juan Carlos Factorovich, *Argentina* Dachamir Hotza, *Brazil* Leena Hupa, *Finland* Philip R. Jackson, *UK* Alpagut Kara, *Turkey* Ferhat Kara, *Turkey* Vladimir Kozhukharov, *Bulgaria* Joao A. Labrincha, *Portugal* Hongjie Luo, *China* Tiziano Manfredini, *Italy* Guillermo Monros, *Spain* Arnaldo Moreno Berto, *Spain* Redouane Moussa, *Morocco* Manuel Ocana Jurado, *Spain* Thierry Poirier, *Venezuela* Johannes H. Potgieter, *South Africa* Juan Jacobo Ruiz Valdes, *Mexico* Toyohiko Sugiyama, *Japan* Petra Sulcova, *Czech Republic* Giorgio Timellini, *Italy* Jacques Tirlocq, *Belgium* Paolo Zannini, *Italy* Jian Er Zhou, *China*

SYMPOSIUM CK - Geopolymers and Geocements: Low Environmental Impact Ceramic Materials

Programme Chair: Cristina Leonelli, *Italy* *Members:* Erez Allouche, *USA* Mirko Braga, *Italy* Christopher Cheeseman, *UK* Gui Demortier, *Belgium* Katja Dombrowski, *Germany* Constantino Fernandez Pereira, *Spain* Dechang Jia, *P.R. China* Waltraud M. Kriven, *USA* Zongjin Li, *P.R. China* Kenneth J.D. Mackenzie, *New Zealand* Alejandro Manzano Ramirez, *Mexico* Henk Nugteren, *Netherlands* Hassane Oudadesse, *France* Christos G. Papakonstantinou, *USA* Dan S. Perera, *Australia* Vijaya B. Rangan, *Australia* Kwesi Sagoe-Crentsil, *Australia* Frantisek Skvara, *Czekia* Pavel Straka, *Czekia* Bob Talling, *Finland* Amandio Teixeira Pinto, *Portugal* Benjamin Varela, *USA* Marcel Weil, *Germany* Frank Winnefeld, *Switzerland* Yunsheng Zhang, *P.R. China*

SYMPOSIUM CL - Refractories: Recent Developments in Materials, Production and Use

Programme Chair: James P. Bennett, *USA* *Members:* Esteban F. Aglietti, *Argentina* Charles Alt, *USA* Christos G. Aneziris, *Germany* Carmen Baudin, *Spain* Paulo R.H.M. Bittencourt, *Brazil* Michel Boussuge, *France* Richard C. Bradt, *USA* Elena Brandaleze, *Argentina* Thierry Cutard, *France* Axel Eschner, *Germany* Geraldo E. Goncalves, *Brazil* Delia Gutierrez-Campos, *Venezuela* Harald Harmuth, *Austria* William L. Headrick, *USA* Marc Huger, *France* Boris L. Krasny, *Russia* W.E. Lee, *UK* Valery V. Martynenko, *Ukraine* Josè Luis Mendoza Bedolla, *Mexico* Kusuhiro Mukai, *Japan* George Oprea, *Canada* Toshitaka Ota, *Japan* Victor Carlos Pandolfelli, *Brazil* Christopher Parr, *France* Jacques Poirier, *France* Peter Quirmbach, *Germany* Michael Rigaud, *Canada* Mototsugu Sakai, *Japan* Kwang Bo Shim, *Korea* Nigel Stone, *Australia* Kiyoshi Sugita, *Japan* Analia G. Tomba Martinez, *Argentina* Thorsten Tonnesen, *Germany* Patrick Wollants, *Belgium*

CM - *2nd International Conference* "Disclosing Materials at Nanoscale"

Co-Chairs: Christoph Gerber, *Switzerland* Yury Gogotsi, *USA* Koichi Niihara, *Japan* *Programme Chair:* Maurizio Ferrari, *Italy* *Members:* James H. Adair, *USA* Rui M. Almeida, *Portugal* Masakazu Aono, *Japan* Katsuhiko Ariga, *Japan* Yoshio Bando, *Japan* François Beguin, *France* Dieter Bimberg, *Germany* Richard J. Blaikie, *New Zealand* Brigitte Boulard, *France* Jürgen Brugger, *Switzerland* Enric Canadell, *Spain* R.P.H. Chang, *USA* Yong-Ho Choa, *Korea* Gan-Moog Chow, *Singapore* M. Lucia Curri, *Italy* Chunhai Fan, *China* Shoushan Fan, *China* Daisuke Fujita, *Japan* Lian Gao, *China* Malcolm L.H. Green, *UK* Martin P. Harmer, *USA* M. Saif Islam, *USA* Jing-Feng Li, *China* Marian Marciniak, *Poland* Meyya Meyyappan, *USA* Paolo Milani, *Italy* Seizo Morita, *Japan* Ungyu Paik, *Korea* David Pettifor, *UK* Alexander Quandt, *Germany* C.N.R. Rao, *India* Giancarlo C. Righini, *Italy* Albert Romano-Rodriguez, *Spain* Tohru Sekino, *Japan* Zhigang Shuai, *China* Richard W. Siegel, *USA* Xiaowei Sun, *Singapore* Masasuke Takata, *Japan* Setsuhisa Tanabe, *Japan* Zhong Lin Wang, *USA* Andrew T.S. Wee, *Singapore*

CN - *6th International Conference* "Advanced Inorganic Fibre Composites for Structural & Thermal Management Applications"

Co-Chairs: Mrityunjay Singh, *USA* *(Programme Chair)* Walter Krenkel, *Germany* Tatsuki Ohji, *Japan* *Members:* Rajiv Asthana, *USA* Alan Baker, *Australia* Wolfgang Brocks, *Germany* Tsu-Wei Chou, *USA* R.J. Diefendorf, *USA* Andrew L. Gyekenyesi, *USA* Jow-Lay Huang, *Taiwan* Toshihiro Ishikawa, *Japan* Chun-Gon Kim, *South Korea* Hai-Doo Kim, *South Korea* Pierre Ladeveze, *France* Jacques Lamon, *France* Javier Llorca, *Spain* Lalit Mohan Manocha, *India* Sanjay Mathur, *Germany* Sergei T. Mileiko, *Russia* Andreas Mortensen, *Switzerland* Roger Naslain, *France* Kiyohito Okamura, *Japan* Dieter Sporn, *Germany* Vijay K. Srivastava, *India*

Outline Congress

Symposium CA
Ceramic Powders: Synthesis, Processing and Sintering

Symposium CB
Novel Routes for Ceramics Synthesis and Processing

Focused Session ***CB-11***
Self-propagating High-temperature Synthesis of Ceramics

Focused Session ***CB-12***
Layered and Functionally Graded Materials

Symposium CC
Progress in the Understanding and Control of Ceramics Surfaces for Tribology and Corrosion

Symposium CD
Ceramic Joining

Symposium CE
Ceramics and Composites in Extreme Environments

Symposium CF
Ceramics for Chemical, Electrochemical and Environmental Applications

Symposium CG
Ceramic Thin Films and Coatings for Protective, Tribological and Multifunctional Applications

Symposium CH
Advances in Electrical, Magnetic and Optical Ceramics

Focused Session ***CH-6***
Multiferroics

Symposium CI
Magnetic and Transport Properties of Oxides

Symposium CJ
Science and Technology for Silicate Ceramics

Symposium CK
Geopolymers and Geocements: Low Environmental Impact Ceramic Materials

Symposium CL
Refractories: Recent Developments in Materials, Production and Use

Serial Conferences

CM
2nd International Conference
Disclosing Materials at Nanoscale

CN
6th International Conference
Advanced Inorganic Fibre Composites for Structural and Thermal Management Applications

SESSIONS TIMETABLE

12th International Ceramics Congress - June 6-11, 2010

Sunday June 6

11.00-13.00 15.00-19.00
REGISTRATION
Palazzo dei Congressi
Via Amendola, 2
Montecatini Terme, Pistoia, Italy

15.00-19.00
POSTER MOUNTING

Monday June 7

Morning: 9.30-13.00

Opening Session
Welcome Addresses
Formal induction of new WAC Members
Plenary Lectures (C:PL1-PL3)

Afternoon: 15.00-19.30

Symposium CA	(CA-1:IL01-IL04) (CA-1:IL05-L09)
Symposium CB	(CB-1:IL01-IL04) (CB-1:IL05-IL07b) (CB-11.1:IL01-L03) (CB-12.1:IL01-L05)
Symposium CD	(CD-1:IL01-IL04) (CD-1:IL05:L09)
Symposium CE	(CE-1:IL01-L05) (CE-3:IL01-L04)
Symposium CF	(CF-1:IL01-IL03) (CF-3.2:IL01-L05)
Symposium CG	(CG-1:IL01-L05) (CG-1:IL06-L09)
Symposium CH	(CH-1:IL01-IL04) (CH-1:IL05-IL07) (CH-6.1:IL01-IL03) (CH-6.1:IL04-IL07)
Symposium CI	(CI-1:IL01-IL03) (CI-1:IL04-L07)
Symposium CJ	(CJ-1:IL01-IL03)
Symposium CK	(CK:KL) (CK-1:IL01-IL02)
Symposium CL	(CL:KL) (CL-1:IL01-IL03) (CL-2:IL01-L04)
Conference CM	(CM-1:IL01-IL04) (CM-1:IL05-L08)

8.30-13.00
15.00-19.00
POSTER MOUNTING

21.30-23.00
Opening Concert
"Opera Gran Galà"

Tuesday June 8

Morning: 8.30-13.00

Symposium CA	(CA-1:IL10-L14) (CA-2:IL01-L05)
Symposium CB	(CB-3:IL01-IL04) (CB-3:L05-L08) (CB-4:IL01-L05) (CB-10:L04-L06) (CB-11.2:IL01-L04) (CB-12.1:IL06-L10)
Symposium CD	(CD-1:IL10; CD-2:IL01-IL03) (CD-3:IL01:L05)
Symposium CE	(CE-1:IL11-L16) (CE-1:IL17-IL18) (CE-2:IL01-IL02)
Symposium CF	(CF-2:IL06-L09) (CF-4.2:IL01-L05)
Symposium CG	(CG-1:IL10-L13) (CG-2:IL01-L06)
Symposium CH	(CH-1:IL08-IL11) (CH-2:IL01-IL04)
Symposium CI	(CI-2:IL01-IL03) (CI-2:IL04-IL05)
Symposium CJ	(CJ-1:IL04-L06)
Symposium CK	(CK-1:IL03-L07) (CK-3:L13)
Symposium CL	(CL-1:L04-L08) (CL-3:IL01-L05)
Conference CM	(CM-1:IL09-L12) (CM-2:IL01-IL04)
Conference CN	(CN-1:IL01-L04) (CN-2:IL02-L03)

Afternoon: 15.00-19.30

Symposium CA	(CA-1:L15-L20) (CA-2:IL06-L09) (CA-4:L05-L11)
Symposium CB	(CB-1:L08-L13) (CB-1:L14-L19) (CB-7:L07-L12) (CB-8:L04-L09) (CB-11.2:IL05-L08) (CB-12.2:IL01-IL03)
Symposium CE	(CE-2:IL03-L07)
Symposium CF	(CF-1:L04-L08) (CF-2:IL01-L05)
Symposium CG	(CG-1:IL14-L18) (CG-2:IL07-L10)
Symposium CH	(CH-2:IL05-L09) (CH-2:IL10-L14) (CH-6.3:L01-L05) (CH-6.4:IL01-L04)
Symposium CI	(CI-3:IL01-L05) (CI-3:IL06-IL08)
Symposium CJ	(CJ-1:IL08-L11)
Symposium CK	(CK-1:IL08-L12)
Symposium CL	(CL-2:IL05-L08) (CL-3:IL06-L10)
Conference CM	(CM-1:IL13-IL15) (CM-1:L16-L20) (CM-2:L10-L14)
Conference CN	(CN-1:IL05-L08)

Wednesday June 9

Morning: 8.30-13.00

Symposium CA	(CA-2:IL10-IL15) (CA-5:IL01-IL02)
Symposium CB	(CB-5:IL01-L05) (CB-7:IL01-IL03) (CB-11.3:IL01-L04) (CB-11.4:IL01-L05)
Symposium CC	(CC-1:IL02-IL07)
Symposium CD	(CD-2:IL04-IL05) (CD-3:IL06-IL07)
Symposium CE	(CE-1:IL06-L10b) (CE-2:IL08-L12)
Symposium CF	(CF-4.1:IL01-L05) (CF-4.1:IL06-L09)
Symposium CG	(CG-2:IL11-L15) (CG-4:IL01-L05)
Symposium CH	(CH-3:IL01-L04) (CH-3:IL05-L09) (CH-6.4:IL05-IL08) (CH-6.6:IL06-L09)
Symposium CI	(CI-4:IL01-L05) (CI-5:IL01-IL03)
Symposium CJ	(CJ-2:IL01-L04) (CJ-2:IL05-L08)
Symposium CK	(CK-1:IL13-L17) (CK-1:IL19-L22)
Symposium CL	(CL-3:IL11-L14) (CL-4:L06-L11)
Conference CM	(CM-2:IL05-L09) (CM-3:IL01-IL04)
Conference CN	(CN-2:IL04-L06) (CN-3:IL01-L04)

14.45-20.00 *Tour to Florence*
Special shuttle train reserved to CIMTEC participants
Meeting point: Montecatini Terme Central Railway Station (Stazione Centrale) at 14.45

Thursday June 10

Morning: 8.30-13.00

Symposium CA	(CA-3:IL01-L05) (CA-4:IL01-IL04)
Symposium CB	(CB-4:L06-L11) (CB-6:IL01-L05) (CB-7:IL04-IL06) (CB-11.3:IL05-L09) (CB-12.3:IL01-L05)
Symposium CD	(CD-4:IL01-lL04) (CD-4:IL05:L09)
Symposium CE	(CE-2:IL13-L16) (CE-4:IL01-L05)
Symposium CF	(CF-3.1:IL01-L05) (CF-4.3:IL01-L05)
Symposium CG	(CG-3:IL01-L05) (CG-4:IL06-L09)
Symposium CH	(CH-3:IL10-lL12) (CH-5:IL01-L06) (CH-6.5:IL01-L04)
Symposium CI	(CI-5:IL04-IL05) (CI-7:IL01-IL05)
Symposium CJ	(CJ-2:IL09-L12) (CJ-3:IL01-L04)
Symposium CK	(CK-2:IL01-L05) (CK-2:IL06-L10)
Symposium CL	(CL-2:IL09-L12) (CL-4:IL01-L05)
Conference CM	(CM-3:IL05-IL08) (CM-4:IL01-IL04)
Conference CN	(CN-2:IL01) (CN-4:IL01-L05) (CN-4:IL06-lL07)

Afternoon: 15.00-20.00

Symposium CA	(CA-1:L21-L26) (CA-3:IL06-L09) (CA-4:L12-L15)
Symposium CB	(CB-2:IL02) (CB-8:IL01-IL03) (CB-11.4:IL06-lL07) (CB-12.2:IL04-L06)
Symposium CC	(CC-1:IL08-L12) (CC-2:IL01-IL03)
Symposium CE	(CE-2:IL17-L20) (CE-4:IL06-L09)
Symposium CF	(CF-3.1:L06-L09) (CF-4.3:L06-L07)
Symposium CG	(CG-4:IL10-L14) (CG-4:L15-L17)
Symposium CH	(CH-1:L12-L15) (CH-2:L15-L21) (CH-4:IL01-IL04) (CH-4:L09-L10) (CH-6.2:IL01-L03) (CH-6.6:IL01-IL03)
Symposium CI	(CI-8:IL01-IL02)
Symposium CJ	(CJ-1:IL12-lL13) (CJ-4:IL01-L03)
Symposium CK	(CK-2:L11-L14) (CK-3:L11-L14)
Conference CM	(CM-4:IL05-L08) (CM-4:L09-lL11)
Conference CN	(CN-5:IL01-L04) (CN-6:IL01-IL02)

18.30-20.00
POSTER DISCUSSION

Friday June 11

Morning: 8.30-13.00

Symposium CA	(CA-4:IL17-L21) (CA-5:L03-IL06)
Symposium CB	(CB-9:IL01-IL05) (CB-10:IL01-IL03) (CB-11.5:IL01-L04) (CB-11.5:IL05-L07)
Symposium CC	(CC-2:IL04-IL08) (CC-2:IL09-IL13)
Symposium CE	(CE-5:IL01-L05) (CE-5:IL06-L09)
Symposium CF	(CF-4.2:IL06-L10) (CF-4.2:IL11-IL13)
Symposium CG	(CG-4:IL18-L22) (CG-4:IL23-L27)
Symposium CH	(CH-4:IL05-IL08) (CH-5:IL07-L11) (CH-6.6:IL04-IL05) (CH-6.7:IL01-IL06)
Symposium CI	(CI-6:IL01-L05) (CI-8:L03-IL06)
Symposium CJ	(CJ-3:IL05-L08) (CJ-4:IL04-IL06)
Symposium CK	(CK-3:IL01-L05) (CK-3:IL06-L10)
Conference CM	(CM-5:IL01-L05) (CM-5:IL06-IL09)
Conference CN	(CN-1:IL03) (CN-5:IL05-L08) (CN-6:IL03-IL05)

14.45-19.30

Tour to Pisa

Meeting point: Main entrance of the Palazzo dei Congressi

Meeting time: 14.45

21.00-23.30

Conference Dinner

Code Number of contributions by Presenting Author
(in alphabetical order)

The Code Number XY-W:Z00 includes: XY Symposium; W Session; Z Type of presentation (PL, KL, IL, L, P)*; 00 Paper number

* PL Plenary KL Key-Note IL Invited Lecture L Contributed Lecture P Poster presentation

NOTE: Due to the restructuring of some symposia, the session number included in the Code may differ from the one selected by the Presenting Author in the Abstract Submission Form.

SCIENTIFIC PROGRAMME

12th INTERNATIONAL CERAMICS CONGRESS

OPENING SESSION

WELCOME ADDRESSES

Plenary Lectures

C:PL1 **Nanoscience and Nanotechnology**
S. IIJIMA, Faculty of Science and Technology, Meijo University, National Institute of Advanced Industrial Science and Technology / Nanotube Research Center, SAINT and NEC, Japan

C:PL2 **Ceramics in New Energy Technologies**
Y.-M. CHIANG, Dept. of Materials Science and Engineering, Massachusetts Institute of Technology, Cambridge, MA, USA

C:PL3 **Computer Modelling as a Tool in Materials Science**
R. CATLOW, Department of Chemistry, University College London, UK

SYMPOSIUM CA

CERAMIC POWDERS: SYNTHESIS, PROCESSING AND SINTERING

Oral Presentations

Session CA-1
Powder Synthesis and Characterisation

CA-1:IL01 **Hydrothermal Synthesis of Functional Ceramic Particles**
J. HOJO, M. INADA, N. ENOMOTO, Dept. of Applied Chemistry, Kyushu University, Japan

CA-1:IL02 **Microemulsions as Reaction-Templates for the Synthesis of Novel Oxide-based Polar Electroceramics**
C. PITHAN, Institute for Solid State Research, Forschungszentrum Jülich GmbH, Jülich, Germany

CA-1:IL03 **Nanoparticle Molybdenum Dioxide Catalyst for Direct Jet-A Solid Oxide Fuel Cells**
M.G. NORTON, T. TURBA, K. WANG, J. AHN, School of Mechanical and Matls Engrg, Washington State University, Pullman, WA, USA; J. BREIT, Systems Concept Center, Boeing Commercial Airplanes, Everett, WA, USA; O. MARIN-FLORES, S. HA, Voiland School of Chemical Engineering and Bioengineering, Washington State University, Pullman, WA, USA

CA-1:IL04 **Synthesis of Nitride (nano-)powders from Single-Source Preceramic Precursors: Potentialities as Building Blocks of Nitride Workpieces by Additive-free Sintering**
S. BERNARD[1], V. SALLES[1], S. FOUCAUD[2], A. MAÎTRE[2], P. MIELE[1], [1]Laboratoire des Multimateriaux et Interfaces (UMR CNRS 5615), Université Lyon1, Villeurbanne Cedex, France; [2]SPCTS (UMR CNRS 6638), Faculté des Sciences et Techniques, Limoges, France

CA-1:IL05 **Convenient Hydrothermal Pathways to Functional Nanostructured Oxides: Methods, Mechanisms and Materials**
G.R. PATZKE, Institute of Inorganic Chemistry, University of Zurich, Switzerland

CA-1:IL06 **Microstructural Tailoring of YAG and YAG-containing Nanoceramics Through Advanced Synthesis Routes**
P. PALMERO, L. MONTANARO, Dept. of Materials Science and Chemical Engineering, Politecnico di Torino, Torino, Italy

CA-1:L07 **Hydrothermal Synthesis of (K,Na)NbO3 Powders**
B.-J. SHIN, S.-Y. CHOI, J.-B. LIM, **J.-H. JEON**, Korea Institute of Materials Science, Changwon, Korea

CA-1:L08 **Ceramic Matrix Composites in the Alumina/YAG System**
R. LACH, **K. HABERKO**, Faculty of Materials, AGH University of Science and Technology, Krakow, Poland

CA-1:L09 **New Route to Synthesize Silicon-substituted Hydroxyapatites**
M. ZYMELKA, D. MARCHAT, D. BERNACHE-ASSOLANT, LPMG Laboratory UMR 5148 (CIS Center), Ecole Nationale Supérieure des Mines, Saint-Etienne, France; J. CHEVALIER, MATEIS Laboratory UMR 5510, Institut National des Sciences Appliquées, Lyon, France

CA-1:IL10 **Different Approaches for the Synthesis of Nanometric and Nanorods of Sr-doped LaPO4**
M.T. COLOMER, Instituto de Ceramica y Vidrio, CSIC, Madrid, Spain

CA-1:IL11 **Flame Synthesis of Ceramic Particles**
Y. TAKAO, National Institute of Advanced Industrial Science and Technology (AIST), Nagoya, Japan

CA-1:L12 **Detection Limit of XRD Phase Quantification**
N. DOEBELIN, M. BOHNER, RMS Foundation, Bettlach, Switzerland

CA-1:L13 **One-step, Low-temperature, Microwave Assisted Synthesis of Barium Titanate Nanocrystalline Powders of Tunable Size**
S.A. VELDHUIS, T.M. STAWSKI, J.E. TEN ELSHOF, O.F. GÖBEL, D.H.A. BLANK, University of Twente, Inorganic Materials Science Group, AE Enschede, The Netherlands

CA-1:L14 **Preparation and Characterization of Rare Earth Doped SrTiO3 Perovskite**
A. ROCCA, L. LICCIULLI, D. DISO, A. CHIECHI, University of Salento, Lecce, Italy

CA-1:L15 **Synthesis, Up-conversion Luminescence and Sensing Properties of Trivalent Rare Earth Ion Doped CeO2 Powders**
L. BACA, H. STEINER, N. STELZER, AIT Austrian Institute of Technology GmbH, Advanced Materials and Aerospace Technologies, Seibersdorf, Austria

CA-1:L16 **Ultra-fine WC-Co Composites Prepared by Nitride Conversion Method and Their Properties**
YAN-MEI KAN, SHI-KUAN SUN, GUO-JUN ZHANG, State Key Laboratory of High Performance Ceramics and Superfine Microstructures, Shanghai Institute of Ceramics, Shanghai, China

CA-1:L17 **Synthesis of Ceramic Materials from Waste Residues**
S. PORTOFINO, S. GALVAGNO, ENEA, C.R. Portici, Portici (NA), Italy

CA-1:L18 **Solvothermal Synthesis of ITO Nanoparticles Precisely Controlled in Size and Shape**
A. MURAMATSU, T. SASAKI, Y. ENDO, Y. DOI, K. KANIE, Institute of Multidisciplinary Research for Advanced Materials, Tohoku University, Sendai, Japan

CA-1:L19 **Mechanochemical Treatment of Glycothermally Processed Aluminum Trihydroxides**
K. SEZGIKER, Dept. of Chemical Engineering, METU, Ankara, Turkey; B. MAVIS, Dept. of Mechanical Engineering, HU, Ankara, Turkey; G. GÜNDÜZ, Dept. of Chemical Engineering, METU, Ankara, Turkey; Ü. ÇOLAK, Dept. of Nuclear Engineering, HU, Ankara, Turkey

CA-1:L20 **Challenges in the Synthesis of Metal Fluorides via Microemulsion Route**
A. SABERI, M. WILLERT-PORADA, Faculty of Engineering Science, University of Bayreuth, Bayreuth, Germany

CA-1:L21 **Sol-gel Synthesis Assisted by Supercritical CO2 - A Flexible Process for Ceramic Powder and Membrane Preparation**
A. HERTZ[1], V. DURAND[1], S. SARRADE[1], C. GUIZARD[2], A. JULBE[3], J.-C. RUIZ[1], F. CHARTON[1], [1]CEA, DEN/DTCD/SPDE/LFSM, Bagnols sur Ceze, France; [2]Lab. de Synthese et Fonctionnalisation des Céramiques, FRE 2770 CNRS-Saint-Gobain C.R.E.E., Cavaillon, France; [3]Institut Européen des Membranes, UMR 5635 CNRS-UMII-ENSCM, UM2-CC047, Montpellier, France

CA-1:L22 **Size-controlled Hydrothermal Synthesis of Bismuth Sodium and Potassium Titanate Complex Perovskite Fine Particles and Application to Lead-free Piezoelectric Ceramics**
A. MURAMATSU, **K. KANIE**, Y. NUMAMOTO, J. TANI, H. TAKAHASHI, IMRAM, Tohoku University & Fuji Ceramics Corporation, Sendai, Japan

CA-1:L23 **Nano-sized BT Powder with High Tetragonality Synthesized by Hydrothermal Method**
CHANGHAK CHOI, KUMJIN PARK, HYUNGJOON JEON, HYEYOUNG BAEG, SANGHYUK KIM, SANGHOON KWON, KANGHEON HUR, LCR Division, Samsung Electro-Mechanics Co. Ltd, Suwon, South Korea

CA-1:L24 **Study on the Formation of Yttrium Aluminum Garnet by Positive and Reverse-strike Co-precipitation Method using Nitrates and Ammonium Hydrogen Carbonate**
YUANHUA SANG, HONGLIU, YAOHUI LV, State Key Laboratory of Crystal Materials, Shandong University, Jinan, Shandong, China

CA-1:L25 **Microemulsion Synthesis Strategies for ZrW2O8 Precursors**
I. VURAL[1], N. KHAZENI[1], B. MAVIS[2], G. GÜNDÜZ[1], Ü. ÇOLAK[2], [1]Dept. of Chemical Engineering, METU, Ankara, Turkey; [2]Dept. of Mechanical Engineering, HU, Ankara, Turkey

CA-1:L26 **Production of Nanopowders with the Help of Fiber Laser**
M. IVANOV, Yu. KOTOV, O. SAMATOV, Institute of Electrophysics, Ural Division of Russian Academy of Sciences, Russia

Session CA-2
Colloidal Processing

CA-2:IL01 **Strengthening with a Uniform Compressive Layer Produced by a Dip-Coating: A Study of Processing Variables**
HAKSUNG MOON, R&D Department, Glidewell Dental Ceramics, Newport Beach, CA, USA; **F.F. LANGE**, Materials Department, University of California at Santa Barbara, CA, USA

CA-2:IL02 **Development of Environmentally-friendly Process Using Ceramic Colloidal Processing on Ceramic-polymer Composite Materials**
Y. HOTTA, K. SATO, K. WATARI, National Institute of Advanced Industrial Science and Technology (AIST), Nagoya, Japan

CA-2:L03 **Tape Casting of Boron Carbide**
F. DE GENUA, V.M. SGLAVO, DIMTI, University of Trento, Trento, Italy

CA-2:L04 **Experimental and Simulation Study of Self-arrangement by Heteroagglomeration in Dilute, Model Ceramic Suspensions**
M.A. PIECHOWIAK, A. VIDECOQ, C. PAGNOUX, F. ROSSIGNOL, SPCTS, ENSCI, Limoges, France; R. FERRANDO, M. CERBELAUD, Dipartimento di Fisica, Universita di Genova, Genova, Italy

CA-2:L05 **A Study of the Dispersion of Boron Carbide in an Aqueous Suspension**
A.C.J. HEATON, DSTL, Porton Down, Wiltshire, UK; J.G.P. BINNER, Loughborough University, Leicestershire, UK; R.N.J. TAYLOR, AWE, Aldermaston, Berkshire, UK

CA-2:IL06 **When Specific Interparticle Forces Lead Colloidal Particles to Self-assemble in Dilute Suspensions: Simulation and Experiment**
A. VIDECOQ, M. PIECHOWIAK, C. PAGNOUX AND F. ROSSIGNOL, SPCTS, UMR 6638, ENSCI, CNRS, Limoges, France; M. CERBELAUD, R. FERRANDO, Dipartimento di Fisica dell'Università di Genova, Genova, Italy

CA-2:IL07 **Modified Surfaces of Ceramic Particles Finely Tuned for Ceramic Forming Processes**
K. SATO, National Institute of Advanced Industrial Science and Technology (AIST), Nagoya, Japan

CA-2:L08 **Influence of Energy Input on Suspension Properties**
A. MEYER, A. POTTHOFF, K. LENZNER, Fraunhofer IKTS, Dresden, Germany

CA-2:L09 **Effects of Dispersion Surfactants on the Properties of Alumina - Carbon Nanotube (CNT) Nanocomposites**
F. INAM[1], A. HEATON[2], P. BROWN[2], T. PEIJS[1,3], M.J. REECE[1,3], [1]Queen Mary University of London, Nanoforce Technology Ltd, London, UK; [2]Dstl, Porton Down, Salisbury, Wiltshire, UK; [3]Queen Mary University of London, School of Engineering and Materials Science, London, UK

CA-2:IL10 **Interparticle Forces the Key to Colloidal Processing: from Porous Nanostructured Films to Transparent Polycrystalline Alumina**
P. BOWEN[1], M. STUER[1], Z. ZHE[2], U. ASCHAUER[3], [1]Laboratoire de Technologie des Poudres, EPFL, Lausanne, Switzerland; [2]Dept. of Physical, Inorganic and Structural Chemistry, Arrhenius Lab., Stockholm University, Stockholm, Sweden; [3]Dept. of Chemistry, Princeton University, Princeton, USA

CA-2:IL11 **Theoretical and Experimental Analyses of Colloidal Processing of Nanoparticles**
Y. HIRATA, K. MATSUSHIMA, S. BABA, N. MATSUNAGA, S. SAMESHIMA, Kagoshima University, Kagoshima, Japan

CA-2:IL12 **Colloidal Processing of Nanosized Titania Suspensions**
R. MORENO, Instituto de Ceramica y Vidrio, CSIC, Madrid, Spain

CA-2:IL13 **An Impact of Filter Pressing of Multicomponent Nano-powders on the Composite Microstructure**
W. PYDA, N. MOSKALA, L. MIROWSKA, AGH University of Science and Technology, Faculty of Materials Science and Ceramics, Cracow, Poland

CA-2:IL14 **Hierarchical Porous Materials through Microfluidics**
A.R. STUDART, ETH Zurich, Department of Materials, Zurich, Switzerland

CA-2:IL15 **Surface Characterization and Chemistry for Ceramic Powder Processing**
T. SHIRAI, Nagoya Institute of Technology, Tajimi, Japan

Session CA-3
Shape Forming and Compaction Mechanisms

CA-3:IL01 **Printing Techniques for the Manufacture of Structures in the Micrometer Range**
A. ROOSEN, Institute of Glass and Ceramics, University of Erlangen-Nuremberg, Erlangen, Germany

CA-3:IL02 **New Developments in the Electrophoretic Deposition (EPD) of Structured Compacts and Coatings**
R. CLASEN, Saarland University, Saarbrucken, Germany

CA-3:L03 **Influence of Different Suspension Properties on Internal Structure and Deformation Behaviour of Spray Dried Ceramic Granules**
S. ECKHARD, M. FRIES, Fraunhofer Institute for Ceramic Technologies and Systems IKTS, Dresden, Germany

CA-3:L04 **New Low-toxic Water-Soluble Monomers for Gelcasting of Ceramic Powders**
M. SZAFRAN, P. BEDNAREK, A. SZUDARSKA, T. MIZERSKI, Warsaw University of Technology, Faculty of Chemistry, Warsaw, Poland

CA-3:L05 **Synthesis of Yttria Powder Using Urea Precipitation Method**
HAIMING QIN, State Key Laboratory of Crystal Material, ShanDong University, Ji'nan, China

CA-3:IL06 **New Developments in Electrophoretic Deposition Processing**
T. UCHIKOSHI, T.S. SUZUKI, Y. SAKKA, Nano Ceramics Center, National Institute for Materials Science (NIMS), Tsukuba, Ibaraki, Japan

CA-3:IL07 **Improving the Porosity Features Control of Ceramic Cellular Components through a Modified Gelcasting Process**
M. LOMBARDI, L. MONTANARO, Dept. DISMIC-Politecnico di Torino, INSTM-R.U. PoliTO - LINCE Lab., Torino, Italy; S. MEILLE, J. CHEVALIER, Université de Lyon, INSA-Lyon, MATEIS, CNRS UMR 5510, Villeurbanne, France

CA-3:L08 **Processing and Superplastic Deformation of Zirconia-based Ceramic Nanocomposites**
K. VANMEENSEL, H. SHENG, A. LAPTEV, A.K. SWARNAKAR, O. VAN DER BIEST, J. VLEUGELS, Dept. of Metallurgy and Materials Engineering, Katholieke Universiteit Leuven, Heverlee (Leuven), Belgium

CA-3:L09 **Saccharides Derivatives in Shaping of Ceramic Powders - New Monomers and Dispersants**
P. BEDNAREK, M. SZAFRAN, T. MIZERSKI, Faculty of Chemistry, Warsaw University of Technology, Warsaw, Poland

Session CA-4
Sintering and Related Phenomena

CA-4:IL01 **Current and Pressure Effects in the Sintering and Reactive Sintering of Powders by the Spark Plasma Sintering Method**
Z.A. MUNIR, S. KIM, Dept. of Chemical Engineering and Materials Science, University of California, Davis, CA, USA; M. MARTIN, Institute of Physical Chemistry, RWTH Aachen University, Aachen, Germany

CA-4:IL02 **Evidence of a Microwave Effect on the Sintering of Y-TZP Powder**
S. CHARMOND, C.P. CARRY, **D. BOUVARD**, Lab. SIMAP, Grenoble Institute of Technology / Université Joseph Fourier, Saint Martin d'Herès, France

CA-4:IL03 **Sintering Kinetics of Powder Compact Containing Large Pores**
JINGZHE PAN, FAN LI, Dept. of Engineering, University of Leicester, Leicester, UK

CA-4:IL04 **Microstructural Anisotropy during Constrained Sintering**
O. GUILLON, Technical University Darmstadt, Darmstadt, Germany

CA-4:L05 **Effect of Anisotropic Local Structure on Sintering Stress Tensor and Viscosities for Macroscopic Shrinkage in Sintering**
F. WAKAI, Y. SHINODA, T. AKATSU, Secure Materials Center, Materials and Structures Laboratory, Tokyo Institute of Technology, Yokohama, Japan

CA-4:L06 **Particle-based Simulations of Thin Film Sintering**
T. RASP, A. WONISCH, T. KRAFT, H. RIEDEL, Fraunhofer Institute for Mechanics of Materials, Freiburg, Germany

CA-4:L07 **Modelling Multi-cracking in Thin Films during Constrained Sintering**
FAN LI, JINGZHE PAN, Dept. of Engineering, University of Leicester, Leicester, UK

CA-4:L08 **Contribution of Discrete Element Simulation to the Analysis of Ceramic Aggregated Powder Processing**
P. PIZETTE[1], C.L. MARTIN[1], G. DELETTE[2], F. SANS[3], D. BOUVARD[1], [1]Lab. SIMAP-GPM2, Grenoble Institute of Technology / Université Joseph Fourier / CNRS, Saint Martin d'Heres, France; [2]CEA-Grenoble, DRT/LITEN/DTH/LEV, Grenoble Cedex, France; [3]AREVA/MELOX DT/DIP, Bagnols sur Cèze, France

CA-4:L09 **Production of Titanium Aluminium Carbide Ceramic and Sintering under Pressureless Condition**
B.B. PANIGRAHI, J.J. GRACIO, TEMA, Dept. of Mechanical Engineering, University of Aveiro, Aveiro, Portugal; M.C. CHU, S.J. CHO, Division of Advanced Technology, Korea Research Institute of Standards and Science, Yuseong, Daejeon, Republic of Korea

CA-4:L10 **Reactive Spark Plasma Sintering of Si3N4/SiC Composites**
Z. TASLICUKUR[1], F. CINAR SAHIN[2], N. KUSKONMAZ[1], [1]Yildiz Technical University, Metallurgical and Matls Engrg Dept., Istanbul, Turkey; [2]Istanbul Technical University, Metallurgical and Matls Engrg Dept., Istanbul, Turkey

CA-4:L11 **Monitoring Constrained Sintering of Yttria Stabilised Zirconia Coatings Using Fluorescence Spectroscopy**
I.P. SHAPIRO, PING XIAO, University of Manchester, Manchester, UK

CA-4:L12 **Microstructural and Phenomenological Analysis of the Reaction Sintering of a Nickel Ferrite Based Cermet**
G. LARGILLER, C. CARRY, D. BOUVARD, Grenoble-INP, CNRS/UJF, SIMaP, St Martin d'Heres, France; A. GABRIEL, Rio Tinto Alcan, CRV, Voreppe, France

CA-4:L13 **The Role of Templating on Phase Transformation Kinetics and Microstructure Development in (Reactive) Templated Growth of Na0.5Bi0.5TiO3**
S.Z. NERGIZ, E. SLAMOVICH, J. BLENDELL, School of Materials Engineering, Purdue University, West Lafayette, IN, USA

CA-4:L14 **Impedance Spectroscopy and Dilatometric Analysis of Zirconia-yttria Ceramic Solid Electrolytes During Sintering**
R. MUCCILLO, E. N. S. MUCCILLO, Center of Science and Technology of Materials, Energy and Nuclear Research Institute, S. Paulo, SP, Brazil

CA-4:L15 **Numerical Modelling and Experimental Characterization of the Pyroplasticity in Ceramic Materials During Sintering**
P. BENE, D. BARDARO, D. BELLO, O. MANNI, Consorzio Cetma, Brindisi, Italy

CA-4:IL17 **Spark Plasma Sintering of Ceramics: From Practice to Modelling**
ZHE ZHAO, Dept. of Physical-Inorganic and Structural Chemistry, Stockholm University, Stockholm, Sweden

CA-4:IL18 **Multi-physics Simulation of Sintering**
V. TIKARE, Sandia National Laboratories, Albuquerque, NM, USA

CA-4:L19 **Contact Flattening vs. Pore Filling in Liquid Phase Sintering**
SUK-JOONG L. KANG, DONG-YEOL YANG, Dept. of Materials Science and Engineering, Korea Advanced Institute of Science and Technology, Daejeon, Korea; SUNG-MIN LEE, Korea Institute of Ceramic Engineering and Technology, Gyeonggi-do, Korea

CA-4:L20 **Flexural Strength Predicted from Observed Coarser Defects in Dry-pressed Ceramics**
S. TANAKA, S. NAKAMURA, R. FURUSHIMA, K. UEMATSU, Nagaoka University of Technology, Nagaoka, Japan

CA-4:L21 **Simultaneous Synthesis and Sintering of Al2O3/Mo2N Composites Using Capsule-free Nitrogen Hot Isostatic Pressing and their Characterization**
K. HIROTA, K. TAKAOKA, Y. MURASE, M. KATO, Dept. of Molecular Chemistry & Biochemistry, Doshisha University, Kyo-Tanabe, Japan

Session CA-5
Innovation in Processing Equipment and Technology

CA-5:IL01 **Rapid Prototyping of Lead-free Piezoceramics**
A. DITTMAR, X. TIAN, **J.G. HEINRICH**, Institute of Nonmetallic Materials, Clausthal University of Technology, Clausthal-Zellerfeld, Germany; W. BRAUE, German Aerospace Center, Cologne, Germany

CA-5:IL02 **Pulsed Electric Current Sintering of Electrical Discharge Machinable Ceramics**
J. VLEUGELS[1], O. MALEK[1, 2], K. VANMEENSEL[1], S. HUANG[1], S. RAN[1], O. VAN DER BIEST[1], B. LAUWERS[2], K.U. Leuven, [1]Dept. of Metallurgy and Materials Engineering; [2]Dept. of Mechanical Engineering, Leuven, Belgium

CA-5:L03 **The Rapid Automated Materials Synthesis Instrument (RAMSI): A High Throughput Combinatorial Robot for Nanoceramics Discovery**
TIAN LIN, S. KELLICI, K. GONG, K. THOMPSON, J.A. DARR, University College London, London, UK

CA-5:IL04 **Fabrication and Anisotropic Properties of Highly Textured Ceramics by Colloidal Processing in a High Magnetic Field**
Y. SAKKA, T.S. SUZUKI, T. UCHIKOSHI, National Institute for Materials Science (NIMS), Japan

CA-5:IL05 **Thermoplastic Shaping - Advances in Extrusion Processes**
F.J. CLEMENS, M.R. ISMAEL, V.L. BUENO, EMPA, Swiss Federal Labs for Materials Testing and Research, Dübendorf, Switzerland

CA-5:IL06 **Rapid Prototyping of Complex Ceramic Forms**
N. TRAVITZKY, Dept. of Materials Science, Glass and Ceramics, University of Erlangen-Nuremberg, Erlangen, Germany

Poster Presentations

CA:P01 **Effects of Aging on the Characteristics of Nd:YAG Nano-powders**
XIAOLIN ZHANG, DUO LIU, HONG LIU, JIYANG WANG, State Key Lab. of Crystal Materials, Shandong University, Jinan, Shandong, P.R. China

CA:P02 **Elaboration and Mechanical Characterization of Al2O3-ZrO2-YAG Ultra-fine Composites**
P. PALMERO, V. NAGLIERI, G. SPINA, **L. MONTANARO**, Dept. of Materials Science and Chemical Engineering, Politecnico di Torino, LINCE lab., INSTM PoliTO R.U., Torino, Italy

CA:P03 **Effects of Firing Temperature and Time on the Luminescency of Phosphors in Strontium Aluminate System Co-doped by Eu2O3 and Dy2O3 and Prepared by Solid State Rection Processing**
S.YESILAY KAYA[1], B. KARASU[2], **G. KAYA**[3], E. KARACAOGLU[2], [1]Anadolu University, Dept. of Glass, Eskisehir, Turkiye; [2]Anadolu University, Dept. of Materials Science and Engineering, Eskisehir, Turkiye; [3]Dumlupinar University, Dept. of Ceramic Engineering, Kutahya, Turkiye

CA:P04 **Influence of Eu+3 and Dy+3 Contents on the Properties of Long Afterglow Strontium Aluminate Phosphors**
S. KAYA YESILAY, Anadolu University, Dept. of Glass, Eskisehir, Turkiye; B. KARASU, Anadolu University, Dept. of Materials Science and Engineering, Eskisehir, Turkiye; G. KAYA, Dumlupinar University, Dept. of Ceramic Engineering, Kutahya, Turkiye

CA:P05 **Glycine-nitrate Synthesis of Sr Doped La2Zr2O7 Pyrochlore Powder**
YAN CHEN, N. ORLOVSKAYA, Dept. of Mechanical, Materials and Aerospace Engineering, University of Central Florida, Orlando, FL, USA; N. MILLER, H. ABERNATHY, D. HAYNES, D. TUCKER, R. GEMMEN, U.S. Dept. of Energy, National Energy Technology Laboratory, USA

CA:P06 **Structure and Properties of Al2O3-Si3N4 and Al2O3-SiAlON Composites**
A. ZAWADA, A. KUNICKI, A. OLSZYNA, Warsaw University of Technology, Warsaw, Poland

CA:P07 **Synthesis and Characterization of Pure and Doped Ba(Mg1/3Ta2/3)O3 Nanopowders**
CRISTINA JINGA, E. ANDRONESCU, **CORNELIA JINGA**, C. MATEI, D. BERGER, S. JINGA, University "Politehnica" of Bucharest, Bucharest, Romania

CA:P08 **Synthesis of Gadolinium Oxynitride with Cuspidine Structure and its Luminescence Properties**
S. MIHARA, K. YAMAGUCHI, S. KODA, K. ITATANI, Sophia University, Tokyo, Japan; H.T. HINTZEN, A.C.A. DELSING, Eindhoven University of Technology, Eindhoven, The Netherlands

CA:P09 **The Isothermal and Non-isothermal Crystallization Kinetics of La2O3 Doped, Sol-gel Derived Mullite**
V. MANDIC, E. TKALCEC, S. KURAJICA, University of Zagreb, Faculty of Chemical Engineering and Technology, Zagreb, Croatia

CA:P10 **Piezoelectric Lead Free Ceramics in the Solid Solution KNN**
R. LÓPEZ, **M.E. VILLAFUERTE-CASTREJÓN**, Instituto de Investigaciones en Materiales, Universidad Nacional Autónoma de México, México D.F., México; F. GONZÁLEZ, Depto de Ingeniería de Procesos e Hidráulica, Universidad Autónoma Metropolitana-Iztapalapa, México D.F., México; A.M. GONZÁLEZ, Grupo Poemma, Technical University of Madrid, EUIT Telecomunicación, Madrid, Spain

CA:P11 **Production of Foundry Filters Using Alumina from the Aluminum Anodizing Process**
G.G. MORAES[1], B.G. OLIVEIRA[2], C. SILIGARDI[3], D. SIGHINOLFI[4], M.D.M. INNOCENTINI[5], A.A. MARTINS DE OLIVEIRA Jr.[1], D. HOTZA[1], **A.P. NOVAES DE OLIVEIRA**[1], [1]Federal University of Santa Catarina (UFSC), Florianópolis (SC), Brazil; [2]University of the Joinville Region (UNIVILLE), Joinville (SC), Brazil; [3]University ofi Modena and Reggio Emilia (UNIMORE), Modena, Italy; [4]Expert System Solutions S.r.l., Advanced Laboratory Equipment, Modena, Italy; [5]University of Ribeirão Preto, São Carlos - SP, Brazil

CA:P12 **Role of Urea on the Morphology of Flame-sprayed ZnO Powders**
R.M. TROMMER, A.K. ALVES, C.P. BERGMANN, Federal University of Rio Grande do Sul, Porto Alegre, RS, Brazil

CA:P13 **Synthesis and Characterization of Fine Tungsten Powders via the Mechanochemical Route**
D. AGAOGULLARI, A. GENC, M.L. OVECOGLU, I. DUMAN, Istanbul Technical University, Dept. of Metallurgical and Materials Engineering, Istanbul, Turkiye

CA:P14 **Studies on the Production and Characterization Investigations of (W0.80Ti0.20)C Powders**
A. GENC, D. AGAOGULLARI, I. DUMAN, M.L. OVECOGLU, Istanbul Technical University, Dept. of Metallurgical and Materials Engineering, Istanbul, Turkiye

CA:P15 **On the Hydrothermal Synthesis of xCr2O3-(1-x)Fe2O3 Nanoparticle System**
L. DIAMANDESCU, D. TARABASANU-MIHAILA, F. VASILIU, M. FEDER, I. MERCIONIU, T. POPESCU, National Institute of Materials Physics, Bucharest, Romania

CA:P16 **Synthesis of High Purity Fine B4C Powders via the Sol Gel Process**
H. SINAEI POUR FARD, H.R. BAHARVANDI, Faculty of Materials and Manufacturing Process, MUT, Tehran, Iran

CA:P17 **Preparation and Characterization of New Oxyfluoride Phases (Ba,Na)(Ti,Mg)(O,F)**
D. TALANTIKITE-TOUATI, Dept. of Chemistry, Abderrahmane Mira University, Bejaia, Algeria; L. BENZIADA, Faculty of Chemistry, USTHB,El-Alia, Bab-Ezzouar, Algiers, Algeria

CA:P18 **Low Temperature Synthesis of Ba3Ta2 MgO9 (BMT), Ba3Nb2MgO9 (BMN) by Wet Chemical Route**
M.Y. KHALADKAR, N.S. SARAF, Dept. of Applied Science of Engineering Pune, India

CA:P19 **Ultrafine Powders Based on the MgO-Al2O3-SiO2-ZrO2 System**
O. SKORODUMOVA, Ukrainian Engineering-Pedagogical Academy, Kharkov, Ukraine

CA:P20 **Synthesis of Scandium Oxide Nanopowders by the Sol-gel Route**
N. POIROT, LEMA, UMR 6157, CNRS-CEA, IUT de Blois, Blois cedex, France; P. BOY, Laboratoire Sol Gel, CEA/Le Ripault, Monts, France; C. AUTRET-LAMBERT, LEMA, UMR 6157, CNRS-CEA, Parc Grandmont UFR Sciences, Tours, France; **P. BELLEVILLE**, L. BIANCHI, Laboratoire Sol Gel, CEA/Le Ripault, Monts, France

CA:P21 **Interactions of Organic Additives in Alumina Slurries**
C. ROEDEL, TU Dresden, Dresden, Germay; A. POTTHOFF, Fraunhofer IKTS, Dresden, Germany

CA:P22 **Extruding and Sintering of Silicon Nitride Ceramics with Hydraulic Alumina Binder as Sintering Additive**
T. NAGAOKA, C. DURAN*, H. HYUGA, K. WATARI, AIST, Nagoya, Japan; *Gebze Inst. Tech., Gebze, Turkey

CA:P23 **Description of Carbides Sintering Process using Kucszynski and Frenkel Sintering Models**
A. GUBERNAT, AGH University of Science and Technology, Faculty of Materials Science and Ceramics, Cracow, Poland

CA:P24 **Two-step Sintering of Yttria-stabilized Zirconia: Grain Growth and Ionic Conductivity**
E.N.S. MUCCILLO, R. MUCCILLO, Energy and Nuclear Research Institute, S. Paulo, SP, Brazil

CA:P25 **Effect of the Two-steps Sintering in the Microstructure of Ultrafine Alumina**
A.S.A. CHINELATTO, M.K.MANOSSO, A.L. CHINELATTO, UEPG, Ponta Grossa, PR, Brazil; E.M.J.A. PALLONE, USP-FZEA, Pirassununga, SP, Brazil

CA:P26 **Densification Study of HA-Mg Samples Synthesized with Ultrasound**
D.S. GOUVEIA, A.H.A. BRESSIANI, J.C. BRESSIANI, Materials Technology and Science Center-CCTM, Institute of Energetics and Nuclear Research-IPEN, S. Paulo, SP, Brazil

CA:P27 **Enhanced Densification and Grain-size Refinement in Cation-doped Tetragonal Zirconia**
K. HIRAGA, H. YOSHIDA, K. MORITA, B.-N. KIM, National Institute for Materials Science, Tsukuba, Ibaraki, Japan

CA:P28 **Synthesis and Sintering of Mullite Ceramics Using Microwave Heating**
T. EBADZADEH, H. BARZEGAR-BAFROEI, Ceramic Division, Materials & Energy Research Centre, Tehran, Iran

CA:P29 **Low-temperature Sintering of Apatite-type Lanthanum Silicate with Fluoride Additives**
J. TAKAHASHI, H. HONDA, T. AKASHI, Graduate School of Engineering, Hokkaido University, Sapporo, Japan; H. ITOH, Dept. of Materials Science, Kitami Institute of Technology, Kitami, Japan; M. KISHI, Dept. of Mechanical Systems Engineering, Hokkaido Institute of Technology, Sapporo, Japan

CA:P30 **Studies on Preparation of Transparent Yttria and Magnesium Aluminate Ceramics**
A. WAJLER, H. WEGLARZ, H. TOMASZEWSKI, Z. LIBRANT, Institute of Electronic Materials Technology, Warsaw, Poland

CA:P31 **Microwave Sintering of Mg and Electroless Ni Plated WC Powders**
A. EROL, **A. YONETKEN**, M. ERDOGAN, Afyon Kocatepe University, Metal Education Department, Afyonkarahisar, Turkey

CA:P32 **Processes of Phase-formation in the Solid State Synthesis of Ferrite Garnets**
T.S. LIVSHITS, IGEM RAS, Moscow, Russia

CA:P33 **Alumina - Zirconia Ceramics Synthesized via Aluminum Oxidation**
S.N. PARANIN, V.V. IVANOV, S.V. ZAYATS, V.R. KHRUSTOV, A.V. SPIRIN, S.Yu. IVIN, A.S. KAYGORODOV, V.I. KRUTIKOV, Yu.N. KOROLEVA, V.P. LOZNUKHO, R.D. NEVMYVAKO, Institute of Electrophysics, RAS, Ekaterinburg, Russia

CA:P34 **A New Powder Filler, Obtained by Applying a New Technology for Fly Ash Inertisation Procedure**
E. BONTEMPI, A. ZACCO, L. BORGESE, A. GIANONCELLI, L.E. DEPERO, Chemistry for Technologies Laboratory, University of Brescia, Brescia, Italy

CA:P35 **Elastic Modulus and Hardness of CaTiO3, CaCu3Ti4O12 and CaTiO3.CaCu3Ti4O12**
M.A. RAMÍREZ[1], R. PARRA[2], M.M. REBOREDO[2], J.A. VARELA[1], M.S. CASTRO[2], L. RAMAJO[2], [1]Chemistry Institute of São Paulo State University (UNESP), Araraquara, Brazil; [2]Institute of Research in Material Science and Technology (INTEMA) (CONICET - University of Mar del Plata), Mar del Plata, Argentina

CA:P36 **Rheology Behavior of Yttria Aqueous Suspensions for the Impregnation Method**
S.C. SANTOS, C. YAMAGATA, **S.R.H. MELLO-CASTANHO**, Nuclear and Energy Research Institute-IPEN, Sao Paulo, SP, Brazil

SYMPOSIUM CB

NOVEL ROUTES FOR CERAMICS SYNTHESIS AND PROCESSING

Oral Presentations

Session CB-1
Soft Solution Processing

CB-1:IL01 **Soft Processing for Ceramics: Single-Step Fabrication of Nano-Structured Oxide Ceramics(Particles, Films, Integrated Layers and Patterns) from Solution without Firing**
M. YOSHIMURA, Materials and Structures Laboratory, Tokyo Institute of Technology, Yokohama, Japan

CB-1:IL02 **Novel Hydrothermal Solution Routes of Advanced Nanomaterials and Nanoceramics Processing**
K. BYRAPPA, DOS in Geology, University of Mysore, Mysore, India

CB-1:IL03 **Non-aqueous Sol-gel Routes to Metal Oxide Nanostructures**
N. PINNA, Dept. of Chemistry, CICECO, University of Aveiro, Aveiro, Portugal; World Class University (WCU) program of Chemical Convergence for Energy and Environment (C2E2), School of Chemical and Biological Eng., Seoul National University, Seoul, Korea

CB-1:IL04 **Liquid Phase Morphology Control of Metal Oxides in Aqueous Solutions**
Y. MASUDA, National Institute of Advanced Industrial Science and Technology (AIST), Nagoya, Japan

CB-1:IL05 **Granulation by Spray Freeze Drying and Pressing of Nano YSZ Powders**
J. BINNER, B. VAIDHYANATHAN, K. ANNAPOORANI, B. RAGHUPATHY, Dept. of Materials, Loughborough University, Loughborough, UK

CB-1:IL06 **New Synthesis Process of Li, Na and K Niobates from Metal Alkoxides**
Y. SUYAMA, Dept. of Materials Science, Shimane University, Matsue, Japan

CB-1:IL07 **Glycol-based Precursors in the Synthesis of Mesoscopically Organized and Porous Nanoparticles**
N. HUESING, Inorganic Chemistry, Ulm University, Ulm, Germany

CB-1:L08 **Morphology Control of Rutile, Brookite and Anatase Type Titanium Dioxide by Hydrothermal Treatment of Water Soluble Titanium Complexes**
M. KOBAYASHI, M. KAKIHANA, IMRAM, Tohoku University, Sendai, Japan; V. PETRYKIN, J. Heyrovsky Institute of Physical Chemistry, Prague, Czech; K. TOMITA, Tokai University, Hiratsuka, Japan

CB-1:L09 **Synthesis and Characterization of High Surface Area Zinc Oxide-carbon Composite**
T. YONG-JIN HAN, M.A. WORSLEY, T.F. BAUMANN, J.H. SATCHER Jr., Physical and Life Sciences, Lawrence Livermore Nat. Lab., Livermore, CA, USA

CB-1:L10 **Synthesis of Alumina and Aluminium Nitride Layers on a Graphite Substrate via a Sol-gel Route**
F. FONTAINE, R. PAILLER, A. GUETTE, Laboratoire des Composites Thermo-structuraux, University of Bordeaux 1, Pessac, France

CB-1:L11 **Synthesis of Monodispersed Plate-like CeO2 Particles by Mild Solution Process**
S. YIN, Y. MINAMIDATE, T. SATO, IMRAM, Tohoku University, Sendai, Japan

CB-1:L12 **Co-doping Effect of Metal Ion on the visible Light Responsive Photocatalytic Properties of Nitrogen-doped Titanium Dioxide**
PEILIN ZHANG, SHU YIN, T. SATO, IMRAM, Tohoku University, Sendai, Japan

CB-1:L13 **Transparent Silica Ambigels through Ternary Azeotropic Mixture**
YOUNG-JEI OH, JEON-KOOK LEE, WON-KOOK CHOI, Materials Science and Technology Division, Korea Institute of Science and Technology (KIST), Seoul, South Korea

CB-1:L14 **Use of Additives in the CSD Approach to Oxide Ceramic Layers. The YBCO Example**
S. RICART, F. MARTÍNEZ- JULIÁN, X. PALMER, P. ABELLAN, F. SANDIUMENGE, A. POMAR, A. PALAU, X. OBRADORS, T. PUIG, Instituto Ciencias de Materiales de Barcelona (CSIC), Bellaterra, Spain

CB-1:L15 **High-performance Si-based Photoceramics via Aqueous Solution Processes Using New Water-soluble Si-compounds**
M. KAKIHANA, Y. SUZUKI, S. TEZUKA, IMRAM, Tohoku University, Sendai, Japan; V. PETRYKIN, J. Heyrovsky Institute of Physical Chemistry, Prague, Czech

CB-1:L16 **Tailored Silica Based Aerogels for Insulation in Space Environments**
L. DURAES, M. OCHOA, A. PORTUGAL, Dept. of Chemical Engineering, University of Coimbra, Coimbra, Portugal; A. MANAIA, J.P. DIAS, LED&MAT, IPN-Instituto Pedro Nunes, Coimbra, Portugal; J. HERNANDEZ, R. PATRÍCIO, AST-Active Space Technologies, IPN, Coimbra, Portugal

CB-1:L17 **Microwave Assisted Solvothermal Synthesis and Visible Light Photocatalytic Properties of Nb and N Co-doped SrTiO3 Nanoparticles**
U. SULAEMAN, S. YIN, T. SATO, IMRAM, Tohoku University, Sendai, Japan

CB-1:L18 **Soft Solution Processing of Ceramic Powders and Films: Preparation, Properties and Application**
YANFENG GAO, HONGJIE LUO, Shanghai Institute of Ceramics, CAS, Shanghai, China

CB-1:L19 **Nano-Boehmite Production and Isocyanite Functionalization of Nano-Boehmite for the Synthesis of Polyurethane Based Coating**
G. EROGLU, **U. COLAK**, B. MAVIS, G. GUNDUZ, Hacettepe Universitesi, Ankara, Turkey; Orta Dogu Teknik Universitesi, Ankara, Turkey

Session CB-2
Near-Net-Shape Techniques

CB-2:IL01 **Direct Writing of Metallic, Oxide, and Polymeric Functional Architectures**
J.A LEWIS, Materials Research Lab., University of Illinois, Urbana, IL, USA

CB-2:IL02 **Ceramic Injection Moulding for Microtechnology**
J. HAUSSELT, Karlsruhe Institute of Technology and IMTEK, University of Freiburg, Germany

Session CB-3
Polymer-based Processing

CB-3:IL01 **Quo Vadis Polymer-derived Ceramics? Novel Insights in Basic Science and Applications**
R. RIEDEL, Darmstadt Technical University, Darmstadt, Germany

CB-3:IL02 **Processing of SiCO from Polysiloxane-based Preceramic Polymers**
G.D. SORARU, Dip. Ingegneria dei Materiali, Università di Trento, Trento, Italy

CB-3:IL03 **Fabrications of Bulk Si-Based Ceramics and Nanofiber Composites from Polymer Pyrolysis**
YA-LI LI, HUA FAN, XIANG LIU, TIAN LIANG, HE-BAO DU, FENG HOU, Key Lab. of Advanced Ceramic and Machining Technology, Ministry of Education of China, School of Matls Science and Eng., Tianjin University, Tianjin, P.R. China

CB-3:IL04 **Electronic Behavior of Polymer-derived Ceramics**
LINAN AN, Advanced Materials Processing and Analysis Center, University of Central Florida, Orlando, FL, USA

CB-3:L05 **Nanostructured Boron- and Silicon-based Mesoporous Materials via Preceramic Polymer Nanocasting**
X.-B. YAN, P. DIBANDJO, O. MAJOULET, J. ALAUZUN, S. BERNARD, **P. MIELE**, LMI - UMR 5615, Université Lyon 1, Villeurbanne Cedex, France

CB-3:L06 **Shaping of Ceramic Fibers and Gradient Porosity Ceramic Bulk Materials Applying UV Curable Dispersions**
T. GRAULE, J. HEINECKE, G. MUELLER, Y. DE HAZAN, EMPA, Swiss Federal Laboratories for Materials Testing and Research, Laboratory for High Performance Ceramics, Dübendorf, Switzerland

CB-3:L07 **SiCN Xerogels and Ceramic Materials Derived from Polymers Containing vinyl- and Carbodiimide Functional Groups**
H.J. CHENG, Y.L. LI, Key Laboratory of Advanced Ceramics and Machining Technology, Tianjin University, Ministry of Education, Tianjin, China; E. KROKE, M. SCHWARZ, Institute of Inorganic Chemistry, TU Bergakademie Freiberg, Freiberg, Germany; S. HERKENHOFF, J. WOLTERSDORF, Max-Planck-Institut für Mikrostrukturphysik, Halle, Germany

CB-3:L08 **Synthesis and Characterization of Polycarbosilanes as SiC-based Ceramic Precursors: Applications to Hybrid Material for the Preparation of ZrC-SiC Composites**
D. PIZON, R. LUCAS, S. FOUCAUD, A. MAÎTRE, Laboratoire Science des Procédés Céramiques et de Traitements de Surface - UMR CNRS 6638 - Université de Limoges, Limoges Cedex, France

Session CB-4
Spark Plasma Synthesis and Processing

CB-4:IL01 **Modelling of Spark Plasma Sintering Process**
E. OLEVSKY, Dept. of Mechanical Engineering, San Diego University, San Diego, CA, USA

CB-4:IL02 **Shaping of Nanostructured Materials or Coatings Through Spark Plasma Sintering**
C. ESTOURNÈS[1], D. OQUAB[2], M. BOIDOT[2], D. MONCEAU[2], D. GROSSIN[2], C. DROUET[2], U-CHAN CHUNG[3], F. ROULLAND[1, 3], C. ELISSALDE[3], M. MAGLIONE[3], R. CHAIM[4], PH. MIELE[5], J. GURT-SANTANACH[6], A. WEIBEL[6], A. PEIGNEY[6] AND CH. LAURENT[6], [1]CNRS, Institut Carnot Cirimat, Toulouse Cedex, France; [2]Université de Toulouse, UMR CNRS-UPS-INP 5085, CIRIMAT, INPT-ENSIACET, Toulouse cedex, France; [3]ICMCB-CNRS, Université Bordeaux, Pessac Cedex, France; [4]Dept. of Materials Engineering, Technion-Israel Institute of Technology, Haifa, Israel; [5]LMI, UMR CNRS 5615, Université Claude Bernard-Lyon 1, Villeurbanne Cedex, France; [6]Université de Toulouse, UMR CNRS-UPS-INP 5085, CIRIMAT, Université Paul-Sabatier, Toulouse cedex, France

CB-4:IL03 **Synthesis of Fine-grained Transparent Oxide Ceramics by Spark-plasma Sintering under Low Heating Rate Control**
B.-N. KIM, National Institute for Materials Science, Tsukuba, Japan

CB-4:L04 **Densification Mechanism of MgAl2O4 Spinel during Spark-plasma-sintering**
K. MORITA, B.-N. KIM, H. YOSHIDA, K. HIRAGA, National Institute for Materials Science, Nano-Ceramics Center, Ibaraki, Japan

CB-4:L05 **Effect of CeO2 Addition on the Mechanical Properties of Al2O3-ZrO2 Ceramics Prepared by Spark Plasma Sintering**
E. YILMAZ, O. ORMANCI, I. AKIN, F. SAHIN, O. YUCEL, G. GOLLER, Istanbul Technical University, Metallurgical and Matls Eng. Dept, Istanbul, Turkey

CB-4:L06 **Spark Plasma Sintering of Iodine-bearing Apatite**
S. LE GALLET, F. BERNARD, Laboratoire ICB, Université de Bourgogne, Dijon, France; L. CAMPAYO, E. COURTOIS, F. BART, CEA, DEN, Marcoule, DTCD/SECM/LDMC, Bagnols-sur-Ceze, France; S. HOFFMANN, YU. GRIN, Max-Planck-Institut für Chemische Physik fester Stoffe, Dresden, Germany

CB-4:L07 **Properties of Al2O3-ZrO2-TiO2 Composites Prepared by Spark Plasma Sintering**
O. ORMANCI, E. YILMAZ, I. AKIN, F. SAHIN, O. YUCEL, G. GOLLER, Istanbul Technical University, Metallurgical and Matls Eng. Dept, Istanbul, Turkey

CB-4:L08 **Effects of the SPS Parameters on the Reactive Sintering of a Cobalt Aluminate Powder**
A. PAVIA[1], C. ESTOURNES[1,2], A. WEIBEL[1], A. PEIGNEY[1], G. CHEVALLIER[1,2], CH. LAURENT[1], [1]Université de Toulouse, CIRIMAT, UMR CNRS-UPS-INP 5085, Université Paul-Sabatier, Toulouse cedex , France; [2]PNF2 CNRS, MHT, Université Paul-Sabatier, Toulouse cedex , France

CB-4:L09 **Spark Plasma Sintering of AlON Ceramics**
H.E. KANBUR, F.C. SAHIN, O. YUCEL, G. GOLLER, Istanbul Technical University, Istanbul, Turkey

CB-4:L10 **Spark Plasma Sintering of a Conductive Material, YZrTiO**
L. RAMOND, G. BERNARD-GRANGER, A. PRINCIVALLE, L. GUIZARD, LSFC-UMR 3080 CNRS, Saint-Gobain CREE, Cavaillon, France

CB-4:L11 **Production and Characterisation of Boron Carbide - Titanium Diboride Ceramics by the Spark Plasma Sintering Method**
B. UYGUN, G. GOLLER, O. YUCEL, F. SAHIN, Istanbul Technical University, Metallurgical and Matls Eng. Dept, Istanbul, Turkey

Session CB-5
Microwave Processing

CB-5:IL01 **Microwave Processing of Ceramic-based Materials: Latest Developments and Trends**
M. WILLERT-PORADA, Faculty of Engineering Science, University of Bayreuth, Bayreuth, Germany

CB-5:IL02 **Synthesis of High Performance Ceramics Materials via Microwave Processing**
H. TAKIZAWA, Dept. of Applied Chemistry, Tohoku University, Sendai, Japan

CB-5:IL03 **Microwave-assisted Routes to Inorganic Particles and Films in Organic Solvents**
M. NIEDERBERGER, Lab. for Multifunctional Materials, Dept. of Materials, ETH Zürich, Zürich, Switzerland

CB-5:L04 **Microwave Absorbency Change of Zirconia Powder and Fiber during Vacuum Heating**
S. SANO, S. KAWAKAMI, Y. TAKAO, S. TAKAYAMA, Y. SATO, AIST, Nagoya-city, Aichi, Japan; NIFS, Toki-city, Gifu, Japan

CB-5:L05 **Microwave Assisted Reaction Sintering of ZrSiO4/α-Al2O3 Mixture**
O. ERTUGRUL, S. AKPINAR, I.M. KUSOGLU, K. ONEL, Dept. of Metallurgical and Materials Engineering, Dokuz Eylul University, Buca-Izmir, Turkey

Session CB-6
Bio-inspired and Bio-enabled Processing

CB-6:IL01 **Formation of Hierarchically Structured Crystals through Bio-inspired Processing**
H. IMAI, Faculty of Science and Technology, Keio University, Yokohama, Japan

CB-6:IL02 **Integration of Bio-Enabled and Synthetic Syntheses of Functional 3-D Nanostructured Assemblies**
K.H. SANDHAGE[1,2], S.C. DAVIS[1], J.P. VERNON[1], A.S. GORDON[1], J.D. BERRIGAN[1], S. SHIAN[1,2], Y. FANG[1], Y. CAI[1], M.B. DICKERSON[1,3], R.R. NAIK[3], S.R. MARDER[2,1], N. KROGER[2,1], [1]School of Materials Science and Engineering, Georgia Institute of Technology, Atlanta, GA, USA; [2]School of Chemistry and Biochemistry, Georgia Institute of Technology, Atlanta, GA, USA; [3]Materials and Manufacturing Directorate, Air Force Research Laboratory, Wright Patterson Air Force Base, OH, USA

CB-6:IL03 **Bio-inspired Synthesis of Oxide-based Ceramics**
J. BILL, Inst. for Materials Science, University of Stuttgart, Stuttgart, Germany

CB-6:IL04 **Nano-structured Ceramic Films by Aerosol Deposition**
DONG-SOO PARK, BYUNG-DONG HAHN, WOON-HA YOON, JUNGHO RYU, JONG-JIN CHOI, BYOUNG-KOOK LEE, JUNHWAN CHOI, Functional Materials Division, Korea Institute of Materials Science, Changwon, South Korea

CB-6:L05 **Effect of the Hydrothermal Heat Treatment Conditions of Titanium on the Coating of Bio-mimetically Grown "Bone-Like" Apatite Layer**
D. TEKER, C. POYRAZ SAG, M. DINÇER, S. ALKOY, K. ÖZTÜRK, Gebze Institute of Technology, Material Science and Engineering, Kocaeli, Turkey

Session CB-7
Hybrid Materials

CB-7:IL01 **Novel Strategies for the Design of Nanostructured Advanced PorousMaterials**
C. SANCHEZ, Lab. de Chimie de la Matière Condensée de Paris, CNRS, Université Pierre et Marie Curie, Collège de France, Paris, France

CB-7:IL02 **Morphosynthesis of Nanoporous Materials by Microwave**
SANG-EON PARK, Lab. of Nano-Green Catalysis and Nano Center for Fine Chemicals Fusion Tech., Dept. of Chemistry, Inha University, Incheon, Korea

CB-7:IL03 **Co-assembly of Ceramic Nanosheets with Drug Molecules for Nanomedicine**
J.H. CHOY, CINBM - WCU, Dept. of Chemistry and Nano Science, Ewha Womans University, Seoul, Korea

CB-7:IL04 **Mesoporous Silica Nanoparticles for Cell Specific Targeting and Drug Delivery**
M. LINDÉN, J. ROSENHOLM, Dept. of Physical Chemistry, Abo Akademi University, Turku, Finland; C. SAHLGREN, Dept. of Biology, Abo AKademi University, Turku, Finland

CB-7:IL05 **Panascopic Assembling of Ceramic Materials for High Performance UV-ray Shielding Application**
T. SATO, X. LIU, S. YIN, IMRAM, Tohoku University, Sendai, Japan

CB-7:IL06 **Energy Generation and Storage Applications of TiO_2 Nanotubular Arrays by Atomic Layer Deposition and Nanotemplating**
HYUNJUNG SHIN, School of Advanced Materials Engineering, Kookmin University, Seoul, Korea

CB-7:L07 **Exploring Inorganic-Organic Interfaces in Hybrid Materials with Advanced NMR Tools**
N. FOLLIET, N. BACCILE, T. AZAIS, C. GERVAIS, G. LAURENT, C. BONHOMME, **F. BABONNEAU**, Lab. de Chimie de la Matiere Condensee de Paris, Universite Pierre et Marie Curie-UPMC and CNRS, College de France, Paris, France; P.M. AGUIAR, D. SAKELLARIOU, Lab. de Structure et Dynamique par Resonance Magnétique, Service Interdisciplinaire sur les Systemes Moleculaires et les Materiaux (Lab. Claude Frejacques, CNRS URA 331) DSM/IRAMIS/SIS2M, CEA Saclay, Gif-sur-Yvette, France

CB-7:L08 **Thermal and Dimensional Stability of Filled Hybrid Foam**
MING Y. CHEN[1], CHENGGANG CHEN[1,2], [1]Air Force Research Laboratory, Materials & Manufacturing Directorate, Wright-Patterson AFB, OH, USA; [2]University of Dayton Research Institute, Dayton, OH, USA

CB-7:L09 **In-situ TEM Observation of the Crystallization Process for Li NbO3 and NaNbO3**
H. NAKANO, Toyohashi University of Technology, Toyohashi, Japan; Y. SUYAMA, Shimane University, Japan

CB-7:L10 **Ceramic/Polymeric Hybrids with Reduced Coefficients of Thermal Expansion**
CHENGGANG CHEN[1,2], K.H. HOOS[1,3], MING Y. CHEN[1], [1]Air Force Research Laboratory, Materials & Manufacturing Directorate, Wright-Patterson AFB, OH, USA; [2]University of Dayton Research Institute, Dayton, OH, USA; [3]Southwestern Ohio Council for Higher Education, USA

CB-7:L11 **Dimension- and Direction-controlled Gold Nanorods Deposited in Ordered Mesoporous Silica**
G. KAWAMURA, I. HAYASHI, R.A. FITRAH, J. HAMAGAMI, M. SAKAI, A. MATSUDA, Toyohashi University of Technology, Toyohashi, Japan; H. MUTO, Kurume National Col. Technol., Japan

CB-7:L12 **Synthesis and Characterization of Silica/Polyamide-imide Composites for Enamel Wire**
X.K. MA[1], N.H. LEE[1], H.J. OH[1], J.S. HWANG[2], J.W. KIM[3], S.J. KIM[1], [1]Institute/Faculty of Nanotechnology and Advanced Mats Eng., Sejong University, Seoul, South Korea; [2]Dept. of Electrical Engineering, Jeonnam Provincial College, Jeonnam, South Korea; [3]Nuclear Nano Materials Development Lab., Korea Atomic Energy Research Institute (KAERI), Deajeon, South Korea

Session CB-8
Porous Ceramics

CB-8:IL01 **Confined Molecules in Porous Media for Controlled Release: NMR Characterization**
T. AZAIS, N. FOLLIET, G. LAURENT, F. BABONNEAU, Université Pierre et Marie Curie-Paris6 and CNRS, UMR 7574, Lab. Chimie de la Matiere Condensee de Paris, France; F. GUENNEAU, A. NOSSOV, Universite Pierre et Marie Curie and CNRS, Lab. de RMN des Matériaux Nanoporeux, FRE 3230, Paris, France; D. AIELLO, F. TESTA, Dept. of Chemical Eng. and Matls, CR-INSTM, University of Calabria, Arcavacata di Rende (CS), Italy

CB-8:IL02 **Porous 1D Ceramics and Composite Ceramics via Electrochemical, Gas Phase and Precursor Routes**
J.J. SCHNEIDER, Technische Universität Darmstadt, Fachbereich Chemie Eduard Zintl Institut Anorganische Chemie, Darmstadt, Germany

CB-8:IL03 **Hybrid Foams, Colloids and Beyond: Integrative Chemistry**
R. BACKOV, CRPP-UPR CNRS 8641, Pessac, France

CB-8:L04 **High Surface Area Cr2O3 Tubes Synthesized by Replica Technique**
P. GIBOT, Institut Franco-Allemand de Recherches de Saint-Louis (ILS), NS3E, ISL/CNRS UMR 3208, Saint-Louis Cedex, France

CB-8:L05 **Investigation on the Microstructure and Permeability of Porous SiC Ceramics**
IN-HYUCK SONG, IL-MIN KWON, HAI-DOO KIM, YOUNG-WOOK KIM, Korea Institute of Materials Science, The University of Seoul, Changwon, Korea

CB-8:L06 **Synergy of Different Types of Boron-containing Wastes for the Production of Lightweight Aggregates**
A. CHRISTOGEROU[1], T. KAVAS[2], G.N. ANGELOPOULOS[1], P. NIKOLOPOULOS[3], [1]Lab. of Materials and Metallurgy, Dept. of Chemical Engineering, University of Patras, Rio, Greece; [2]Dept. of Materials Science and Engineering, Afyon Kocatepe University, Afyonkarahisar, Turkey; [3]Lab. of Ceramics and Composite Materials, Dept. of Chemical Engineering, University of Patras, Rio, Greece

CB-8:L07 **Synthesis and Characterization of Spherical Mesoporous Hydroxyapatite**
F.-Y. YEOH, K.-S. LEW, School of Materials & Mineral Resources Engineering, University Sains Malaysia, Penang, Malaysia

CB-8:L08 **Fabrication of Porous Ceramics by Spark Plasma Sintering**
P. MIRANZO, E. GARCIA, M.I. OSENDI, Institute of Ceramics and Glass (CSIC), Madrid, Spain

CB-8:L09 **Structural, Mechanical and Filtering Properties of Porous Titania / Alumina Ceramic**
A. BUTLERS, R. SVINKA, V. SVINKA, Riga Technical University, Institute of Silicate Materials, Riga, Latvia

Session CB-9
Ultra-high Pressure Ceramics Synthesis and Processing

CB-9:IL01 **Shock Wave and Ultra-high-pressure Synthesis of Ceramic Powders**
T. SEKINE, National Institute for Materials Science, Tsukuba, Japan

CB-9:IL02 **Synthesis of New Diamond-like B-C Phases Under High Pressure and Temperatures**
L.C. MING, P.V. ZININ, S.K. SHARMA, Hawaii Institute of Geophysics and Planetology, University of Hawaii, Honolulu, HI, USA

CB-9:IL03 **High-purity Boron Nitrides: Ultra-high-pressure Synthesis and Properties**
T. TANIGUCHI, National Institute for Materials Science (NIMS), Ibaraki, Japan

CB-9:IL04 **High-pressure / High-temperature Synthesis of Oxynitrides**
H. HUPPERTZ, Institut für Allgemeine, Anorganische und Theoretische Chemie, Leopold-Franzens-Universität Innsbruck, Innsbruck, Austria; S.A. HERING, Dept. Chemie und Biochemie, Ludwig-Maximilians-Universität München, München, Germany; C.E. ZVORISTE, Technische Universität Darmstadt, Material- und Geowissenschaften, Darmstadt, Germany; I. KINSKI, Fraunhofer-Institut für Keramische Techn. und Systeme, Dresden, Germany

CB-9:IL05 **Synthesis of Superhard Nanocomposites by Microstructural Design**
E. KROKE, M. SCHWARZ, T. BARSUKOVA, TU Bergakademie Freiberg, Institute for Inorganic Chemistry, Freiberg, Germany; D. RAFAJA, C. SCHIMPF, TU Bergakademie Freiberg, Institute for Materials Science, Freiberg, Germany

Session CB-10
Other Nontraditional Processing Routes

CB-10:IL01 **Clay Aerogel Composite Materials**
D.A. SCHIRALDI, M.D. GAWRYLA, S. ALHASSAN, Dept. of Macromolecular Science & Engrg, Case Western Reserve University, Cleveland, OH, USA

CB-10:IL02 **Heterogeneous Sol-gel Systems - derived Ceramics**
O.A. SHILOVA, I.V. Grebenschikov Institute for Silicate Chemistry of RAS, St. Petersburg, Russia

CB-10:IL03 **Smart Processing for Ceramics Structure Tectonics: Fabrication of Dielectric Micro Patterns for Artificial Photosynthesis in Terahertz Wave Regions by Using Stereolithography**
S. KIRIHARA, Joining and Welding Research Institute, Osaka University, Osaka, Japan

CB-10:L04 **Chemical Approaches to Functional Nanostructures: Growth, Applications and Devices**
S. MATHUR, Institute of Inorganic and Materials Chemistry, University of Cologne, Cologne, Germany

CB-10:L05 **Sintering and Mechanical Properties of Silicon Carbide Composites with In-situ Converted Titanium Oxide to Titanium Carbide**
D. AHMOYE, V.D. KRSTIC, Queen's University, Kingston, Canada

CB-10:L06 **Processing of Municipal Solid Waste (MSW) Fly Ash into an Environmentally Stable and Safe Material**
M. ISAC, R.I.L. GUTHRIE, Z. GHOULEN, McGill University, McGill Metals Processing Centre (MMPC), Montreal, Canada

Poster Presentations

CB:P01 **Silica Tube Gel Manufactured by Electrolysis**
N. FURUYA, University of Yamanashi, Kofu, Japan

CB:P02 **Polyol Mediated Route of Porous Hafnium Oxide Nanostructures**
M. VILLANUEVA-IBÁÑEZ, M.-A FLORES-GONZÁLEZ, Laboratorio de Nanotecnología y BioElectroMagnetismo Aplicado, Universidad Politécnica de Pachuca, Hidalgo, Mexico; M.-A. HERNÁNDEZ-PÉREZ, H.J. DORANTES-ROSAS, Escuela Superior de Ingeniería Química e Industrias Extractivas, Instituto Politécnico Nacional, D.F., MEXICO; H. MONTIEL-SÁNCHEZ, Grupo de Materiales y Nanotecnología, CCADET-UNAM, Mexico

CB:P03 **Diametral Compression Testing of Mullite Green Bodies Prepared by Pre-gelling Starch Consolidation**
M.H. TALOU, A.G. TOMBA MARTINEZ, **M.A. CAMERUCCI**, Laboratorio de Materiales Estructurales, División Cerámicos, INTEMA-CONICET, Fac. de Ingeniería/UNMdP, Mar del Plata, Argentina

CB:P04 **Influence of the Starch Type on the Mullite Pre-firing Microstructure Developed by Pre-gelling Starch Consolidation**
M.H. TALOU, M.A. CAMERUCCI, Laboratorio de Materiales Estructurales, División Cerámicos, INTEMA-CONICET, Fac. de Ingeniería/UNMdP, Mar del Plata, Argentina

CB:P05 **Protein Forming Method: Rheological Behavior of Albumin-mullite Aqueous Suspensions**
M.L. SANDOVAL, A.G. TOMBA MARTINEZ, M.A. CAMERUCCI, Laboratorio de Materiales Estructurales, División Cerámicos, INTEMA-CONICET, Fac. de Ingeniería/UNMdP, Mar del Plata, Argentina

CB:P06 **The Effect of Pulsing on the Spark Plasma Sintering of Silicon Nitride Materials**
J. GONZALEZ-JULIAN, P. MIRANZO, **M.I. OSENDI**, M. BELMONTE, Institute of Ceramics and Glass (CSIC), Madrid, Spain

CB:P07 **The Effects of Codoping Y2O3 on MgO Doped Spark Plasma Sintered Al2O3**
B. APAK, F.C. SAHIN, G. GOLLER, O. YUCEL, Istanbul Technical University, Istanbul, Turkey

CB:P08 **Spark Plasma Sintering of B4C-SiC Composites**
H.D. GENCKAN, F.C. SAHIN, Adnan Tekin Research Center of Materials Science and Production Technologies, Istanbul Technical Univ., Istanbul, Turkey

CB:P10 **Functional Biogenic Surfactants as Complexing and Structure Directing Agents**
N. BACCILE, LCMCP, CNRS, UPMC, Collège de France, Paris, France

CB:P11 **Crystal Growth of Calcite Nano-plates by Alternate Soaking Method, Using CDS Single Crystal Templates**
K. HAYASHI, M. TOMOHARA, K. FUJINO, G. SAKANE, Y. KATAYAMA, LSSC Okayama University of Science, Okayama, Japan

CB:P12 **New Materials Tailored from Diatoms**
K. KONOPKA, Warsaw University of Technology, Faculty of Materials Science and Engineering, Warsar, Poland

CB:P13 **Highly Porous Hydroxyapatite Ceramics for Engineering Applications**
H. IVANKOVIC, S. ORLIC, D. KRANZELIC, E. TKALCEC, Uiversity of Zagreb, Faculty of Chemical Engineering and Technology, Zagreb, Croatia

CB:P14 **Aluminum Oxide Ceramics with Gradient Porosity Obtained by Commercial Starch Consolidation and Conformation**
R.P. MOTA, M.A. ALGATTI, DFQ-UNESP, Guaratinguetá, SP, Brazil; R.S. FERNANDES, Universidade Federal de Alfenas, Depto de Ciencia e Tecnologia, Campus de Poços de Caldas; E. CAMPOS, Escola de Especialistas da Aeronáutica, Guaratinguetá, SP, Brazil

CB:P15 **New Methodology in Modeling Ceramics Morphology**
M.A. ALGATTI, R.P. MOTA, DFQ-UNESP, Guaratinguetá, SP, Brazil; E.C. CAMPOS, E.E. LUCENA, Escola de Especialistas da Aeronáutica, Guaratinguetá, SP, Brazil

CB:P16 **Porous Silicon Carbide for Biomedical Applications**
V.L. ARANTES, C.L.M. GUSMAO, C.P. SOARES, Universidade do Vale do Paraiba, Sao José dos Campos, Brazil

CB:P17 **Preparation of Porous Silicon Nitride by Sacrificial Templating**
R.M. MESQUITA, A.H.A. BRESSIANI, L.A. GENOVA, Instituto de Pesquisas Energeticas e Nucleares, IPEN - CNEN, Sao Paulo, Brazil

CB:P18 **Influence of Binder on Porous Ceramic Properties Prepared by the Polymeric Sponge Method**
K. JACH, D. KALINSKI, M. CHMIELEWSKI, K. PIETRZAK, Institute of Electronic Materials Technology, Warsaw, Poland

CB:P19 **Mechanical Properties of Si3N4 - SiC Composites Sintered by the HPHT Method**
P. KLIMCZYK, The Institute of Advanced Manufacturing Technology, Cracow, Poland

CB:P20 **Phosphate Bonded Alumina: Effect of Crystalline (AlPO4) Polymorph Phase Transformation on Mechanical Properties**
P. KUMAR, A.N. TIWARI, P. BHARGAVA, Dept. of Metallurgical Engineering and Materials Science, Indian Institute of Technology Bombay, Mumbai, India

CB:P21 **Effect of Flour Source on Sintering and Crystallization of Fluoro-Phlogopite Glass-ceramic**
A. FAEGHI NIA, M.G. KAKROUDI, Dept. of Material Science and Engineering, University of Tabriz, Tabriz, Iran

CB:P22 **Reactive Milling and Mechanical Alloying in Electroceramics**
C. GOMEZ-YANEZ, I.A. VELASCO-DAVALOS, C.A. PERALTA-ZENTENO; J.J. CRUZ-RIVERA, Dept. of Metallurgy and Materials Engineering, ESIQIE, National Polytechnic Institute, Mexico city, Mexico; Faculty of Metallurgy, UASLP, San Luis Potosi, Mexico

CB:P23 **Synthesis of High-Temperature Stable Anatase Titania Polymorph Through the Addition of La(III), Cu(II), Ba(II) and Sr(II)**
M. MORAES LEITE[1], F. MARON VICHI[1], E. JOAQUIM DE SOUZA VICHI[2,3], [1]Chemistry Institute, University of Sao Paulo, Sao Paulo, Brazil; [2]Chemistry Institute, State University of Campinas, Campinas, Brazil; [3]in memoriam

CB:P24 **Lithium Disilicate Glass-ceramic Obtained by the Silica Extracted from Rice Husk**
F. ANTUNES SANTOS[1], C. DOS SANTOS[1], D. RODRIGUES JR[1], D. RIBEIRO RICCI LAZAR[2], DAYANE FAVIERO DE CASTRO[1], DALTRO GARCIA PINATTI[1], ROSA ANA CONTE[1], [1]EEL - USP (Escola de Engenharia de Lorena da Univ. de Sao Paulo), Sao Paulo, Brazil; [2]IPEN (Instituto de Pesquisas Energéticas e Nucleares), Brazil

CB:P25 **Intragrain Compositional Gradient Barium Strontium Titanate Ceramics Fabricated by a Sol-assisted Sintering Technology**
TINGTING WANG, DENGREN JIN, JINRONG CHENG, JUAN LI, School of Materials Science and Engineering, Shanghai University, Shanghai, China

CB:P26 **Microwave Synthesis of Silicon Carbide; Rapid Processing and Nanowire Formation**
L. CARASSITI[1], I. MacLAREN[2], P. DOBSON[3,4], P. HARRISON[4], D.H. GREGORY[1], [1]WestCHEM, Dept. of Chemistry; [2]Dept. of Physics; [3]Dept. of Electrical Engineering; [4]Dept. of Mechanical Engineering, University of Glasgow, Glasgow, UK

Focused Session CB-11

SELF-PROPAGATING HIGH-TEMPERATURE SYNTHESIS OF CERAMICS

Endorsed by SHS-AS - International Association on Self-propagating High-temperature Synthesis (WAC Member)

Oral Presentations

Session CB-11.1
New Methods for Investigation of SHS

CB-11.1:IL01 **"Solution Combustion" as a Promising Method for the Synthesis of Nanoparticles**
A.S. MUKASYAN, Dept. of Chem. & Biomolec. Eng., University of Notre Dame, Notre Dame, IN, USA

CB-11.1:IL02 **Thermal Explosion in the Synthesis of Ceramic Materials and Items**
I. GOTMAN, E.Y. GUTMANAS, Faculty of Materials Engineering, Technion-Israel Institute of Technology, Haifa, Israel

CB-11.1:L03 **Microwave Activated Combustion Synthesis and Compaction in Separate E and H Fields: Numerical Simulation and Experimental Results**
R. ROSA, P. VERONESI, C. LEONELLI, A.B. CORRADI, Dip. Ingegneria dei Materiali e dell'Ambiente, Univ. degli Studi di Modena e Reggio Emilia, Modena, Italy; M. FERRARIS, V. CASALEGNO, M. SALVO, H. SHAOHUA, Dip. Scienze dei Materiali ed Ingegneria Chimica, Politecnico di Torino, Torino, Italy

CB-11.1:L04 **Emission Phenomena in Waves of SHS**
Yu.M. MAKSIMOV, A.I. KIRDYASHKIN, V.F. TARASENKO, V.G. SALAMATOV, E.A. SOSNIN, R.M. GABBASOV, Dept. for Structural Macrokinetics TSC SB RAS, Institute of High Current Electronics SB RAS, Tomsk, Russia

Session CB-11.2
Fundamentals of SHS

CB-11.2:IL01 **Use of Electrothermal Explosion and Electrothermal Analyzer (ETA-100) for the Study of Kinetics of Fast High-Temperature Reactions in SHS-Ceramic Systems**
A.S. SHTEINBERG, ALOFT, Berkeley, CA, USA; A.A. BERLIN, Semenov Institute of Chemical Physics, RAS, Moscow, Russia

CB-11.2:IL02 **Mechanoactivation of SHS Systems and Process**
V.V. KURBATKINA, E.A. LEVASHOV, National University of Science and Technology "MISIS", Moscow, Russia; A.S. ROGACHEV, Institute of Structural Microkinetiks and Materials Science, Chernogolovka, Moscow region, Russia

CB-11.2:L03 **Thermite-based High-energy-density LCA-coupled Structural Energetic Materials**
A. FREDENBURG, T. McCOY, A. JAKUS, J. COCHRAN, **N. THADHANI**, School of Matls Sci. and Eng., Georgia Inst. of Technology, Atlanta, GA, USA

CB-11.2:L04 **Simulation of Gasless Combustion of Mechanically Activated Solid Powder Mixtures**
S. RASHKOVSKIY, Inst. for Problems in Mechanics of RAS, Moscow, Russia

CB-11.2:IL05 **Gasless Combustion: Physical Modelling of the Process**
A.S. ROGACHEV, Institute of Structural Microkinetiks and Materials Science, RAS, Chernogolovka, Moscow region, Russia

CB-11.2:IL06 **Modeling the Combustion Synthesis of Intermetallic Compounds**
F. BARAS, F. BERNARD, Lab. Interdisciplinaire Carnot de Bourgogne, UMR 5209 CNRS-Université de Bourgogne, Dijon Cedex, France

CB-11.2:L07 **Reaction Kinetics and Phase Formation Laws in Mo/Si Macro/nanoscale Diffusion Couple**
M.A. AGHAYAN, Yerevan State University & A.B. Nalbandyan Institute of Chemical Physics NAS RA, Yerevan, Armenia; H.A. CHATILYAN, A.B. NALBANDYAN, Institute of Chemical Physics NAS RA, Yerevan, Armenia; S.L. KHARATYAN, Yerevan State University & A.B. Nalbandyan Institute of Chemical Physics NAS RA, Yerevan, Armenia

CB-11.2:L08 **Macrokinetics of Formation of Macrostructure of Product in SHS**
V. PROKOFIEV, V. SMOLYAKOV, Dept. of Structural Macrokinetics of Tomsk Scientific Center of Siberian Branch of RAS, Tomsk State Univ., Tomsk, Russia

Session CB-11.3
SHS of Ceramic Powders

CB-11.3:IL01 **Composites Produced by SHS Method - Current Development and Future Trends**
J. LIS, AGH University of Science and Technology, Faculty of Materials Science and Ceramics, Cracow, Poland

CB-11.3:IL02 **Carbon Combustion Synthesis of Ceramic Oxide Nanopowders**
K. MARTIROSYAN, Dept. of Chemical and Biomolecular Engineering, University of Houston, Houston, TX, USA

CB-11.3:L03 **Combustion Synthesis of Nanosized Tungsten Carbide Powders**
H.I. WON, H.H. NERSISYAN, C.W. WON, Rapidly Solidified Materials Research Center (RASOM), Chungnam National University, Daejeon, South Korea

CB-11.3:L04 **Double SHS of W2B5 Powder from CaWO4 and B2O3**
S. YAZICI, **B. DERIN**, Metallurgical and Materials Engineering Dept., Istanbul Technical University, Maslak, Istanbul, Turkey

CB-11.3:IL05 **Regulation of Crystallites Size in Ceramic SHS**
S.L. KHARATYAN, Institute of Chemical Physics NAS RA, Yerevan, Armenia and Yerevan State University, Yerevan, Armenia

CB-11.3:L06 **Production of Zirconium Diboride Powder by Self Propagating High Temperature Synthesis**
B. AKKAS, M. ALKAN, O. YUCEL, Metallurgical & Matls Eng. Dept., Istanbul Technical University, Istanbul, Turkey

CB-11.3:L07 **Combustion Synthesis of Tungsten Containing Ceramic Materials**
Kh.V. MANUKYAN[1,2], S.L. KHARATYAN[1,2], R.A. MNATSAKANYAN[2], A. ZURNACHYAN[2], A. VOSKANYAN[1], V. DANGHYAN[1], [1]Yerevan State University, Yerevan, Armenia; [2]A.B. Nalbandyan Institute of Chemical Physics NAS, Yerevan, Armenia

CB-11.3:L08 **LED Phosphors: Combustion Synthesis and Characterization**
H.H. NERSISYAN, C.W. WON, RASOM, Chungnam National University, Daejeon, South Korea

CB-11.3:L09 **Catalyst-induced Vapor-solid Growth Route for Synthesis of B_4C Nanostructures: Nanobelts, Platelets and Whiskers**
S. ILDAY, Graduate Program of Materials Science and Nanotechnology, Bilkent University, Ankara, Turkey; **E. BENGU**, Dept. of Chemistry, Bilkent University, Ankara, Turkey

Session CB-11.4
Direct Production of SHS Products and their Characterization

CB-11.4:IL01 **Advances SHS-Ceramic Materials for Surface Engineering Technologies**
E.A. LEVASHOV, V.V. KURBATKINA, YU.S. POGOZHEV, A.E.KUDRYASHOV, National University of Science and Technology "MISIS", Moscow, Russia

CB-11.4:IL02 **Self-propagating High-temperature Synthesis of Iron- and Copper-matrix Cermets**
A. CHRYSANTHOU, School of Engineering and Technology, University of Hertfordshire, Hatfield, UK

CB-11.4:L03 **Combustion Synthesis of SiAlON Ceramics**
K.L. SMIRNOV, Institute of Structural Macrokinetics and Materials Science, RAS, Chernogolovka, Moscow Region, Russia

CB-11.4:L04 **Sintering of Ti2AlC Powders Obtained by SHS Process**
L. CHLUBNY, J. LIS, M.M. BUCKO, AGH University of Science and Technology, Dept. of Ceramics and Refractories, Cracow, Poland

CB-11.4:L05 **About Influence of Green Mixture Morphology on the Macrostructure of Porous SHS Products**
A.S. MAZNOY, A.I. KIRDYASHKIN, YU.M. MAKSIMOV, Dept. of Structural Macrokinetics of Tomsk Science Centre of the Siberian Branch RAS, Tomsk, Russia

CB-11.4:IL06 **Catalytic Properties of SHS Products**
G.G. XANTHOPOULOU, Institute of Materials Science, "Demokritos" National Center for Scientific Research, Athens, Greece

CB-11.4:IL07 **Self-Propagating High-Temperature Synthesis of Cast Ceramics: Phenomenology, Mechanisms, Applications, and Practical Implementation**
V.I. YUKHVID, Institute of Structural Macrokinetics and Materials Science, RAS, Chernogolovka, Moscow region, Russia

Session CB-11.5
Industrialization and Application of SHS Ceramics

CB-11.5:IL01 **Mass-forced SHS Technology of Ceramic Materials**
O. ODAWARA, Tokyo Institute of Technology, Yokohama, Japan

CB-11.5:IL02 **Development and Industrialization of Nano Materials (Metal and Ceramic) by SHS Process**
CHANG WHAN WON, Advanced Nanomaterial Dept., Chungnam National University, Daejeon, South Korea

CB-11.5:IL03 **SHS Refractory Materials Furnon and their Practical Implementations in Kazakhstan and Russia**
Z.A. MANSUROV, Al-Farabi Kazakh National University, Almaty, Rep.of Kazakhstan

CB-11.5:L04 **On Isolation of Tc into Matrices Using SHS Process**
S. YUDINTSEV, IGEM RAS, Moscow, Russia; E.E. KONOVALOV, IPPE, Obninsk, Russia; A.V. KUPRIN, Moscow, Russia

CB-11.5:IL05 **Development of Science Intensive Production Based on Important Scientific Discoveries**
A.G. MERZHANOV, ISMAN, Chernogolovka, Moscow region, Russia

CB-11.5:IL06 **Past and Current Accomplishments in Production of Ceramic Powders and Structures by Self-Propagating High-Temperature Synthesis Method**
J.A. PUSZYNSKI[1], A. DEGRAW[2], [1]South Dakota School of Mines and Technology, Rapid City, SD, USA; [2]Advanced Material Technologies, Inc., Morristown, TN, USA

Poster Presentations

CB-11:P01 **LiFePO4 Nanoparticles Synthesis by Impregnated Layer Combustion Method**
S.J. KIM, H.H. NERSISYAN, C.W. WON, RASOM, Chungnam National University, Yuseong, Daejeon, Korea

CB-11:P02 **Utilization of NbC Nanoparticles Obtained by Reactive Milling in Production of Alumina Niobium Carbide Nanocomposites**
V. TROMBINI, A.H.A. BRESSIANI, Instituto de Pesquisas Energeticas e Nucleares, Sao Paulo, SP, Brazil; E.M.J.A. PALLONE, USP, Faculdade de Zootecnia e Engenharia de Alimentos, Pirassununga,SP, Brasil; R. TOMASI, UFSCAR-DEMa Sao Carlos, SP, Brazil

CB-11:P03 **Synthesis and Luminescent Properties of Submicrometer Size Green Phosphor Powder for PDP Application**
H.H. YOO, H.H. NERSISYAN, C.W. WON, RASOM, Chungnam National University, Yuseong, Daejeon, Korea

CB-11:P04 **Combustion Process of Tantalum Powders for Electrolytic Condenser**
H.S. WON, H.I. WON, H.H. NERSISYAN, C.W. WON, RASOM, Chungnam National University, Yuseong, Daejeon, Korea

CB-11:P05 **Synthesis of Gradient Materials in Ti-Al System Containing Nanostructure Layer**
G. ONIASHVILI, G. ZAKHAROV, Z. ASLAMAZASHVILI, I. JANELIDZE, F. TAVADZE, Institute of Metallurgy and Materials Science, Tbilisi, Georgia

Focused Session CB-12
LAYERED AND FUNCTIONALLY GRADED MATERIALS
Endorsed by LGM-AS - International Association for Layered and Graded Materials (WAC Member)

Oral Presentations

Session CB-12.1
Layered and Graded Materials, Composites and Hybrids

CB-12.1:IL01 **The Potential of Spark Plasma Sintering (SPS) Method for the Fabrication on an Industrial Scale of Functionally Graded Materials (FGMs)**
M. TOKITA, NJS Co., Ltd., Yokohama, Japan

CB-12.1:IL02 **Comparison of Microwave and Conventional Sintering of LHA Ceramics and Functionally Graded Alumina-LHA Ceramics**

Z. NEGAHDARI, M. WILLERT-PORADA, Materials Processing, Faculty of Engineering Science, University of Bayreuth, Bayreuth, Germany

CB-12.1:L04 **Fabrication of Functionally Graded ZTA Ceramics Using a Novel Combination of Freeze Casting and Electrophoretic Deposition (EPD)**
A. PREISS, B. SU, Univ. of Bristol, Dept. Oral & Dental Science, Bristol, UK

CB-12.1:L05 **Mechanical Evaluation of Functionally Graded Powder Metallurgy Components**
O. CARVALHO, D. SOARES, F.S. SILVA, Dept. of Mechanical Engineering, University of Minho, Azurém, Guimarães, Portugal

CB-12.1:IL06 **Functionally Graded Materials (FGM) and Spark Plasma Sintering (SPS)**
M.P. DARIEL, Ben-Gurion University of the Negev, Dept. of Materials Eng., Beer-Sheva, Israel

CB-12.1:IL07 **Effects of Strain-graded Plastic Deformation on Mechanical Properties of Metals**
K. MATSUURA, M. OHNO, Division of Matls Science and Engrg, Hokkaido University, Sapporo, Hokkaido, Japan

CB-12.1:L08 **CMC with a Graded Lay-up Manufactured via LSI-process**
M. FRIESS, C. ZUBER, B. HEIDENREICH, German Aerospace Center (DLR), Inst. of Structures and Design, Stuttgart, Germany

CB-12.1:L09 **High Reliability Alumina-silicon Carbide Laminated Composites**
F. DE GENUA, **V.M. SGLAVO**, DIMTI, University of Trento, Trento, Italy

CB-12.1:L10 **Control of Crystallographic Orientation in Alumina Laminate Using EPD in a Strong Magnetic Field**
T.S. SUZUKI, T. UCHIKOSHI, Y. SAKKA, National Institute for Materials Science, Tsukuba, Ibaraki, Japan

Session CB-12.2
Layered and Graded Thin and Thick Coatings

CB-12.2:IL01 **Multifunctional Nanostructured Films for Biomedical Applications**
D.V. SHTANSKY, I.A. BASHKOVA, A.N. SHEVEIKO, E.A. LEVASHOV, National University of Science and Technology "MISIS", Moscow, Russia; N.A. GLOUSHANKOVA, Cancer Research Center, Moscow; A.S. GRIGORYAN, Central Research Dental Institute, Moscow, Russia

CB-12.2:IL02 **Fabrication of Porous Intermetallic Thick Films by Metallic Powder-liquid Reaction**
T. OHMI, M. IGUCHI, Hokkaido University, Sapporo, Hokkaido, Japan

CB-12.2:IL03 **High-strength Reaction-sintered Silicon Carbide for Large-scale Mirrors**
S. SUYAMA, Y. ITOH, Power and Industrial Systems R&D Center, Toshiba Corp., Yokohama, Japan

CB-12.2:IL04 **Development of Functionally Graded Coating Based Plasma Facing Materials for Fusion Reactor**
CHANG-CHUN GE[1,2], SHUANG-QUAN GUO[2], YUN-BIAO FENG[2], ZHANG-JIAN ZHOU[1], WEI-LIANG LIU[2,3], [1]Inst. Nuclear Materials, Univ. of Science and Technology Beijing (USTB), Beijing; [2]School of Materials Science & Eng., Southwest Jiaotong Univ., Chengdu; [3]Jingdezhen Ceramic Inst., Jingdezhen, P.R. China

CB-12.2:IL05 **Electrodeposition of Functional Molecules for Biomaterials**
T. HANAWA, K. OYA, K. KURASHIMA, Y. TSUTSUMI, H. DOI, N. NOMURA, Institute of Bioamaterials and Bioengineering, Tokyo Medical and Dental University, Tokyo, Japan

CB-12.2:L06 **Multifunctional Ti Oxide-based Films for Biomedical Applications**
A.C. ALVES[1], P. PONTHIAUX[2], **L.A. ROCHA**[1,3], [1]CT2M, Univ. of Minho, Portugal; [2]LGPM - Ecole Centrale Paris, France; [3]DEM - Univ. of Minho, Portugal

Session CB-12.3
Modeling of Materials and Processes

CB-12.3:IL01 **Processing of Ceramic Coatings and Multilayered Ceramics**
R. BORDIA, University of Washington, Seattle, WA, USA; O. GUILLON, Technische Universität Darmstadt, Darmstadt, Germany; C. MARTIN, CNRS/Grenoble-INP, Laboratoire SIMAP, Saint Martin d'Heres cedex, France

CB-12.3:IL02 **Numerical Analysis on Fabrication Process of FGM Cermet Based on SHS Reaction**
M. OHNO, K. MATSUURA, Graduate School of Engineering, Hokkaido University, Sapporo, Japan

CB-12.3:IL03 **Dual Scale Failure Modeling of Composite Structures for a Fusion Reactor**
JEONG-HA YOU, Max-Planck-Institute of Plasma Physics, Garching, Germany

CB-12.3:L04 **Magnetoelectric Characterization of Compositionally Graded Magnetostrictive-piezoelectric Layered Structures**
V. PETROV, Novgorod State University, Veliky Novgorod, Russia; G. SRINIVASAN, S.K. MANDAL, Oakland University, Rochester, MI, USA

CB-12.3:L05 **Computation of Mixed-mode Stress Intensity Factors**
A. SHAGHAGHI MOGHADDAM, R. GHAJAR, Mechanical Engineering Dept., University of KNTU, Tehran, Iran; M. ALFANO, Mechanical Engineering Dept., University of Calabria, Rende (CS), Italy

Poster Presentations

CB-12:P01 **Defect Crystal Structure of Low Temperature Modifications of Li2MO3 (M=Ti, Sn) and Related Hydroxides**
N.V. TARAKINA, **T.A. DENISOVA**, Y.V. BAKLANOVA, L.G. MAKSIMOVA, Institute of Solid State Chemistry, Ural Branch of RAS, Ekaterinburg, Russia; R.B. NEDER, Kristallographie und Strukturphysik, Universität Erlangen, Erlangen, Germany

CB-12:P02 **Layered Alumina Ceramics with Porosity Steps**
E. GREGOROVA, M. CHMELICKOVA, Z. ZIVCOVA, W. PABST, ICT Prague, Prague, Czech Republic

CB-12:P03 **Relationship Between Microstructure and Hardness of ZrN/TiN Multi-Layers with Various Bilayer Thickness**
Y. AOI, S. FURUHATA, Ryukoku University, Otsu, Shiga, Japan; H. NAKANO, Toyohasi University of Technology, Toyohasi, Japan

CB-12:P04 **Atomic and Electronic Structure of Zinc and Copper Pyrovanadates with Negative Thermal Expansion**
T. KRASNENKO, N. MEDVEDEVA, V. BAMBUROV, Inst. of Solid State Chem., Urals Div. RAS, Ekaterinburg, Russia

SYMPOSIUM CC
PROGRESS IN THE UNDERSTANDING AND CONTROL OF CERAMICS SURFACES FOR TRIBOLOGY AND CORROSION

Oral Presentations

Session CC-1
Corrosion

CC-1:IL02 **Interaction Between Corrosion and Wear of Silicon Carbide**
K.G. NICKEL, V. PRESSER, C. BERTHOLD, University of Tuebingen, Applied Mineralogy, Tuebingen, Germany

CC-1:IL03 **Stability of Oxides in High Temperature Water Vapor**
E.J. OPILA, NASA Glenn Research Center, Cleveland, OH, USA

CC-1:L04 **Influence of Hydrofluoric Acid Concentration and pH on Corrosion of Porous Multi-oxide Engineering Ceramics**
M. MANNILA, A. HÄKKINEN, Lappeenranta University of Technology, Lappeenranta, Finland

CC-1:L05 **Design of Nano- and Meso-structured Sol-gel Coatings**
S. DE MONREDON-SENANI, E. CAMPAZZI, EADS Innovation Works, Metallic Technologies and Surface Treatment Engineering, Suresnes, France; C. SANCHEZ, F. RIBOT, L. NICOLE, J. MONGET, Lab. Chimie de la Matière Condensée de Paris, UMR CNRS 7574-UPMC, Paris, France

CC-1:L06 **Electrochemical Corrosion of Silicon Carbide Ceramics in Aqueous Solutions**
M. HERRMANN*, U. SYDOW**, K. SEMPF*, M. SCHNEIDER*, H.J. KLEEBE***, A. MICHAELIS**, *Fraunhofer Inst. for Ceramic Technologies and Systems, Dresden, Germany; **TU Dresden, Inst. of Materials Science, Dresden, Germany; ***Technische Universität Darmstadt, Inst. for Applied Geosciences, Darmstadt, Germany

CC-1:IL07 **In Situ HTXRD Studies of Oxidation of ZrB_2 and ZrB_2-SiC Composites**
P. SARIN, P. DRIEMEYER, R.P. HAGGERTY, D.-K. KIM, J.L. BELL, W.M. KRIVEN, Dept. of Materials Science and Engineering, University of Illinois at Urbana-Champaign, Urbana, IL , USA

CC-1:IL08 **Tribological Performance of Polymer Coatings for Aggressive Sliding Conditions**
A.A. POLYCARPOU, E. ESCOBAR NUNEZ, SEUNG MIN YEO, Dept. of Materials Science and Engineering, University of Illinois at Urbana-Champaign, Urbana, IL , USA

CC-1:IL09 **Changes in Surface Properties of Alumina Toughened Zirconia (ATZ) by Hydrothermal Aging and Wear**
J. SCHNEIDER, CH. KAPS, Bauhaus University Weimar, Dept. of Building and Material Chemistry, Weimar, Germany; S. BEGAND, TH. OBERBACH, Mathys Orthopaedie GmbH, Moersdorf, Germany

CC-1:L10 **Corrosion of Single Crystal Cordierite by Model Diesel Particulate Ashes**
N. MAIER, K.G. NICKEL, Univ. of Tuebingen, Applied Mineralogy, Tuebingen, Germany; C. ENGEL, A. MATTERN, Robert-Bosch AG, Stuttgart, Germany

CC-1:L12 **Study of Corrosion Behavior of Conventional and Nanostructured WC-Co HVOF Sprayed Coats**
SH. KHAMENEH ASL[1], M.R. SAGHI BEYRAGH[2], M.G. KAKROUDI[1], [1]Dept. of Mats Eng., Faculty of Mechanical Engineering, University of Tabriz,Tabriz, Iran; [2]Faculty of Matls Eng., Sahand University of Technology, Tabriz, Iran

Session CC-2
Friction and Wear

CC-2:IL01 **Wear Mechanisms of Nanocrystalline Ceramic/Metal Composites**
F. GAERTNER, H. KREYE, T. KLASSEN, Helmut Schmidt University, Hamburg, Germany

CC-2:IL02 **Simulation of Atomic-scale Wear of Graphene**
N. SASAKI, Dept. of Matls and Life Science, Seikei University, Tokyo, Japan

CC-2:IL03 **Wear in Nanofriction**
R. BENNEWITZ, P. EGBERTS, INM - Leibniz Institute for New Materials, Saarbrücken, Germany

CC-2:IL04 **Advanced Evaluation Methods of Residual Stress in Bioceramics Wear Surfaces**
G. PEZZOTTI, Ceramic Physics Lab. and Research Inst. for Nanoscience, Kyoto Institute of Technology, Kyoto, Japan, The Center for Advanced Medical Eng. and Informatics, Osaka University, Osaka, Japan; Dept. of Orthopaedics, Orthopaedic Research Center, Loma Linda University, Loma Linda, CA, USA

CC-2:L05 **In Situ Studies of Coatings Tribology**
C. MURATORE, A.A. VOEVODIN, Air Force Research Laboratory, Thermal Sciences and Materials Branch, Wright-Patterson AFB, OH, USA

CC-2:L06 **Surface Finish Assessment of Polishing Process of Tool Steels by Abrasion, using Diamond and Alumina Particles**
A.M. ZANATTA, J.O. GOMES, Centro de Competencia em Manufatura, Divisao de Eng. Mecanica-Aeronautica -ITA , Sao Jose dos Campos, S.P., Brazil; J.D. BRESSAN, Dept. of Mechanical Eng., UDESC Joinville, SC, Brazil

CC-2:L07 **Effect of Polymorphic Zirconia Phases on the Mechanical and Wear Properties of Cr3C2-NiCr Cermets**
Y.K. TÜR, **A. ÖZER**, C. DURAN, Gebze Institute of Technology, GYTE Material Science and Engineering, Kocaeli, Turkey

CC-2:IL08 **Nanoadhesion and Nanopeeling of Nanotube on Graphite**
K. MIURA, M. ISHIKAWA, Dept. of Physics, Aichi Univ. of Education, Kariya, Japan; N. SASAKI, Dept. of Matls and Life Sci., Seikei Univ., Tokyo, Japan

CC-2:IL09 **Nanoindentation and Small Scale Plasticity**
E. LE BOURHIS, Université de Poitiers, Lab. de Physique des Matériaux, UMR 6630 CNRS, SP2MI, Futuroscope-Chasseneuil, France

CC-2:IL10 **Characterization of Wear Mechanisms of Silicon Carbide Materials**
V. PRESSER, K.G. NICKEL, C. BERTHOLD, Eberhard-Karls-Universität Tübingen, Inst. for Geosciences, Applied Mineralogy, Tübingen, Germany

CC-2:L11 **Study on the Development of Resource-saving High Performance Slurry - Polishing/CMP for HDD Glass Substrates, Using Slurry Mixed with Manganese Abrasives to Replace Ceria Abrasives-**
T.K. DOI, T. YAMAZAKI, S. KUROKAWA, S. ISAYAMA, Y. UMEZAKI, Y. MATSUKAWA, Dept. of Mechanical Engineering, Kyushu University, Fukuoka-shi, Japan; Y. AKAGAMI, Akita Prefecturaru, R&D Center; Y. YAMAGUCHI, Mitsui Mining & Smelting Co., Ltd.; S. KISHII, Fujitsu Lab. Ltd., Japan

CC-2:L12 **Wear Behaviour of Diamond Coated Silicon Nitride Ceramics**
M. HERRMANN, S. SEMPF, A. BALES, **M. HOEFER**, L. SCHAEFER, B. BLUG, T. HOLLSTEIN, J. KOENIG, Fraunhofer Allianz DIACER, Braunschweig, Germany

CC-2:IL13 **Novel Approaches for Following Atomic Scale Wear**
W.G. SAWYER, Dept. of Mechanical and Aerospace Eng., University of Florida, Gainesville, FL, USA

Poster Presentations

CC:P01 **Corrosion Resistance of Sulfur Polymer Concrete in Acidic Solution**
V. VIDOJKOVIC, **S. MARTINOVIC**, T. BOLJANAC, Institute for Technology of Nuclear and Other Mineral Raw Materials, Belgrade, Serbia; R. JANCIC HEINEMANN, T. VOLKOV-HUSOVIC, University of Belgrade, Faculty of Technology and Metallurgy, Belgrade, Serbia

CC:P02 **Performance of Blended Cement Concrete Against Seawater Attack**
H.EL-DIN H. SELEEM*, **A.M. RASHAD***, B.A. EL-SABBAGH**, *Building Materials Research and Quality Control Institute; **Raw Building Materials Technology and Processing Research Institute Housing & Building National Research Center, HBRC, Cairo, Egypt

CC:P03 **Oxidation Resistance and Corrosion Resistance of Molybdenum-Chromium Nitride**
M. NAGAE, N. ISE, H. KUWAHARA, Research Institute for Applied Science, Kyoto, Japan; J. TAKADA, Graduate School of Natural Science and Technology, Okayama University, Japan

CC:P04 **Mechanical Properties of Silicon Nitride Using RUS & C-Sphere Methodology**
M. HADFIELD[a], WEI WANG[a], A. WERESZCZAK[b], [a]School of Design, Eng. and Computing, Bournemouth University, Poole, UK; [b]Materials Science and Technology Division, Oak Ridge National Laboratory, Oak Ridge, TN, USA

SYMPOSIUM CD
CERAMIC JOINING

Oral Presentations

Session CD-1
Thermochemistry of Interface Formation and Mechanisms of Wetting and Adhesion

CD-1:IL01 **Contribution to the Theory of Ceramics/liquid Metal System Wettability. A Peculiarity of Contact Processes for Transition and Non=transition Metals**
Y. NAIDICH, Institute for Materials Science Problems of the National Ukrainian Academy of Sciences, Kiev, Ukraine

CD-1:IL02 **Metal Ceramic Reactivity: Thermodynamics and Kinetics**
F. HODAJ, SIMAP-UMR CNRS 5266, Grenoble INP-UJF, Saint Martin d'Heres Cedex, France

CD-1:IL03 **Thermodynamic Evaluation of Interface Formation in Ceramic/Metal Systems. Boron Carbide/Metal Systems**
N. FRAGE[a], M. AIZENSHTEIN[b], N. FROUMIN[a], M.P. DARIEL[a], [a]Dept. of Material Engineering, Ben-Gurion University, Beer-Sheva, Israel; [b]NRC-Negev, Beer-Sheva, Israel

CD-1:IL04 **Wetting of Ceramics by Molten Mg**
H. FUJII*, S. IZUTANI*, S. KIGUCHI**, K. NOGI*, *Joining and Welding Research Institute, Osaka University, Osaka, Japan; **Kinki University, Higashi-Osaka, Japan

CD-1:IL05 **From Reactive Wetting to Reactive Brazing**
N. EUSTATHOPOULOS, SIMaP, Grenoble-INP, Saint Martin d'Heres, France

CD-1:IL06 **Dynamic Wetting Problem in Thermal Spray Process**
M. FUKUMOTO, Toyohashi University of Technology, Toyohashi, Japan

CD-1:L07 **Improvement in Wettability by Ultrasound and its Application to Cast Joining**
Y. TSUNEKAWA, M. OKUMIYA, Y. FURUKAWA, Toyota Technological Institute, Nagoya, Japan

CD-1:L08 **Characterization and Performance of Glass-ceramic Sealants for SOECs**
H. KHEDIM[1], A.J. CONNELLY[1], E. VERNET[1], H. NONNET[1], D. COILLOT[2], L. BRUGUIÈRE[1], [1]CEA, DEN, Marcoule, Bagnols-sur-Cèze Cedex, France; [2]UCCS - Unité de Catalyse et Chimie du solide, UMR CNRS 8181, ENSC de Lille, Université des Sci. et Tech. de Lille, Villeneuve d'Ascq Cedex, France

CD-1:L09 **In-situ HRTEM Observations of Spreading Reactive Molten Alloy on Ceramic Substrates**
C. IWAMOTO, Dept. of Mechanical Engineering, Kumamoto University, Kumamoto, Japan; S.-I. TANAKA, Institute of Multidisciplinary Research for Advanced Materials, Tohoku University, Sendai, Japan

CD-1:IL10 **The Effect of Surface Adsorption on Substrate Wetting by Thermally Sprayed Particles**
M.M. HYLAND, A.T.T. TRAN, Dept. of Chemical and Materials Engineering, University of Auckland, New Zealand

Session CD-2
Theory, Modelling and Simulation of Interface Interactions

CD-2:IL01 **Modeling the Effects of Surface Segregation on the Equilibrium Shape of FCC Alloy Crystals**
D. CHATAIN, CINaM- CNRS, Aix Marseille University, Marseille, France; P. WYNBLATT, Dept. of Materials Science, Carnegie Mellon University, Pittsburgh PA, USA

CD-2:IL02 **Thermo-chemical Design of Brazed Diamond-metal Joints**
C. LEINENBACH, J. WANG, S. BUHL, M. ROTH, EMPA - Swiss Federal Labs for Materials Testing and Research, Laboratory of Joining and Interface Technology, Dübendorf, Switzerland

CD-2:IL03 **First-principles Theory and Atomistic Simulation of the Formation, Structure, and Stability of Incoherent Metal/ceramic Interfaces**
A. HASHIBON[1], C. ELSAESSER[1], P. GUMBSCH[1, 2]; [1]Fraunhofer IWM, Freiburg, Germany; [2]IZBS, University of Karlsruhe, Karlsruhe, Germany

CD-2:IL04 **First-principles DFT Modelling of Interface Adhesion in Metal/Ceramic Systems**
C. ELSAESSER, Fraunhofer IWM, Freiburg, Germany

CD-2:IL05 **Link of Micro- and Macro- in Wetting Phenomena: DFT Modeling, Binding at the Interface and Contact Angle**
D. FUKS, SH. BARZILAI, N. FROUMINA, N. FRAGE, Materials Engineering Dept., Ben Gurion University, Beer Sheva, Israel; E. GLICKMAN, Physical Electronics Dept., Tel Aviv University, Tel Aviv, Israel

Session CD-3
Advances in Joining Methods and Materials

CD-3:IL01 **Ultrarapid Transient-liquid-phase Bonding of Advanced Ceramics**
S.M. HONG, C.C. BARTLOW, T.B. REYNOLDS, N. SAITO, **A.M. GLAESER**, Dept. of Matls Science and Eng., University of California, Berkeley, CA, USA

CD-3:IL02 **Joining Ultra-high-temperature Materials: Ceramic/Metal Interfaces in Reactive Brazes**
J.E. INDACOCHEA, O. QUINTANA, Civil and Matls Eng. Dept., University of Illinois at Chicago, Chicago, IL, USA

CD-3:IL03 **Development of Joining Technique for SiC/SiC Composite Component Utilizing NITE Process**
T. HINOKI, Y.H. PARK, S. KONISHI, Kyoto University, Uji, Kyoto, Japan

CD-3:L04 **Perovskite Brazing on Metals for Steam Electrolysis Under Pressure**
J. LORICOURT, SCT, Société des Céramiques Techniques, Bazet, France; CNRS, IEM, UMR 5635, Montpellier, France; AREVA detached at IEM, Montpellier, France

CD-3:L05 **Brazing of C/SiC to Niobium Alloy C103 Using Cu-based Brazing Fillers**
X.Y. ZHANG, S.M. DONG, Z. WANG, L. GAO, Y.S. DING, P. HE, Shanghai Institute of Ceramics, Chinese Academy of Sciences, Shanghai, P.R. China

CD-3:IL06 **Reactive Air Brazing (RAB): A Novel Joining Technique for High-temperature Electrochemical Applications**
J.Y. KIM, K.S. WEIL, Pacific Northwest National Lab., Richland, WA, USA

CD-3:IL07 **Wetting and Joining in Transition Metals Diborides**
M.L. MUOLO*, F. VALENZA*, N. SOBCZAK**, A. PASSERONE*, *IENI-CNR, Genova, Italy; **Foundry Research Institute, Cracow, Poland

Session CD-4
Residual Stresses, Joint Modeling Design, Characterization and Analysis

CD-4:IL01 **Mechanical Properties and Residual Stress in Hermetic Feedthroughs for Medical Devices**
M.W. REITERER, Medtronic Strategy and Innovation, Medtronic, Inc., Minneapolis, MN, USA; B. TISCHENDORF, W.J. TAYLOR, A.J. THOM, Medtronic Energy and Component Center, Medtronic, Inc., Brooklyn Center, MN, USA

CD-4:IL02 **Measured Residual Stress/Strain Distributions in a Micro-Area around a Ceramic/Metal Interfaces**
S.-I. TANAKA, Institute of Multidisciplinary Research for Advanced Materials, Tohoku University, Sendai, Japan

CD-4:IL03 **Recent Advances in Joining of SiC Based Materials**
M. SALVO, V. CASALEGNO, M. FERRARIS, S.HAN, S. RIZZO, A. VENTRELLA, Politecnico di Torino, Dipartimento di Scienza dei Materiali e Ingegneria Chimica-DISMIC, Torino, Italy

CD-4:IL04 **Residual Stress Measurement around the Interface of Copper Bi-crystal Developed by Uniaxial Extension**
T. HANABUSA[1], A. SHIRO[2], T. OKADA[1], [1]Institute of Technology and Science, The University of Tokushima, Tokushima, Japan; [2]Graduate School of Advanced Technology and Science, The University of Tokushima, Tokushima, Japan

CD-4:IL05 **Preparation, Characterization and Applications of Glass-ceramic-to-metal Seals**
I.W. DONALD, B.L. METCALFE, L.A. GERRARD, P.M. MALLINSON, J.A. FERNIE, Materials Science Research Div., AWE, Aldermaston, Berkshire, UK

CD-4:IL06 **The Quality of Brazed Ceramic and Cemented Carbide Joints - A Mechanical and Metallurgical Assessment**
W. TILLMANN, L. WOJARSKI, Institute of Materials Engineering, TU Dortmund, Dortmund, Germany

CD-4:IL07 **Design and Characterization of Metal-ceramic Joints for High Temperature Applications**
N. SOBCZAK[1], R. ASTHANA[2], M. SINGH[3], [1]Centre for High Temeparture Studies, Foundry Research Institute, Cracow, Poland; [2]Dept. of Engineering & Technology, University of Wisconsin-Stout, Menomonie, WI, USA; [3]Ohio Aerospace Institute, NASA Glenn Research Center, Cleveland, OH, USA

CD-4:IL08 **Modelling and Computer Simulation of Residual Stresses at Joined Interfaces**
S. SCHMAUDER, Institute for Materials Testing, Materials Science and Strength of Materials (IMWF), University of Stuttgart, Stuttgart, Germany

CD-4:L09 **Temperature Modeling for Friction Welding Process Between Ceramic and Metal**
HAZMAN SELI, A. IZANI Md. ISMAIL, E. RACHMAN, Z. ARIFIN AHMAD, Universiti Sains Malaysia (USM), School of Matls Eng, Penang, Malaysia

Poster Presentations

CD:P01 **Finite Element Modeling of Thermal Stress in ITER Prototype Optical Windows and its Influencing Parameters**
M. JACOBS[1,2], G. VAN OOST[1], J. DEGRIECK[1], I. DEBAERE[1], A. GOUSSAROV[2], V. MASSAUT[2], [1]Ghent University, Ghent, Belgium; [2]SCK·CEN, Mol, Belgium

CD:P02 **Interfacial Microstructure and Properties of (SiC / SiC) Joint brazed with Ag-Cu-Ti Alloys**
A. NEMATI, **A.h. GHAZI DARYANI**, A.h. KOKABI, Dept. of Material Science & Eng., Sharif University of Technology, Tehran, Iran

SYMPOSIUM CE
CERAMICS AND COMPOSITES IN EXTREME ENVIRONMENTS

Oral Presentations

Session CE-1
Ultra High Temperature Ceramics

CE-1:IL01 **Material Properties Improvement in Ultra High Temperature Ceramics via Microstructure Tailoring**
GUO-JUN ZHANG, State Key Lab. of High Performance Ceramics and Superfine Microstructures, Shanghai Institute of Ceramics, Shanghai, China

CE-1:IL02 **Ceramics for Aeropropulsion Applications**
E.J. WUCHINA, M.M. OPEKA, Naval Surface Warfare Center, West Bethesda, MD, USA

CE-1:L03 **Oxidation Mechanism of ZrB2-SiC in a Solar Furnace Above 2200 °C**
A.-S. ANDREANI[1], A. POULON-QUINTIN[2], F. REBILLAT[1], [1]Laboratoire des Composites Thermostructuraux , UMR 5801 CNRS-Snecma-CEA-UB1, Pessac, France; [2]Institut de Chimie de la Matiere Condensee de Bordeaux, CNRS UPR 9048, Pessac, France

CE-1:L04 **Measurements of Cation and Anion Diffusion in Aluminum Oxide with ToF-SIMS**
T. NAGAKAWA, National Institute for Materials Science, Tsukuba, Japan; **J.D. McGUFFIN-CAWLEY**, A.H. HEUER, Case Western Reserve University, Cleveland, OH, USA

CE-1:L05 **Oxidation of ZrB2 Ceramics with Tungsten Carbide Additions**
SHI C. ZHANG, GREG E. HILMAS AND WILLIAM G. FAHRENHOLTZ, Dept. of Materials Science and Engineering, Missouri University of Science and Technology, Rolla, MO, USA

CE-1:IL06 **Mechanical and Electrical Properties of AlN-SiC Solid Solutions**
J. TATAMI, R. KOBAYASHI, T. WAKIHARA, K. KOMEYA, T. MEGURO, Yokohama National University, Yokohama, Japan; T. RONG, T. GOTO, Tohoku University, Sendai, Japan

CE-1:IL07 **Transparent Alumina for MWIR Windows and Domes**
M.R. PASCUCCI, M.V. PARISH, CeraNova Corporation, Marlborough, MA, USA

CE-1:L08 **Synthesis and Characterization of Multi-walled Carbon Nanotube Reinforced Tantalum Carbide Composites via Spark Plasma Sintering**
S.R. BAKSHI, V. MUSARAMTHOTA, **A. AGARWAL**, Plasma Forming Lab., Nanomechanical and Nanotribological Lab., Dept. of Mechanical and Materials Engineering, Florida International University, Miami, FL, USA

CE-1:L09 **Microstructure and Toughening Mechanisms of Reinforced ZrB2-based Ceramics**
D. SCITI, L. SILVESTRONI, V. MEDRI, S. GUICCIARDI, CNR-ISTEC, Institute of Science and Technology for Ceramics, Faenza, Italy

CE-1:L10 **Study of the Spark Plasma Sintering Behaviour of Microsized and Nanosized Zirconium Oxycarbide (ZrCxOy) Powders**
J. DAVID, M. GENDRE, A. MAÎTRE, G. TROLLIARD, B. SOULESTIN, Lab. Sciences des Procédés Céramiques et Traitements de Surface, UMR CNRS 6638, UFR Sciences et Techniques, Limoges Cedex, France

CE-1:L10b **Ablation Behavior of Pressure-less Sintered ZrB2-SiC Ultra High Temperature Ceramic Composites**
M. MALLIK, R. MITRA, K.K. RAY, Dept. of Metallurgical and Materials Engineering, Indian Institute of Technology, Kharagpur, India

CE-1:IL11 **ZrB2-Based Ceramics for Ultra-High Temperature Applications**
W.G. FAHRENHOLTZ, G.E. HILMAS, Missouri University of Science and Technology, Rolla, MO, USA

CE-1:IL12 **Synthesis of Mesoporous Carbide Ceramics**
YI-BING CHENG, Dept. of Matls Engrg, Monash University, Clayton, Australia

CE-1:L13 **Creep of Single Crystal ZrB2 Using Non-contacting Methods**
R.W. HYERS, University of Massachusetts, Amherst, MA, USA; R.P. AUNE, **K.W. WHITE**, Dept. of Mechanical Engineering, University of Houston, Houston, TX, USA

CE-1:L14 **Ultra-high Temperature Ceramics Containing TaSi2: Production, Microstructure Characterization, Mechanical and Oxidation Properties**
L. SILVESTRONI, D. SCITI, CNR-ISTEC, Institute of Science and Technology for Ceramics, Faenza, Italy

CE-1:L15 **Oxidation Behaviour of HfB2 Based Ceramics at Intermediate (~1600 °C) and Ultra High (~3000 °C) Temperatures**
D. DONI JAYASEELAN[a], P. BROWN[b], W.E. LEE[a], [a]Structural Ceramics Centre, Dept. of Materials, Imperial College London, UK; [b]Dstl, Porton Down, Salisbury, Wiltshire, UK

CE-1:L16 **Titanium Carbide Reinforced Composite Ceramic Tools Based on Alumina**
M. SZUTKOWSKA, B. SMUK, The Institute of Advanced Manufacturing Technology, Cracow, Poland; M. BONIECKI, The Institute of Electronic Materials Technology, Warsaw, Poland

CE-1:IL17 **Factors Affecting Oxidation Kinetics of Refractory Diborides**
T.A. PARTHASARATHY*, R.A. RAPP**, M. OPEKA***, M.K. CINIBULK, Air Force Research Laboratory, Materials and Manufacturing Directorate, AFRL/RXLN, Wright-Patterson AFB, OH, USA; *UES, Inc., Dayton, OH, USA; **The Ohio State University, Columbus, OH, USA; ***Naval Surface Warfare Center, Carderock, MD, USA

CE-1:IL18 **Novel Non-contact Measurement of Creep in ZrB2 and ZrB2-SiC Composites**
R.W. HYERS, University of Massachusetts, Amherst, MA, USA; J.R. ROGERS, NASA Marshall Space Flight Center, USA

Session CE-2
Nitride, Carbide and Boride Ceramics

CE-2:IL01 **Development of Nano-sized TiN Dispersed Si3N4 Ceramics**
K. KOMEYA, J. TATAMI, T. WAKIHARA, T. YAMAKAWA, Dept. of Materials Industry, Yokohama National University, Yokohama, Japan

CE-2:IL02 **Phase Equilibria in B4C-based Ceramics**
H.J. SEIFERT, Technical University of Freiburg, Institute of Materials Science, Freiberg, Germany

CE-2:IL03 **Defect Detection in Ceramic Armor Using Phased Array Ultrasound**
W.A. ELLINGSON, Argonne National Laboratory, Argonne, IL, USA; J.S. STECKENRIDER, Illinois College, Jacksonville, IL, USA ; T.J. MEITZLER, US Army, Warren, MI, USA

CE-2:IL04 **Silicon Nitride Ceramics - Microstructural Tailoring and Mechanical Properties**
M.J. HOFFMANN, S. FÜNFSCHILLING, TH. FETT, Karlsruhe Institute for Technology, Inst. for Ceramics in Mechanical Engineering, Karlsruhe, Germany

CE-2:L05 **Microstructure and Mechanical Properties of Rare-earth Doped Si3N4 and Si3N4/SiC Ceramics**
P. TATARKO[1], S. LOJANOVÁ[2], Z. CHLUP[3], **J. DUSZA**[1], P. SAJGALÍK[2], [1]Institute of Materials Research, SAS, Kosice, Slovak Republic; [2]Institute of Inorganic Chemistry, SAS, Bratislava, Slovak Republic; [3]Institute of Physics of Materiále, Academy of Sciences of the Czech Republic, Brno, Czech Republic

CE-2:L06 **Tribo-mechanical Properties of Carbon Nanotubes/Silicon Nitride Nanocomposites**
J. GONZALEZ-JULIAN*, J. SCHNEIDER**, P. MIRANZO*, M.I. OSENDI*, **M. BELMONTE***, *Institute of Ceramics and Glass (CSIC), Campus de Cantoblanco, Madrid, Spain; **Akademischer Oberrat, Universität Karlsruhe (TH), Inst. für Werkstoffkunde II c/o Forschungszentrum Karlsruhe, Eggenstein-Leopoldshafen, Germany

CE-2:L07 **Hot Pressed SiC-AlN Materials System - Solid Solution Effects**
B. MIKIJELJ, Z. NAWAZ, Ceradyne Inc, Costa Mesa CA, USA; J. ADAMS, J. LASALVIA, ARL, Aberdeen proving grounds, Aberdeen, MD, USA

CE-2:IL08 **Development of Scanning Microwave Technology for Ceramics in Extreme Environments**
J.R. LITTLE, Jr., Evisive, Inc., Baton Rouge, LA, USA

CE-2:IL09 **Development Strategies for SiAlON Ceramics**
H. MANDAL, Anadolu University, Dept. of Materials Science and Engineering, Eskisehir, Turkey, and MDA Advanced Ceramics Ltd., Eskisehir Technological Development Region, Turkey

CE-2:L10 **Ceramic Tool Materials for High Speed Cutting Process**
G. GORNY, **R. PAMPUCH**, L. SOBIERSKI, M. RACZKA, Faculty of Matls Science and Ceramics, University of Science and Technology, Cracow, Poland

CE-2:L11 **Synthesis of Needle-like TiN Particles and their Application to TiN-Si3N4 Composite**
H. KIYONO, Y. NIHEI, Y. MIYAKE, S. SHIMADA, Hokkaido University, Sapporo, Japan; T. TSUMURA, Oita University, Oita, Japan

CE-2:L12 **Boron Suboxide - based Composites: Thermal Stability and Tribological Testing**
I. SIGALAS, C. FREEMANTLE, University of Witwatersrand, Johannesburg, Wits, South Africa; M. HERRMANN, Fraunhofer Institute of Ceramic Technologies and Systems, Dresden, Germany

CE-2:IL13 **Microstructural Design of Si3N4 Ceramics via Preceramic Polymer Additives**
G. MOTZ, University of Bayreuth, Bayreuth, Germany

CE-2:IL14 **Robust Net Shape Forming of High Temperature Silicon Nitride Based Gas Turbine Components**
V.K. PUJARI, A. VARTABEDIAN, G. WAYMAN, Saint-Gobain Ceramics & Plastics Inc., Northboro, MA, USA

CE-2:L15 **SiC Nanostructured Ceramics from Laser Grown Nano-powders Sintered by SPS**
Y. LECONTE, X. LANDREAU, S. COSTE-LECONTE, N. HERLIN-BOIME, CEA, IRAMIS, SPAM, LFP, Gif sur Yvette, France; G. BONNEFONT, G. FANTOZZI, MATEIS, UMR CNRS 5510, Université de Lyon, INSA de Lyon, Villeurbanne, France

CE-2:L16 **The Effects of C and SiC for Sintering Si3N4/SiC Composites**
C. SAHIN[1], Z. TASLICUKUR[1], F. CINAR SAHIN[2], N. KUSKONMAZ[1], [1]Yildiz Technical University, Metallurgical and Materials Engineering Dept., Istanbul, Turkey; [2]Istanbul Technical University, Metallurgical and Materials Engineering Dept., Istanbul, Turkey

CE-2:IL17 **Hot Rolling Steels and Super Alloys with Silicon Nitride Tools**
R. DANZER, Institut für Struktur- und Funktionskeramik, Montanuniversität Leoben, Leoben, Austria

CE-2:IL18 **Silicon Nitride Ceramics for Product and Process Innovation**
K. BERROTH, FCT Ingenieurkeramik GmbH, Rauenstein, Germany

CE-2:L19 **Electrical Discharge Machining of B4C-TiB2 Composites**
O. MALEK[1, 2], J. VLEUGELS[2], S. HUANG[2], Y. PEREZ[3], P. DE BAETS[3], B. LAUWERS[1], [1]K.U. Leuven, Dept. of Mechanical Eng., Leuven, Belgium; [2]K.U. Leuven, Dept. of Metallurgy and Materials Eng., Leuven, Belgium; [3]Universiteit Gent, Mechanical Construction and Production - Lab. Soete, Gent, Belgium

CE-2:L20 **Wettability of Molten Na3AlF6 on Si3N4-SiC Composites**
O. PREZIOSA, **A. DENOIRJEAN**, P. DENOIRJEAN, G. MONTAVON, G. DI VITA, S. FOUCAUD, A. MAÎTRE, SPCTS - UMR 6638, University of Limoges, Limoges, France; T. CHARTIER, SPCTS - UMR CNRS 6638, ENSCI, Limoges, France; C. BARTHÉLEMY, V. LAURENT, ALCAN CRV, URA Electrolyse et Matériaux Réfractaires, Voreppe, France; D. LOMBARD, RIO TINTO ALCAN, LRF, Saint Jean de Maurienne, France

Session CE-3
Precursor Derived Ceramics

CE-3:IL01 **New Precursors for Synthesis of High Temperature Ceramics**
CAIHONG XU, Institute of Chemistry, Chinese Academy of Sciences, Beijing, China

CE-3:IL02 **Characterization of Polymer-Derived Ceramics via Transmission Electron Microscopy**
H.-J. KLEEBE, Technische Universität Darmstadt, Institute for Applied Geosciences, GeoMaterial Science, Darmstadt, Germany

CE-3:L03 **Development of Zirconia-toughened Mullite Matrix Composites from a Nano-filled Preceramic Polymer**
E. BERNARDO, **G. PARCIANELLO**, P. COLOMBO, University of Padova, Padova, Italy

CE-3:L04 **High-temperature Behavior of Novel SiOC/HfO2 Ceramic Nano-composites at T> >1000 °C**
B. PAPENDORF, E. IONESCU, R. RIEDEL, Institut für Materialwissenschaft, Technische Universität Darmstadt, Darmstadt, Germany; H.J. KLEEBE, K. NONNENMACHER, Institut für Geowissenschaft, Technische Universität Darmstadt, Darmstadt, Germany

Session CE-4
Ternary Compounds

CE-4:IL01 **The Max Phases: Ductile, Machinable Ternary Carbides and Nitrides for High Temperature and Other Applications**
M.W. BARSOUM, Dept. of Materials Science and Engineering, Drexel University, Philadelphia, PA, USA

CE-4:IL02 **Low Cost Processing and Property Control of Layered Ternary Carbides and Nitrides (MAX Phases)**
YANCHUN ZHOU, High-performance Ceramic Division, Shenyang National Lab. for Materials Science, Institute of Metal Research, CAS, Shenyang, China

CE-4:L03 **Thermal Stability of Ti3Al1-xSixC2 Solid Solutions**
JIXIN CHEN, Y.C. ZHOU, J. ZHANG, SYNL, Institute of Metal Research, CAS, Shenyang, China

CE-4:L04 **Thermal Stability of MAX Phases in Vacuum**
W.K. PANG, **I.M. LOW**, Dept. of Applied Physics, Curtin University of Technology, Perth, WA, Australia

CE-4:L05 **Pressureless Sintering and Properties of Ti3AlC2**
X.P. LU, Y.C. ZHOU, High-performance Ceramic Division, Shenyang National Lab. for Materials Science, Institute of Metal Research, CAS, Shenyang, China

CE-4:IL06 **Structure and Property Control of Layered Ternary Carbides and Nitrides**
JINGYANG WANG, YANCHUN ZHOU, High-performance Ceramic Division, Shenyang National Lab. for Materials Science, Institute of Metal Research, CAS, Shenyang, China

CE-4:L07 **Microstructure Evolution During the High Temperature Oxidation of Ti2AlN Ceramics**
BAI CUI, W.E. LEE, R. SA, D.D. JAYASEELAN, Dept. of Materials, Imperial College London, London, UK; F. INAM, M.J. REECE, Centre for Materials Research and School of Engineering and Materials Science, Queen Mary, University of London, London, UK

CE-4:L08 **First-principles Investigation of Formation and Migration of Defects in Layered Ternary Carbides (MAX Phases)**
JIEMIN WANG, JINGYANG WANG, YANCHUN ZHOU, High-performance Ceramics Division, Shenyang National Laboratory for Materials Research, Institute of Metal Research, CAS, Shenyang, China

CE-4:L09 **Porous Ti3AlC2 as Catalyst Support for Cleaning Vehicle Exhaust**
XIAOHUI WANG, Y.C. ZHOU, Shenyang National Laboratory for Materials Research, Institute of Metal Research, CAS, Shenyang, China

Session CE-5
Composites for Extreme Environments

CE-5:IL01 **Near-net-shape Thermoplastic Forming of Alumina-silicon Carbide Nanocomposites**
F. KERN, R. GADOW, IFKB - Universität Stuttgart, Stuttgart, Germany

CE-5:IL02 **Ceramic Composites for High Temperature Propulsion System**
D.B. MARSHALL, Teledyne Scientific, Thousand Oaks, CA, USA

CE-5:L03 **Evaluation of Fatigue Life of Ceramic Matrix Composites Utilizing Novel Evaluation Technique**
K. TOYOSHIMA, T. HINOKI, A. KOHYAMA, Kyoto University, Uji, Japan

CE-5:L04 **Prediction of Lifetime in Static Fatigue, at High Temperatures for Ceramic Matrix Composites, Based on a Probabilistic Fracture Mechanics Model**
O. DE MELO-LOSEILLE, J. LAMON, Université de Bordeaux/CNRS Laboratoire des Composites Thermostructuraux 3, Pessac, France

CE-5:L05 **Thermal Residual Stresses Generated during Processing of Cr-Al2O3 Composites and their Influence on Macroscopic Elastic Properties**
W. WEGLEWSKI[1], M. CHMIELEWSKI[2], D. KALINSKI[2], K. PIETRZAK[1, 2], M. BASISTA[1], [1]Institute of Fundamental Technological Research, Polish Academy of Sciences, Warsaw, Poland; [2]Institute of Electronic Materials Technology, Poland

CE-5:IL06 **Mechanical Behaviour at High Temperature of Ceramic Matrix Composites and Damage**
P. REYNAUD, M. R'MILI, N. GODIN, G. FANTOZZI, Université de Lyon, INSA-Lyon, MATEIS CNRS UMR 5510, Villeurbanne, France

CE-5:IL07 **Boron Nitride and Boron Nitride Composites for Applications under Extreme Conditions**
J. EICHLER, C. LESNIAK, ESK Ceramics GmbH & Co. KG, Kempten, Germany

CE-5:L08 **Microstructural and Thermo-mechanical Characterization of Yttria Ceramic Cores for Investment Casting, With and Without Particulate Reinforcement**
A. BRENTARI, M. VILLA, E. LEONI, **C. MINGAZZINI**, M. LABANTI, S. SANGIORGI, ENEA, Engineering of Components and Processes Section, Faenza Research Centre, Italy

CE-5:L09 **Corrosion Resistance Under Wet Atmosphere of Coated and Uncoated Sic-based Composites**
G. DI VITA[1], S. FOUCAUD[1], A. MAÎTRE[1], T. CHARTIER[1], A. DENOIRJEAN[1], O. PREZIOSA[1], G. MONTAVON[2], C. BARTHÉLEMY[3], V. LAURENT[3], D. LOMBARD[4], [1]Lab. Science des Procédés Céramiques et de Traitements de Surface, UMR CNRS 6638, Université de Limoges, Limoges Cedex, France; [2]LERMPS - UTBM, site de Sévenans, Belfort Cedex, France; [3]Alcan CRV - URA Electrolyse et Matériaux Réfractaires, Voreppe Cedex, France; [4]Alcan LRF, Saint-Jean-de-Maurienne, France

Poster Presentations

CE:P01 **Processing and Characterization of Zr-, Hf- and Ta- based Ultra High Temperature Ceramics**
R. LICHERI, **R. ORRU'**, C. MUSA, G. CAO, Dip. Ingegneria Chimica e Materiali, Centro Studi sulle Reazioni Autopropaganti (CESRA), Unità di Ricerca del Consorzio Interuniversitario Nazionale per la Scienza e Tecnologia dei Materiali (INSTM), Unità di Ricerca del CNR - Dip. di Energia e Trasporti, Università degli Studi di Cagliari, Cagliari, Italy, IM-Innovative Materials S.r.l., Sestu, Cagliari, Italy

CE:P02 **Short and Long Range Structural Study of Mullite Zirconia Zircon Composite Materials**
N.M. RENDTORFF, E.F. AGLIETTI, Centro de Tecnología de Recursos Minerales y Cerámica (CETMIC: CONICET-CIC); M.B. GONNET, Buenos Aires, Argentina and CONICET; S. CONCONI, Centro de tecnología de Recursos Minerales y Cerámica (CETMIC: CONICET-CIC); M.B. GONNET, Buenos Aires, Argentina and CICPBA; P.C. RIVAS, IFLP, Facultad de Ciencias Agrarias y Forestales, Universidad Nacional de La Plata, La Plata, Argentina and CONICET; **J.A. MARTÍNEZ**, M.C. CARACOCHE, A.F. PASQUEVICH, C.Y. CHAIN, Depto de Física, IFLP, Facultad de Ciencias Exactas, Universidad Nacional de La Plata, La Plata, Argentina and CICPBA

CE:P04 **Production and Characterization Alumina-diamond Composites and Nanocomposites**
E.M.J.A. PALLONE, USP, FZEA, Pirassununga, SP, Brazil; V. TROMBINI, Instituto de Pesquisas Energéticas e Nucleares, Sao Paulo, SP, Brazil; K.L. SILVA, L.O. BERNARDI, M. YOKOYAMA, R. TOMASI, UFSCAR-DEMa Sao Carlos, SP, Brazil

CE:P05 **Effects of the Pin-on-disc Test Parameters on the Wear of Alumina**
N.R. TEDESCO*, E.M.J.A. PALLONE**, R. TOMASI*, *UFSCAR, Sao Carlos, SP, Brazil; **USP, FZEA, Pirassununga, SP, Brazil

CE:P06 **Properties of ZrB2-CNT Composites Prepared by Spark Plasma Sintering**
I. AKIN, N. SOLAK, F. SAHIN, O. YUCEL, M. URGEN, G. GOLLER, Istanbul Technical University, Metallurgical and Mats Eng. Dept., Maslak, Istanbul, Turkey

CE:P07 **Effect of CNT Addition on the Properties of ZrB2-SiC Composites**
I. AKIN, F. SAHIN, O. YUCEL, **G. GOLLER**, Istanbul Technical University, Metallurgical and Mats Eng. Dept., Maslak, Istanbul, Turkey

CE:P08 **Structure Evolution in Al2O3 - ZrO2 (Y2O3) Ceramic Composites during Sintering**
Ya. DYATLOVA, À. OSMAKOV, V. PESIN, V. RUMYANTSEV, VIRIAL Ltd., Saint-Petersburg, Russia

CE:P09 **Fabrication of Reaction-Bonded SiC Composites by Liquid Silicon Infiltration**
B.K. JANG, Y. SAKKA, Nano Ceramics Center, National Institute for Materials Science, Tsukuba, Ibaraki, Japan; S.Y. KIM, I.S. HAN, S.K. WOO, Convergence Energy Materials Research Center, Korea Institute of Energy Research, Daejeon, Korea

CE:P10 **Structural Ceramics Based on Nanosized Si3N4 Powders**
V. RUMYANTSEV, **N. KORABLEVA**, À. OSMAKOV, N. BELYKH, VIRIAL Ltd., Saint-Petersburg, Russia; L. STAFECKIS, Neomat Co., Salaspils, Latvia

CE:P11 **Stereological Description of Microstructure of Silicon Carbide-based Structural Ceramics as a Composite Material**
V. RUMYANTSEV, S. BOYKOV, **À. OSMAKOV**, VIRIAL Ltd., Saint-Petersburg, Russia; V. FISCHEV, Saint-Petersburg State Technology Institute, Technical University, Saint-Petersburg, Russia

CE:P12 **Consolidation of SiC Deposits by Polymer Infiltration and Pyrolysis Method**
A. IVEKOVIC, K. KÖNIG, S. NOVAK, G. DRAZIC, Jozef Stefan Institute, Ljubljana, Slovenia

CE:P13 **Processing and Thermal Properties of Cu-AlN Composites**
M. CHMIELEWSKI, K. PIETRZAK, D. KALIÑSKI, Institute of Electronic Materials Technology, Warsaw, Poland

CE:P14 **Diffusion Studies Involving Nanometric and Submicrometric Alumina Based Composites with Gray Cast Iron**
K.P.S. TONELLO, V. TROMBINI, A.H.A. BRESSIANI, J.C. BRESSIANI, IPEN, Sao Paulo, SP, Brazil

CE:P15 **Phase, Structural and Microstructural Changes in TiC1-x - Cr3C2 Materials**
P. RUTKOWSKI, L. STOBIERSKI, M.M. BUCKO, AGH University of Science and Technology, Faculty of Material Science and Ceramics, Krakow, Poland

CE:P16 **Influence of Residual Thermal Stresses on the Properties of the NiAl Matrix Composites Reinforced with Ceramic Particles**
D. KALINSKI, M. CHMIELEWSKI, K. PIETRZAK, Institute of Electronic Materials Technology, Warsaw, Poland

SYMPOSIUM CF
CERAMICS FOR CHEMICAL, ELECTROCHEMICAL AND ENVIRONMENTAL APPLICATIONS

Oral Presentations

Session CF-1
Ceramics in Chemical and Biochemical Sensors

CF-1:IL01 **Effective Designs for High Temperature Ceramic Gas Sensors**
P.K. DUTTA, Dept. of Chemistry, The Ohio State University, Columbus, OH, USA

CF-1:IL02 **VOCs Detection with Potentiometric Oxygen Sensor with Modified Pt Electrode**
Y. SADAOKA, Dept. of Materials Science and Biotechnology, Graduate School of Science and Engineering, Ehime University, Matsuyama, Japan

CF-1:IL03 **Plasmonic Based Harsh Environment Compatible Chemical Sensor**
M.A. CARPENTER, College of Nanoscale Science and Engineering, University at Albany, NY, USA

CF-1:L04 **Development of Ultrasonic-optical Fiber Hydrogen Sensor**
JONG-CHUL YOO, TAI-HONG CHENG, **IL-KWON OH**, School of Mechanical Systems Engineering, Chonnam National University, Gwang-Ju, Korea

CF-1:L05 **Novel Architectures for Gas Sensing through Semiconductor Thin Films Containing Au Nanoparticles with Highly Controlled Morphology**
A. MARTUCCI, E. DELLA GASPERA, Dip. Ing. Meccanica Settore Materiali, Università di Padova, Padova, Italy; M. POST, NRC-Ottawa, Canada

CF-1:L06 **Effect of the Electrode Morphology on the Sensing Characteristic of the YSZ Based Potentiometric Oxygen Sensor**
M. MORI, Y. KOJIMA, Y. SADAOKA, Dept. of Materials Science and Biotechnology, Ehime University, Matsuyama, Japan

CF-1:L07 **CVD of Tin Oxide Nanowires: Growth, Structure and Property**
S. MATHUR, **H. SHEN**, Institute of Inorganic and Materials Chemistry, University of Cologne, Cologne, Germany

CF-1:L08 **The Application of Electrospun TiO2 Nanofibers on Glucose Sensor**
FENG YAN, Dept. of Applied Physics, The Hong Kong Polytechnic University, Hong Kong

Session CF-2
Ceramic Membranes and Filters

CF-2:IL01 **Ceramic Hollow Fiber Gas Separation Membranes for Sustainable Energy Production**
F.M.M. SNIJKERS, C. BUYSSE, A. KAVALEUSKI, J.J. LUYTEN, A. BUEKENHOUDT, Flemish Institute for Technological Research (VITO), Mol, Belgium

CF-2:IL02 **The Environment Improved by the Use of Ceramic Membranes and Filters**
J. LUYTEN, S. MULLENS, F. SNIJKERS, A. BUEKENHOUDT, Materials Technology, VITO, Mol, Belgium

CF-2:IL03 **Dense Ceramic Membranes for Oxygen Separation**
H.J.M. BOUWMEESTER, Inorganic Membranes, University of Twente, Enschede, The Netherlands

CF-2:L04 **Ceramic Foams with Hierarchical Porosity from Preceramic Polymers**
C. VAKIFAHMETOGLU, **P. COLOMBO**, Dipartimento di Ingegneria Meccanica-Settore Materiali, Università di Padova, Padova, Italy; J. WOLTERSDORF, E. PIPPEL, Max-Planck-Institut für Mikrostrukturphysik, Halle, Germany

CF-2:L05 **Development of Acicular Mullite Filters Designed for Filtration of Diesel Particles and Reduction of NOx**
A.J. PYZIK, R. ZIEBARTH, CHAN HAN, The Dow Chemical Company, Midland, MI, USA

CF-2:IL06 **Hydrogen-permselective Amorphous Silica-based Membranes**
Y. IWAMOTO, Dept. of Frontier Materials, Nagoya Institute of Technology, Nagoya, Japan

CF-2:IL07 **Elaboration and Modification of Ceramic Membranes for Filtration Processes**
S.A. CERNEAUX, A.B. LARBOT, IEM, UMR 5635, site CNRS, Montpellier Cedex, France

CF-2:L08 **Influence of Oxygen Surface Exchanges on Oxygen Semi-permeation Performances of La1-xSrxFe1-yGayO3-d Membranes**
A. VIVET, P.M GEFFROY, V. COUDERT, T. CHARTIER, CNRS-ENSCI-SPCTS, UMR 6638, Limoges, France; P. DEL GALLO, N. RICHET, Air Liquide, Centre de Recherche Claude-Delorme, Jouy-en-Josas cedex, France

CF-2:L09 **Ceramic Nanowire Membranes for Biological Separation**
XUE BIN KE, HUAI YONG ZHU, School of Physical and Chemical Sciences, Queensland University of Technology, Brisbane, Australia

Session CF-3
Catalysis and Catalysts Supports

CF-3.1 Ceramic Catalysts

CF-3.1:IL01 **Aerogel Catalysts**
A.C. PIERRE, Université Lyon 1, CNRS, UMR 5256, IRCELYON, Villeurbanne, France

CF-3.1:IL02 **Highly Efficient Visible Light Photocatalysts on the basis of Interfacial Charge Transfer and Multi-electron Oxygen Reduction Catalyst**
K. HASHIMOTO, Dep. App. Chem. Univ. Tokyo, Tokyo, Japan

CF-3.1:IL03 **Catalysts Supports for Energy Conversion Processes**
J.L.G. FIERRO, Inst. de Catalisis y Petroleoquimica, CSIC, Madrid, Spain

CF-3.1:L04 **Effects of Surface CeO_2 Particle Size on Diesel Particulate Oxidation of Pr_6O_{11} Based Oxide**
T. ISHIHARA, S. HAMAMOTO, Dept. of Applied Chemistry, Faculty of Engineering, Kyushu University, Fukuoka, Japan

CF-3.1:L05 **Ultra-divided Catalysts Tailored for Industrial Steam Reforming Processes**
C. BONHOMME, R. FAURE, S. GOUDALLE, F. ROSSIGNOL, T. CHARTIER, CNRS-ENSCI, Lab. de Sciences des Procédés Céramiques et de Traitements de Surface (SPCTS), UMR CNRS 6638, Limoges, France; C. BERTAIL, P. DEL-GALLO, Air Liquide, CRCD Research Center, Jouy-en-Josas, France

CF-3.1:L06 **Cobalt-supported Alumina or Clay as Catalytic Film Prepared by Electrophoretic Deposition for Hydrogen Release Applications**
R. CHAMOUN[1, 2], U.B. DEMIRCI[1], D. CORNU[3], Y. ZAATAR[2], A. KHOURY[2], P. MIELE[1], [1]Université Lyon 1, CNRS, UMR 5615, Lab. des Multimatériaux et Interfaces, Villeurbanne, France; [2]Université Libanaise, Fac. des Sciences II, Lab. de physique appliquée, Jdeidet El Metn, Liban; [3]Université Montpellier 2, CNRS-ENSCM, UMR 5635, Inst. Européen des Membranes, Montpellier, France

CF-3.1:L07 **BaYMn2O5+d: A Potential Material for Oxygen-Storage Applications**
T. MOTOHASHI, T. UEDA, Y. MASUBUCHI, S. KIKKAWA, Graduate School of Engineering, Hokkaido University, Sapporo, Japan; M. TAKIGUCHI, T. SETOYAMA, Mitsubishi Chemical Group, Science and Technology Research Center, Inc., Yokohama, Japan

CF-3.1:L08 **Metal Oxides as Catalyst Supports for Hydrogen Release by Solvolysis of Boron Hydrides**
O. AKDIM, **U.B. DEMIRCI**, P. MIELE, Université Lyon 1, CNRS, UMR 5615, Lab. des Multimatériaux et Interfaces, Villeurbanne, France

CF-3.2 Catalysts Supports

CF-3.2:IL01 **Effect of Oxides Composite Support of Ce(Sm)O3-La(Sr)CrO3 on Pd-Ni Alloy for Decomposition Activity of CH4**
I. YAMANAKA, Y. NABAE, Tokyo Institute of Technology, Dept. of Applied Chemistry, Tokyo Institute of Technology, Tokyo, Japan

CF-3.2:IL02 **Soot and Ash Layer Characteristics in Ceramic Diesel Particulate Filters**
P. DIMOPOULOS EGGENSCHWILER, A. LIATI, Empa, Swiss Federal Laboratories for Materials Testing and Research, Laboratory for I.C. Engines, Duebendorf, Switzerland

CF-3.2:IL03 **VOCs Oxidation on CeO2-based Catalysts**
T. MASUI, M. IMANAKA, Dept. of Applied Chemistry, Osaka University, Suita, Osaka, Japan

CF-3.2:IL04 **TiO2 Photocatalysis - Fundamental and Recent Situation**
A. FUJISHIMA, Kanagawa Academy of Science and Technology, Kawasaki, Kanagawa Pref., Japan

CF-3.2:L05 **Foam-supported Catalysts Tailored for Industrial Steam Reforming Processes**
R. FAURE, T. CHARTIER, F. ROSSIGNOL, SPCTS UMR CNRS 6638, Limoges, France; F. BASILE, I. BERSANI, A. VACCARI, University of Bologna, Bologna, Italy; A. CUNI, M. CORNILLAC, P. DEL GALLO, D. GARY, Air Liquide CRCD, Jouy-en-Josas, France

Session CF-4
Materials for Electrochemistry and Electrochemical Energy Conversion and Storage

CF-4.1 Ionic, Mixed and Electronic Conductors

CF-4.1:IL01 **Advances in Novel Ionic Conductors for Electrochemical Applications**
S. SKINNER, R. BAYLISS, R. PACKER, Dept. of Materials, Imperial College London, London, UK

CF-4.1:IL02 **Modeling, Simulation, and In Situ Characterization of Electrode Materials for Solid Oxide Fuel Cells**
M. LYNCH, K. BLINN, XIAXI LI, **MEILIN LIU**, Center for Innovative Fuel Cell and Battery Technologies School of Materials Science and Engineering, Georgia Institute of Technology, Atlanta, GA, USA

CF-4.1:IL03 **Protons in Ceramics: Effects of the Nanoscale**
G.C. MATHER, D. PEREZ-COLL, Instituto de Ceramica y Vidrio, CSIC, Cantoblanco, Madrid, Spain

CF-4.1:L04 **Thermo-chemo-mechanical Modelling of Mixed Conductors**
O. VALENTIN, E. BLOND, Institut PRISME (EA 4229, University of Orléans), Polytech'Orléans, Orléans, France; N. RICHET, Air Liquide CRCD, Jouy en Josas, France

CF-4.1:L05 **Thermo-mechanical Characterization of Scandia and Ceria Doped Zirconia- Electrolyte Material for Intermediate Temperature Solid Oxide Fuel Cells**
W. LIM, M. RADOVIC, Texas A&M University, USA; **N. ORLOVSKAYA**, University of Central Florida, USA; T. GRAULE, J. KUEBLER, EMPA Swiss Federal Laboratories for Materials Testing and Research, Switzerland

CF-4.1:IL06 **Three-dimensional Measurements of SOFC Electrode Microstructure and Correlation with Electrochemical Performance**
S. BARNETT, J. WILSON, S. CRONIN, J. NICHOLAS, Matls Science Dept., Northwestern University, Evanston, IL, USA

CF-4.1:IL07 **Migration of Oxide Ions in Ceria Doped with Rare-earth Cations Using First-principles Density Functional Study**
M. NAKAYAMA[1, 2], M. MARTIN[2], [1]Dept. of Materials Science and Engineering, Nagoya Institute of Technology, Nagoya, Aichi, Japan, [2]Institute of Physical Chemistry, RWTH Aachen University, Aachen, Germany

CF-4.1:IL08 **Applications of Mixed Conducting Protection Layers in High Temperature Electrochemical Devices**
Z. GARY YANG, Pacific Northwest National Laboratory, Richland, WA, USA

CF-4.1:L09 **Constrained and Non-constrained Sintering of Plasma-sprayed Zirconia Based Electrolytes for SOFCs**
C. CHRISTENN, A. ANSAR, DLR, Institute of Technical Thermodynamics, Stuttgart, Germany

CF-4.2 Energy Conversion and Storage

CF-4.2:IL01 **Towards the Miniaturization of Solid Oxide Fuel Cells**
E. TRAVERSA, International Center for Materials Nanoarchitectonics (MANA), National Institute for Materials Science (NIMS), Tsukuba, Japan

CF-4.2:IL02 **Nanostructured Materials for Direct Methanol Fuel Cell and Lithium-ion Battery**
LI-JUN WAN, Institute of Chemistry, Chinese Academy of Sciences, Beijing, China

CF-4.2:IL03 **Single-phase vs. Two-phase Mechanism of Li+ Extraction from LiFePO4: the Role of Defects**
C. MASQUELIER, S. HAMELET, P. GIBOT, M. CASAS CABANAS, J.M. TARASCON, LRCS, Université de Picardie Jules Verne, Amiens, France; C. GREY, J. CABANA, Stony Brook, NY, USA; S. LEVASSEUR, P. CARLACH, Umicore, Belgium

CF-4.2:L04 **Reactions in Ceramics Studied with Transmission Electron Microscopy**
J.P. WINTERSTEIN, Graz University of Technology, Graz, Austria and University of Connecticut; S. BHOWMICK, J. BASU, J.L. RIESTERER, **C.B. CARTER**, CMBE Dept., University of Connecticut, Storrs, CT, USA

CF-4.2:L05 **Flexible SOFC: Challenges**
HYOUP JE CHO, **GYEONG MAN CHOI**, Dept. of Materials Science and Eng./ Fuel Cell Research Center, Pohang University of Science and Technology (POSTECH), Pohang, Korea; YOUNG MIN PARK, Fuel Cell Project, Research Institute of Industrial Science and Technology, Pohang, Korea

CF-4.2:IL06 **Mathematical Modeling of Electrochemical Systems. Application to Li-ion Batteries Aging**
M. SAFARI[1, 2], M. MORCRETTE[1], A. TEYSSOT[2], **C. DELACOURT**[1], [1]Laboratoire de Réactivité et Chimie des Solides, Université de Picardie Jules Verne, Amiens, France ; [2]Renault Research Dept., Guyancourt, France

CF-4.2:IL07 **Cathode Materials for Large-scale Lithium-ion Batteries**
A. YAMADA, Dept. of Chemical System Engineering, The University of Tokyo, Tokyo, Japan

CF-4.2:L08 **YSZ Self-supported Ultrathin Membranes for µSOFCs**
J. SANTISO[a], A. TARANCÓN[b], I. GARBAYO[b], A. CAVALLARO[a], J. ROQUETA[a], G. GARCIA[c], I. GRÀCIA[b], C. CANÉ[b], N. SABATÉ[b], [a]CIN2, Research Center for Nanoscience and Nanotechnology, CSIC-ICN, Bellaterra, Barcelona, Spain; [b]CNM-IMB (CSIC), National Institute of Microelectronics, CSIC, Bellaterra, Barcelona, Spain; [c]GFMI, Dept. of Physics, Autonomous University of Barcelona, Bellaterra, Barcelona, Spain

CF-4.2:L09 **Thick Film and Multilayer Ceramic Technology for Innovative Fuel Cell Systems**
A. MICHAELIS, Fraunhofer Institute for Ceramic Technologies and Systems, IKTS, Dresden, Germany

CF-4.2:L10 **Progress in the Development of Bulk-type All Solid State Lithium Batteries**
V. VIALLET, V. SEZNEC, M. MORCRETTE, J.M. TARASCON, LRCS UPJV, Amiens, France; G. DELAIZIR, P. ROZIER, M. DOLLE, CEMES, Toulouse, France; A. ABOULAICH, L. TORTET, R. BOUCHET, LCP, Marseille, France

CF-4.2:IL11 **Three Dimensionally Ordered Composite Electrodes with Active Oxide Material and Ceramic Electrolyte for All Solid State Rechargeable Lithium Battery**
K. KANAMURA, Dept. of Applied Chemistry, Tokyo Metropolitan University, Tokyo, Japan

CF-4.2:IL12 **Micro-solid Oxide Fuel Cells: From Thin Films to Power Delivering Membranes**
J.L.M. RUPP, A. BIEBERLE-HÜTTER, L.J. GAUCKLER, ETH Zurich, Zurich, Switzerland

CF-4.2:IL13 **Opportunities for Aerogel Materials for Energy Conversion and Storage**
A. RIGACCI, MINES ParisTech, Center for Energy and Processes, Sophia Antipolis, France

CF-4.3 Materials for Electrochemistry

CF-4.3:IL01 **Semiconducting Oxide Electrodes for Photoelectrochemical Water Splitting**
A. ROTHSCHILD, Dept. of Materials Engineering, Technion - Israel Institute of Technology, Haifa, Israel

CF-4.3:IL02 **Photocatalytic Activity of Ceramic Foam Supported TiO2, TiO2/Ce and TiO2/Zr Thick Films**
G. PLESCH, M. VARGOVÁ, K. JESENÁK, Faculty of Natural Sciences, Comenius University, Bratislava, Slovak Rep.; U.F. VOGT, M. GORBÁR, Empa, Swiss Federal Labs for Materials Testing and Research, Dübendorf, Switzerland; T. MANCINO, P. COLOMBO, Università di Padova, Padova, Italy

CF-4.3:L03 **Analysis of Degradation and Aging Processes in Solid Oxide Electrolyser Cells**
U.F. VOGT, D. WIEDENMANN, L. HOLZER, A. ZÜTTEL, Empa Materials Science and Technology, Dübendorf, Switzerland; A. HAUCH, National Lab. for Sustainable Energy, Risoe, Tech. University of Denmark, Roskilde, Denmark

CF-4.3:L04 **Effect of Reusing and Sunlight Irradiation on Photocatalytic Activity of TiO2 and ZnO**
V.F. SILVA, G.H. CARNEIRO ALBUQUERQUE, V. LINS E SILVA, **I.T. WEBER**, Depto de Química Fundamental, Universidade Federal de Pernambuco, Recife, Pernambuco, Brazil

CF-4.3:L05 **Development of Porous ZrO2 Diaphragms for Alkaline Electrolysis**
M. GORBAR, U. VOGT, V. HERZOG, D. WIEDENMANN, A. ZÜTTEL, Empa Abt. 138 "Hydrogen & Energy", Dübendorf, Switzerland

CF-4.3:L06 **Photocatalytic Efficiency of ZnO/TiO2 Composite Plates in Degradation of RR180 Dye Solutions**
M. KONYAR[a], D. OVALI[a], H.C. YATMAZ[b], C. DURAN[a], K. ÖZTÜRK[a], [a]Gebze Institute of Technology, Materials Science & Engineering Dept., Cayirova Campus Gebze, Kocaeli, Turkey; [b]Gebze Institute of Technology, Environmental Engineering Dept., Muallimkoy Campus Gebze, Kocaeli, Turkey

CF-4.3:L07 **Chemical Etching of Advanced Ceramics**
H.T. TING, School of Engineering & Science, Curtin University of Technology, Miri, Malaysia; K.A. ABOU-EL-HOSSEIN, Dept. of Mechanical & Aeronautical Engineering, University of Pretoria, Pretoria, South Africa; H.B. CHUA, School of Engineering & Science, Curtin University of Technology, Miri, Malaysia

Poster Presentations

CF:P01 **Study of Tungsten Oxide Nanostructured Films for Gas Micro Concentrations Measurements**
O.M. IVANOVA, A.E. TARASOVA, S.A. KRUTOVERTSEV, A.V. PISLYAKOV, A.V. SHEVCHENKO, JSC "Practic-NC", Zelenograd, Moscow, Russia

CF:P02 **Development of Noninvasive Diagnosis with Semiconductor Sensors**
S.A. KRUTOVERTSEV, M.V. CHUPRIN, O.M. IVANOVA, A.V. PISLYAKOV, A.V. SHEVCHENKO, JSC "Practic-NC", Zelenograd, Moscow, Russia; V.V. KALINOVSKY, V.V. KONOVALOV, VNIIEF, Sarov, Nizhniy Novgorod Region, Russia

CF:P03 **Characterization of a Flexible Ceramic Membrane and the Effect of its Chemical Modification on the Transport of Ions**
R. DE LARA[1], L. PELÁLEZ[1], D. TOLEDO[1], F.J. CASADO[2], J. HIERREZUELO[2], J.M. LÓPEZ-ROMERO[2], **J. BENAVENTE**[1], [1]Grupo de Caracterización Electrocinética en Membranas e Interfases. Depto Física Aplicada I, Universidad de Málaga, Málaga, Spain; [2]Depto de Química Orgánica, Facultad de Ciencias, Universidad de Málaga, Málaga, Spain

CF:P04 **Determination of Lead Traces by Stripping Voltammetry Using Ti(N,C) Working Electrodes**
M. ZIEMNICKA, B. BAS, M. JE, L. STOBIERSKI, Faculty of Materials Science and Ceramics, AGH University of Science and Technology, Cracow, Poland

CF:P05 **Solid Oxide Electrolyte Based Oxygen Pump**
A.V. SPIRIN, A.S. LIPILIN, V.V. IVANOV, S.N. PARANIN, A.V. NIKONOV, V.R. KHRUSTOV, D.S. PORTNOV, N.V. GAVRILOV, A.S. MAMAEV, Institute of Electrophysics, RAS, Ekaterinburg, Russia

CF:P06 **Oxygen Permeability and Methane Conversion Rate Properties of the LaxSr1-xTi1-yFeyO3-δ Perovskite type Membrane**
EUN JEONG YI, HAE JIN HWANG, Division of Material Science and Engineering, Inha University, Incheon, Korea; JI-WOONG MOON, Research Institute of Industrial Science & Technology, Pohang, Korea

CF:P07 **The Development of Open-cell Ceramic Filters from Waste Materials for Application in Water Treatment**
J.H. POTGIETER[1], S.S. POTGIETER-VERMAAK[1,2], [1]Division of Chemistry and Materials, School of Biology, Chemistry and Health Sciences, Manchester Metropolitan University, Manchester, UK; [2]Dept. of Chemistry, University of Antwerp, Antwerp, Belgium

CF:P08 **Mesoporous Composites of Calcium Silicate Hydrate with Submicro Fe2O3 Particles for Catalyst**
D. HIRABAYASHI, A. TERAMOTO, K. SUZUKI, EcoTopia Science Institute, Nagoya University, Nagoya, Japan

CF:P09 **Understanding ac Response of Proton Conducting Perovskites**
JONG-SOOK LEE, **YONG KIM**, EUI-CHOL SHIN, Chonnam National University, Gwangju, Korea; JONG-SUNG PARK, YU-EUN PARK, BYUNG-KOOK KIM, Korea Institute of Science and Technology, Seoul, Korea

CF:P10 **Thermoelectric Properties of Sr-doped RECoO3 (RE=Pr,Sm)**
T. OHTANI, K. MINAMI, Okayama University of Science, Okayama, Japan

CF:P11 **Creep and Fracture of Proton-conducting Perovskite Oxides**
C. VAQUERO-AGUILAR, **M. JIMENEZ-MELENDO**, Dpto. de Fisica de la Materia Condensada, Universidad de Sevilla, Sevilla, Spain

CF:P12 **The Effect of Nano NiO Powder Made by Pulsed Wire Evaporation (PWE) on SOFC Anode Functional Layer**
HAE-WON KIM, DONG-JU KIM, SEOK-JOO PARK, TAK-HYOUNG LIM, SEUNGBOK LEE, RAK-HYUN SONG, **DONG-RYUL SHIN**, Fuel cell Research Center, Korea Institute of Energy Research, Daejeon, South Korea

CF:P13 **Synthesis and Characterization of LiMnP1-xVxO4-delta Solid Solutions**
D. KELLERMAN, Inst. of Solid State Chem., Urals Div. RAS, Ekaterinburg, Russia; N. MUKHINA, V. GORSHKOV, B. TSAREV, OOO Eliont, Ekaterinburg, Russia; N. ZHURAVLEV, E. ZABOLOTSKAYA, Inst. of Solid State Chem., Urals Div. RAS, Ekaterinburg, Russia

CF:P14 **Direct Synthesis of Lithium Ion Electrode Composition**
V. GORSHKOV, B. TSAREV, OOO Eliont, Ekaterinburg, Russia; D. KELLERMAN, Inst. of Solid State Chem., Urals Div. RAS, Ekaterinburg, Russia

CF:P15 **Effect of Microwave Irradiation on the Advanced Oxidation Process for Degradation of the 2,4-D Herbicide**
SANG-CHUL JUNG*, SUN-JAE KIM**, **DO-JIN LEE***, *Dept. Environm.

Eng., Sunchon National University, Jeonnam, Korea; **Dept. Nano Science and Technology, Sejong University, Seoul, Korea; ***Dept. Agricultural Education, Sunchon National University, Jeonnam, Korea

CF:P16 **Advanced Oxidation Process of VOCs Using Microwave Powered Electrodeless Discharge Lamp**
YEONG-SEON BAE*, SUN-JAE KIM**, DO-JIN LEE***, **SANG-CHUL JUNG***, *Dept. Environm. Eng., Sunchon National University, Jeonnam, Korea; **Dept. Nano Science and Technology, Sejong University, Seoul, Korea; ***Dept. Agricultural Education, Sunchon National University, Jeonnam, Korea

CF:P17 **Production of Nano Size TiO2 Sol and Highly Efficient Photocatalytic TiO2 Powder by Mechanical Ball Milling**
E. CORAPCI[1], B. AYSIN[1], J. PARK[2], A. OZTURK[1], [1]Dept. of Metallugical and Materials Engineering, Middle East Technical University, Ankara, Turkey; [2]Dept. of Materials Engineering, Atilim University, Ankara, Turkey

CF:P18 **Visible Light Photocatalytic Application of Tin Doped Titanium Dioxide Fibers Mats**
A.K. ALVES, C.P. BERGMANN, UFRGS, Porto Alegre, RS, Brazil; F.A. BERUTTI, UNIPAMPA, Bage, RS, Brazil

CF:P19 **Photocatalytic Redox Reaction of Nitro Aromatics and Secondly Alcohols to Amino Aromatics and Ketones in Suspension of Titanium(IV) Oxide**
K. IMAMURA, SHIN-ICHI IWASAKI, T. MAEDA, K. HASHIMOTO, H. KOMINAMI, Kinki University, Higashi-Osaka, Japan

CF:P20 **Degradation of Organic Acids in Aqueous Suspensions of Gold/Cerium(IV) Oxide Powder Under Irradiation of Visible Light**
A. TANAKA, K. HASHIMOTO, H. KOMINAMI, Kinki University, Higashi-Osaka, Japan

CF:P21 **Correlation Between Physical Properties and Photocatalytic Activities of Metal Ion-titanium Oxide Responding to Visible Light**
S. KITANO, K. HASHIMOTO, Kinki University, Higashi-Osaka, Japan

CF:P22 **Preparation and Characterization of Complex Oxides for Water Photolysis**
EUI-CHOL SHIN, YONG KIM, HYUN-HO SEO, JONG-SOOK LEE, School of Matls Science and Eng., Chonnam National University, Gwangju, Korea

CF:P23 **Sintering by Activated Surface of Cermet Materials**
T.G. RESTIVO, C. YAMAGATA, S.R.H. MELLO-CASTANHO, Nuclear and Energetic Research Institute-IPEN, Sao Paulo, SP, Brazil

SYMPOSIUM CG

CERAMIC THIN FILMS AND COATINGS FOR PROTECTIVE, TRIBOLOGICAL AND MULTIFUNCTIONAL APPLICATIONS

Oral Presentations

Session CG-1

Advances in Deposition, Surface Modification and Characterisation

CG-1:IL01 **Recent Developments in Thermal Spray Processes**
P. FAUCHAIS, SPCTS, UMR 6638, University of Limoges, Limoges, France

CG-1:IL02 **New Horizons for Ceramic Coatings and Films Produced by Plasma Electrolytic Processes**
A. YEROKHIN, A. MATTHEWS, Dept. of Engineering Materials, University of Sheffield, Sheffield, UK

CG-1:IL03 **Recent Achievements in Laser Cladding Technologies**
P. VUORISTO, Dept. of Materials Science, Tampere University of Technology, Tampere, Finland

CG-1:L04 **A Sol-gel Process to Prepare Dip Coated Thick Films with Various Microstructures**
P. BOY, E. COURTIN, L. BIANCHI, P. BELLEVILLE, CEA/Le Ripault, Monts, France; N. POIROT, LEMA UMR 6157 Université F. Rabelais, Tour, France; C. LABERTY-ROBERT, LCMCP, UMR7574 Collège de France, Paris, France

CG-1:L05 **Cold Spray Deposition of TiO2 Nanostructured Particles**
M. YAMADA*, H. ISAGO**, K. SHIMA**, H. NAKANO*, M. FUKUMOTO*, *Toyohashi University of Technology; **Graduate student, Toyohashi University of Technology, Toyohashi, Japan

CG-1:IL06 **A New High Speed and Low Temperature Coating by Laser Chemical Vapor Deposition**
T. GOTO, Institute for Materials Research, Tohoku University, Sendai, Japan

CG-1:IL07 **3-D Static and Time-depending Modeling of RF and DC Thermal Plasmas for Industrial Applications**
V. COLOMBO, E. GHEDINI, P. SANIBONDI, Dept. of Mechanical Engineering, University of Bologna, Bologna, Italy

CG-1:L08 **Fabrication, Structural and Mechanical Properties of Aluminium Oxide Thick Films Using Aerosol Deposition**
S. HIROSE, Y. EZUKA, N. SAKAMOTO, S. OH, J-H. PARK, J. AKEDO, AIST, Tsukuba, Japan

CG-1:L09 **A Comparison Between Conventional Thermal Treatment and Excimer Laser Irradiation Performed on Alumina/ PEEK Composite Coatings**
M.F. DE RICCARDIS, V. MARTINA, D. CARBONE, R. TERZI, ENEA, Brindisi Reseach Centre, Brindisi, Italy; A.P. CARICATO, G. LEGGIERI, Dipartimento di Fisica, Università del Salento, Lecce, Italy

CG-1:IL10 **Mechanical Properties of Composite Films Consisting of Silicon Nanopillars Embedded in a Nanostructured SiC Matrix**
A.R. BEABER[1], W.W. GERBERICH[1], **S.L. GIRSHICK**[2], [1]Dept. of Chemical Eng. and Matls Science, University of Minnesota, Minneapolis, MN, USA; [2]Dept. of Mechanical Eng., University of Minnesota, Minneapolis, MN, USA

CG-1:IL11 **Mechanisms of Atomic Friction and Wear**
E. MEYER, E. GNECCO, P. STEINER, R. ROTH, G. FESSLER, S. KAWAI, S. KOCH, M. KISIEL, U. GYSIN, T. GLATZEL, A. BARATOFF, Dept. of Physics, University of Basel, Basel, Switzerland

CG-1:L12 **Suspension Plasma Spraying - Influence of Spraying Parameters on Yttria Stabilized Zirconia Coatings Microstructure**
K. WITTMANN-TENEZE, J. TOULC'HOAT, E. BRUNETON, E. ESTRADE, CEA DAM Le Ripault, Monts, France

CG-1:L13 **Characterization of Thin Films in Silicate Surfaces**
L. FRÖBERG, M. PIISPANEN, L. HUPA, Process Chemistry Centre, Åbo Akademi University, Tuku, Finland

CG-1:IL14 **Development of Methodology of Fracture Toughness for Thin Films and Coatings**
SAM ZHANG, XIAOMIN ZHANG, School of Mechanical and Aerospace Engineering, Nanyang Technological University, Singapore

CG-1:IL15 **Possibilities in Characterization of Ceramic Thin Coatings Pore Microstructures by Synchrotron X-ray Imaging and Scattering Techniques**
J. ILAVSKY, Advanced Photon Source, Argonne National Lab., IL, USA

CG-1:L16 **Characteristics of $BaTiO_3$/$LaNiO_3$ and $Ba_{0.48}Sr_{0.52}TiO_3$/$LaNiO_3$ Artificial Superlattices Films Prepared by RF Magnetron Sputtering**
HSIN-YI LEE, National Synchrotron Radiation Research Center, Hsinchu, Taiwan

CG-1:L17 **The Role of Multi-layering in Controlling Contact Damage in Nitride Based Hard Coatings: TiAlN-TiN and ZrN-Zr**
N. VERMA, S. MATH, **V. JAYARAM**, S.K. BISWAS, Indian Institute of Science, Bangalore, India

CG-1:L18 **Ti-Si-C Films Formed by Dual Beam Ion Assisted Deposition**
A. TWARDOWSKA[1], B. RAJCHEL[2], L. JAWORSKA [1,3], [1]Institute of Technology, Pedagogical University, Krakow, Poland; [2]Institute of Nuclear Physics, Polish Academy of Sciences, Krakow, Poland; [3]Institute of Advanced Manufacturing Technology, Krakow, Poland

Session CG-2

High Performance Protective Coatings in Oxidizing and Harsh Environments

CG-2:IL01 **Design of Super- (H>40 GPa) and Ultrahard (H>80 GPa) Nanocomposite Coatings: Theoretical Background, Experiments, and Industrial Applications**
S. VEPREK, Dept. of Chemistry, TU Munich, Garching, Germany

CG-2:IL02 **Environmental Barrier Coatings for Ceramic Matrix Composites**
KANG N. LEE, Rolls Royce Corporation, Indianapolis, IN, USA

CG-2:L03 **Heat Resistant Cermet Coatings on Thermoset Plastics Components Deposited via Cold Gas Dynamic Spraying**
S.M. ANG, **C.C. BERNDT**, Industrial Research Institute Swinburne, Swinburne University of Technology, Melbourne, Australia; K. LOKE, ST Kinetics Ltd, Singapore; P. CHEANG, School of Science & Technology, SIM University, Singapore; K.A. KHOR, School of Mechanical and Aerospace Engineering, Nanyang Technological University, Singapore

CG-2:L04 **Nanolaminated Coatings in the Y2O3-Al2O3-ZrO2 System Deposited by MOCVD**
N.K. EILS, P. MECHNICH, DLR, Institute of Materials Research, Cologne, Germany; H. KEUNE, Technical University of Braunschweig, Institute of Surface Technology, Germany

CG-2:L05 **Precursor-derived, Ultra-thin Aluminophosphate Protective Coatings**
B. MANGRICH, S. SAMBASIVAN, Applied Thin Films, Inc., Evanston, IL, USA

CG-2:L06 **Particle-filled Polysilazane-based Coatings on Steel**
M. GÜNTHNER, T. KRAUS, W. KRENKEL, G. MOTZ, University of Bayreuth, Ceramic Materials Engineering (CME), Bayreuth, Germany; D. DECKER, Clariant Advanced Materials GmbH, Sulzbach am Taunus, Germany

CG-2:IL07 **Durability of Materials at High Temperature**
J.L. GROSSEAU-POUSSARD, Lab. d'Etudes des Matériaux en Milieux Agressifs (LEMMA), EA-3167, FREDD-CNRS, Université de La Rochelle, Pôle Sciences et Technologie, La Rochelle cedex, France

CG-2:L08 **Mechanical and Surface Properties of Chemical Vapor Deposited Protective Aluminum Oxide Films on TA6V Alloy**
D. SAMÉLOR, M. AUFRAY, N. PÉBÈRE, C. VAHLAS, Centre Interuniversitaire de Recherche et d'Ingénierie des Matériaux, Toulouse, France; Y. BALCAEN, J. ALEXIS, L. LACROIX, J-D. BEGUIN, Université de Toulouse, INP/ENIT, LGP, Tarbes, France

CG-2:L09 **Oxidation Behavior of Thermal Barrier Coatings on Copper Substrates**
J. SCHLOESSER, J. RÖSLER, M. BÄKER, Technische Universität Braunschweig, Institut für Werkstoffe, Braunschweig, Germany

CG-2:L10 **Water Corrosion of Mullite-based EBC Multilayer Coatings**
E. GARCIA, J. MESQUITA-GUIMARAES, P. MIRANZO, M.I. OSENDI, Instituto de Ceramica y Vidrio (CSIC), Madrid, Spain; C.V. COJOCARU, Y. WANG, C. MOREAU, R.S. LIMA, National Research Council of Canada, Boucherville, QC, Canada

CG-2:IL11 **Chemical Vapor Deposition and Microelectronics. Transition Metal Diborides as Potential Diffusion Barriers, and New Approaches to Superconformal Filling**
G.S. GIROLAMI, J.R. ABELSON, Dept. of Chemistry and Dept. of Matls Sci. and Eng., University of Illinois at Urbana-Champaign, Urbana, IL, USA

CG-2:IL12 **New Generation Nanscale Multilayer Coatings to Serve High Temperature, Corrosion and Tribological Applications Deposited by HIPIMS**
P.EH. HOVSEPIAN, A.P. EHIASARIAN, Nanotechnology Centre for PVD Research, Sheffield Hallam University, Sheffield, UK; R. BRAUN, German Aerospace Centre, Cologne, Germany

CG-2:IL13 **Development of Advanced Coatings for ITER and Future Fusion Devices**
J. MATEJICEK, P. CHRASKA, Institute of Plasma Physics ASCR, Praha, Czech Republic

CG-2:L14 **Overview: How to Quantify the Capability of Yttrium Silicates to be Used as an Environmental Barrier Coating**
F. REBILLAT, E. COURCOT, University of Bordeaux, Lab. des Composites Thermostructuraux (LCTS) UMR 5801, Pessac, France

CG-2:L15 **Flame-sprayed Glaze Layers as Diffusion Barriers on Refractory Materials**
O. PREZIOSA, A. DENOIRJEAN, P. DENOIRJEAN, G. MONTAVON, T. CHARTIER, C. BARTHÉLEMY, V. LAURENT, D. LOMBARD, SPCTS, Limoges, France

Session CG-3
Thermal Barrier Coatings

CG-3:IL01 **Advanced Thermal Barrier Coatings**
R. VAßEN, O. JARLIGO, D. MACK, T. STEINKE, D. STÖVER, Institute of Energy Research (IEF-1), Forschungszentrum Jülich GmbH, Jülich, Germany

CG-3:IL02 **Technical and Economical Aspects of Current Thermal Barrier Coating Systems for Gas Turbine Engines**
A. BOLCAVAGE, Rolls Royce Corporation, Indianapolis, IN, USA

CG-3:IL03 **Thermal Barrier Coatings as an Interacting Multilayer System: Performances and Degradation Mechanisms**
O. LAVIGNE, ONERA-DMSM, Chatillon, France

CG-3:L04 **Thermal Conductivity and Sintering Resistance of Plasma Sprayed Dysprosia-Yttria-Zirconia Thermal Barrier Coatings**
S. WANG, **T. TROCZYNSKI**, Dept. of Materials Engineering, The University of British Columbia, Vancouver, BC, Canada; R. REED, Dept. of Metallurgy and Materials, The University of Birmingham Edgbaston, Birmingham, UK

CG-3:L05 **Oxidation Behaviour of Conventional and Nanocrystalline CoNiCrAlY Bond Coats Manufactured by Cold Spray**
P. RICHER, **B. JODOIN**, A. CHAREST, M. YANDOUZI, University of Ottawa, Ottawa, Canada; M. BROCHU, McGill University, Montreal, Canada; A. ZUNIGA, University of Chile, Chile

Session CG-4
Thin Films and Coatings for Tribological and Multifunctional Applications

CG-4:IL01 **Advanced Ceramic Tribological Layers by Thermal Spray Routes**
R. GADOW, University of Stuttgart, Stuttgart, Germany

CG-4:IL02 **Preparation of TaN-Cu and TaN-Ag Nanocomposite Thin Films and their Anti-wear and Anti-bacteria Behaviors**
J.H. HSIEH, Dept. of Materials Engineering, Ming Chi University of Technology, Taishan, Taipei, Taiwan

CG-4:L03 **Low Friction and Wear Resistant Carbon-, MoS2- or Transition Metal Oxide-based Nanocomposite Coatings**
B.G. WENDLER, M. MAKÓWKA, K. WLODARCZYK, M. NOLBRZAK, W.PAWLAK, A. RYLSKI, Lodz University of Technology, Institute of Materials Science and Engineering, Lodz, Poland

CG-4:L04 **Tribological Properties of Nanostructured Yttria-stabilized Zirconia Plasma Spray Coatings**
H. LIAO, B. LIANG, C. CODDET, LERMPS - EA 3316, Université de Technologie de Belfort-Montbéliard, site de Sévenans, Belfort cedex, France

CG-4:L05 **Adhesion of Nanostructured YSZ Plasma-sprayed Coating on Thin Substrates**
R. VERT, E. MEILLOT, Thermal Spraying Laboratory, Materials Dept., CEA Le Ripault, France; A. VARDELLE, G. MARIAUX, C. DUBLANCHE-TIXIER, SPCTS - UMR CNRS 6638, ENSIL, University of Limoges, Limoges, France

CG-4:IL06 **Nanocomposite Metal Carbide/Amorphous Carbon Coatings for Tribological Applications**
J.C. SANCHEZ-LOPEZ, M.D. ABAD, D. MARTINEZ-MARTINEZ, A. FERNANDEZ, Instituto de Ciencia de Materiales de Sevilla (CSIC-Univ. Sevilla), Sevilla, Spain

CG-4:IL07 **Hard Protective Thin Films: Mechanical and Tribological Behavior**
M. FENKER, H. KAPPL, FEM Research Institute Precious Metals & Metals Chemistry, Schwäbisch Gmünd, Germany

CG-4:L08 **Hard Nanocomposite Coatings: Mechanical and Tribological Properties, Thermal Stability and Protection Against Oxidation Above 1000 °C**
J. MUSIL, Dept. of Physics, Faculty of Applied Sciences, University of West Bohemia, Plzen, Czech Republic, and Institute of Physics, Academy of Sciences of the Czech Republic, Praha, Czech Republic

CG-4:L09 **Boron Nitride Coatings Deposited onto Titanium. Use of an Alternative Ceramization Process**
B. TOURY, H. TERMOSS, A. BRIOUDE, S. BERNARD, P. MIELE, Lab. des Multimatériaux et Interfaces, UMR 5615 CNRS - Université Lyon 1, France; S. BENAYOUN, Lab. de Tribologie et Dynamique des Surfaces, UMR 5513 CNRS - Ecole Centrale de Lyon, Ecully, France

CG-4:IL10 **WC-Co Coatings Fabricated by Warm Spraying for Wear Protection**
S. KURODA, G. SUNDARARAMAN, M. WATANABE, M. KOMATSU, NIMS, Tsukuba, Ibaraki, Japan; K. SATO, J. KITAMURA, Fujimi Inc., Japan

CG-4:IL11 **Plasma Assisted Vapor Deposition on Nanostructured Hard Coatings**
P. MAYRHOFER, Physical Metallurgy and Materials Testing, Montanuniversität Leoben, Leoben, Austria

CG-4:L12 **Characterization of Phase Transformation, Microstructure and Tribological Properties of Ni-B Coating during Heat Treatment**
S. PAL, N. VERMA, V. JAYARAM, S.K. BISWAS, Dept. of Materials Engrg, Indian Institute of Science, Bangalore, India; Y.E. Riddle, UCT Coatings Inc., FLorida, USA

CG-4:L13 **Wear Resistance of AISI M2 Tool Steel Coated with TiN by PVD and Evaluated by the Pin-on-disc Testing**
J.D. BRESSAN, Dept. of Mechanical Eng., UDESC Joinville, Joinville, SC, Brazil; F. RESIN, Engenharia de Processos, Ciser, Cia Industrial H. Carlos Schneider, Joinville, SC, Brazil; R. GERBASI, Istituto ICIS, CNR, Padova, Italy

CG-4:L14 **Tribological Behavior of Nanostructured Composite Coatings of Ceramics Manufactured by Suspension Plasma Spraying**
G. DARUT, H. AGEORGES, A. DENOIRJEAN, **G. MONTAVON**, P. FAUCHAIS, SPCTS - UMR CNRS 6638, University of Limoges, Limoges, France

CG-4:L15 **Multi-nanolayering Effect on Carbon Films Mechanical Properties and Internal Stress**
N. LAIDANI, R. BARTALI, V. MICHELI, G. GOTTARDI, Fondazione Bruno Kessler, Centro Materiali e Microsistemi, Trento (Povo), Italy; P. CHEYSSAC, Lab. de Physique de la Matiere Condensée, UMR 6622 CNRS, Faculté des Sciences, Nice Cedex, France

CG-4:L16 **Hydrogen Effect on Structure and Mechanical Properties of Zno Films Deposited by Sputtering in Ar-H2 Plasma**
R. BARTALI, I. LUCIU, V. MICHELI, G. GOTTARDI, N. LAIDANI, Fondazione Bruno Kessler, Centro Materiali e Microsistemi, Povo (Trento), Italy

CG-4:L17 **Mechanical Reliability of ZnO Thin Films Used in Glass Stacking Applications**
F. CONCHON, P-O. RENAULT, **P. GOUDEAU**, E. LE BOURHIS, PHYMAT - UMR 6630, Poitiers, France; E. SONDERGARD, E. BARTHEL, S. GRACHEV, SVI - UMR 125, Aubervilliers, France; E. GOUARDES, V. RONDEAU, R. GY, SGR, Aubervilliers, France; R. LAZZARI, J. JUPILLE, INSP - UMR 7588, Paris, France; N. BRUN, LPS - UMR 8502, Orsay, France

CG-4:IL18 **Nanostructured Thin Coating Architectures for Environmental Technology Applications**
V. TEIXEIRA, J. CARNEIRO, P. CARVALHO, University of Minho, Physics Dept., GRF-Functional Coatings Group, Guimarães, Portugal

CG-4:IL19 **Computational and Experimental Investigation to Understand the Adaptation Mechanisms of Chameleon Coatings**
S.M. AOUADI, D. STONE, A. ABU-NADA, Dept. of Physics, Southern Illinois University, Carbondale, IL, USA; C. MURATORE, A.A. VOEVODIN, Air Force Research Laboratory, Materials and Manufacturing Directorate, Wright-Patterson AFB, Ohio , USA

CG-4:L20 **Development of Antifouling Coatings by Thermal Spray Methods for Marine Infrastructures**
S.M. ANG, C.C. BERNDT, Industrial Research Institute Swinburne, Swinburne University of Technology, Melbourne, Australia; P. CHEANG, School of Science & Technology, SIM University, Singapore; K.A. KHOR, School of Mechanical and Aerospace Engineering, Nanyang Technological University, Singapore

CG-4:L21 **Sm0.65Ca0.35MnO3-poly(styrene-co-acrylonitrile) Composite Coating: Thermochromic Behaviour**
M.R. AMMAR, C. NAPIERALA, P. LAFFEZ, J.-N. ROUZAUD, Ecole Normale Supérieure, UMR 8538 CNRS, Paris, France

CG-4:L22 **Pros and Cons of Three Potential Easy-to-clean Coatings on Glazed Surfaces**
M. PIISPANEN, L. HUPA, Process Chemistry Centre, Abo Akademi University, Turku, Finland

CG-4:IL23 **Damping Properties of Hard Coatings for Engine Applications**
P.J. TORVIK, Prof. Em., Air Force Institute of Technology, Xenia, OH, USA

CG-4:IL24 **Correlation Between Mechanical Properties and Different Coating Architectures**
S.J. BULL, Chemical Engineering and Advanced Materials, Newcastle University, Newcastle upon Tyne, UK

CG-4:IL25 **Adaptive Multifunctional Nanocomposite Coatings for Aerospace Applications**
A.A. VOEVODIN, C. MURATORE, Air Force Research Laboratory, Thermal Sciences and Materials Branch, Wright-Patterson AFB, OH, USA

CG-4:L26 **Synthesis of TiO2 Thin Films by Ink-jet Printing from Water Based Sol-gel Precursors**
M. ARIN, P. LOMMENS, I. VAN DRIESSCHE, Dept. of Inorganic and Physical Chemistry, Ghent University, Ghent, Belgium

CG-4:L27 **Comparison of Photoinduced Properties of TiO2 Thin Films Prepared by Magnetron Sputtering, Atmospheric Pressure Chemical Vapour Deposition and Spray Pyrolisis Deposition**
H. TOMASZEWSKI, K. JACH, Institute of Electronic Materials Technology, Warsaw, Poland

Poster Presentations

CG:P01 **Application of SEM/STEM and XPS to Tests on Pt Distribution in Al2O3 Films Obtained by Oxidising FeCrAl Steel Foil Coated with Pt-Al Nanofilms**
K. RESZKA, Inst. of Mechatronics, Nanotechnology and Vacuum Technique, Koszalin University of Technology, Koszalin, Poland; J. RAKOCZY, Inst. of Organic Chem. and Tech., Cracow University of Technology, Cracow, Poland; J. MORGIEL, Inst. of Metallurgy and Matls Science, PAS, Cracow, Poland

CG:P02 **A Chemometric Study of Alumina/PEEK Suspension Prepared for Electrophoretic Deposition of Multifunctional Coatings**
M.F. DE RICCARDIS, **V. MARTINA,** D. CARBONE, ENEA Brindisi Research Centre, Brindisi, Italy

CG:P03 **ESR Study of Elements Added-DLC Films Deposited by PBII and RF-CVD Methods**
N. MOOLSRADOO, H. SATO, S. WATANABE, Nippon Institute of Technology, Saitama, Japan

CG:P04 **Corrosion Resistance of Titanium Aluminide Layers on Two Phase (a+b) Ti6Al4V Titanium Alloy**
R. SITEK[1], J. KAMINSKI[1], M. PISAREK[2], H. MATYSIAK[3], K.J. KURZYDLOWSKI[1], [1]Faculty of Materials Science and Engineering, Warsaw University of Technology, Warsaw, Poland; [2]Institute of Physical Chemistry, Polish Academy of Sciences, Warsaw, Poland; [3]Research Centre for Functional Materials, Warsaw University of Technology, Warsaw, Poland

CG:P05 **Effect of Silica Content on the Acid Resistance of Enamels**
H.B.G. GHAZAL, High Institute of Engineering, Shorouk Academy, Cairo; S.A. EL SHERBINY, **M.F. ABADIR**, The Chemical Eng. Dept., Cairo University, Giza, Cairo, Egypt; S.M. KAMAL, The Military technical College, Cairo

CG:P06 **Protective Coatings for SiC-AlN Composites Obtained by Pack Cementation**
G. MAGNANI,ENEA-Bologna Research Center, Bologna, Italy; L. BEAULARDI, A. BRENTARI, ENEA-Faenza Research Center, Faenza, Italy

CG:P07 **Slurry Coating of Environmental Barrier Coating (EBC) on Silicon Carbide Based Material**
F. BEZZI, P. FABBRI, A. BRENTARI, C. MINGAZZINI, E. BURRESI, S. SANGIORGI, ENEA, Engineering of Components and Processes Section - Faenza Research Centre, Faenza, Italy

CG:P08 **Formation of an Alumina-containing Scale for the Surface Protection of TiAl Alloys and Ti Against Environmental Degradation at Elevated Temperatures**
R.A. YANKOV, A. KOLITSCH, F. MUNNIK, J. VON BORANY, Institute of Ion Beam Physics and Materials Research, Forschungszentrum Dresden-Rossendorf , Dresden, Germany; A. DONCHEV, M. SCHÜTZE, Karl-Winnacker-Institut, High-Temperature Materials, DECHEMA e.V., Frankfurt am Main, Germany

CG:P09 **Advances in the Field of New Smart Thermal Barrier Coatings**
F. ANSART, J. FENECH, L. PIN, J.P. BONINO, P. LOURS, T. LE MAOULT, Université Paul Sabatier, Toulouse, France

CG:P10 **Optimisation of the Ceramic Phase for Ceramizable Silicone Rubber Based Composites**
Z. PEDZICH[1], K. HABERKO[1], D.M. BIELINSKI[2, 3], J. DUL[2], [1]AGH University of Science & Technology, Dept. of Advanced Ceramics, Cracow, Poland; [2]Div. of Elastomers & Rubber Technology, Inst. for Polymers & Dyes Tech., Piastow, Poland; [3]Inst. of Polymers, Technical Univ. of Lodz, Lodz, Poland

CG:P11 **Influence of Thermal Annealing in the Bonding States and Structural Arrangements of Multifunctional Ti(C,O,N) Coatings**
C. MOURA[1], L. CUNHA[1], J.-M. CHAPPÉ[2], F. VAZ[2], M.C. MARCO DE LUCAS[3], L. IMHOFF[3], O. HEINTZ[3], [1]Physics Dept., University of Minho, Braga, Portugal; [2]Physics Dept., University of Minho, Guimarães, Portugal; [3]Institut Carnot de Bourgogne, UMR 5209 CNRS-Université de Bourgogne, Dijon Cedex, France

CG:P12 **Chromium Nitride and Silicon Doped Chromium Nitride Coatings Produced by Magnetron Sputtering: Effects of The Nitrogen Flow on the Structure and Mechanical Properties**
L. CUNHA, C. MOURA, Physics Dept., University of Minho, Braga, Portugal

CG:P13 **Study of the Films of Secondary Structures on the Interface in Sliding Friction Pairs**
I.I. KURBATKIN, A.YU. ISHLINSKY, Institute for Problems in Mechanics, RAS, Moscow, Russia

CG:P14 **Amorphous Si:C:H and Si:N:H as Antireflective and Protective Coatings**
B. SWATOWSKA, T. STAPINSKI, S. ZIMOWSKI, AGH University of Science and Technology, Krakow, Poland

CG:P15 **Influence of Inorganic Sealant in Hot and Cold Erosive Wear in Plasma Sprayed Alumina Coating**
J. VICENZI, A.S. TAKIMI, R. BRAMBILLA, C.P. BERGMANN, Federal University of Rio Grande do Sul, Porto Alegre, RS, Brazil

CG:P16 **Deposition and Characterisation of Graded (TiAlCrNbY)CN Films Obtained by Reactive Magnetron Sputtering**
V. BRAIC, M. BALACEANU, C.N. ZOITA, A. VLADESCU, M. BRAIC, National Institute for Optoelectronics, Magurele-Bucharest, Romania

CG:P17 **Low-temperature Synthesis of TiO2 Coatings by Sol-gel Chemistry**
M. CUADRADO GIL, P. LOMMENS, I. VAN DRIESSCHE, K. DE BUYSSER, Universiteit Gent, Gent, Belgium

CG:P18 **Effect of Methane Flow Rate on the Microstructural and Mechanical Properties of Silicon Carbide Thin Films Deposited by Reactive DC Magnetron Sputtering**
E. BASKURT, T. TAVSANOGLU, O. YUCEL, Dept. of Metallurgical & Materials Engineering, Istanbul Technical University, Istanbul, Turkey

CG:P19 **Development, Accelerated Ageing and Osteoconduction Study of Ceria Stabilized Zirconia in Simulated Body Fluid**
A.K. PANDEY, K. BISWAS, Dept. of Metallurgical and Materials Engineering, Indian Institute of Technology, Kharagpur, India

CG:P20 **Thin Film of Phase Pure Cubic Boron Nitride by Electrodeposition**
M. JAMILA, **V. RAVICHANDRAN**, Materials Science Center, Dept. of Nuclear Physics, University of Madras, Chennai, India

CG:P21 **Structural and Chemical Investigation of RF Magnetron-sputtered Ti-B-N and B-N Hard Coatings**
S. ILDAY, Graduate Program of Materials Science and Nanotechnology, Bilkent University, Ankara, Turkey; E. BENGU, Dept. of Chemistry, Bilkent University, Ankara, Turkey

SYMPOSIUM CH
ADVANCES IN ELECTRICAL, MAGNETIC AND OPTICAL CERAMICS

Oral Presentations

Session CH-1
Dielectric and Microwave Materials

CH-1:IL01 **Microwave Dielectric Ceramics for Resonators and Filters in Mobile Phone Networks**
I.M. REANEY, Dept. of Eng. Materials, University of Sheffield, Sheffield, UK

CH-1:IL02 **Carbon Nanotube Cathodes as Electron Sources for Microwave Amplifiers**
P. LEGAGNEUX, Nanocarb, Thales-Ecole Polytechnique, Palaiseau, France

CH-1:IL03 **Modification of Microstructure and Microwave Dielectric Characteristics of $SrLnAlO_4$ Ceramics (Ln=La, Nd, and Sm)**
X.M. CHEN, M.M. MAO, Dept. of Materials Science and Engineering, Zhejiang University, Hangzhou, China

CH-1:IL04 **Miniature Ceramic Antennas for Wireless Applications**
Z.D. MILOSAVLJEVIC, Pulse Finland Oy, Kempele, Finland

CH-1:IL05 **Local Structure in Perovskite-like Dielectrics**
I. LEVIN, Ceramic Division, NIST, Gaithersburg, MD, USA

CH-1:IL06 **Aerosol Deposition Process for Fabrication of Dielectric Layer**
J. AKEDO, D. POPOVICI, M. SUZUKI, Y. IMANAKA, T. TSURUMI, AIST, Tsukuba, Ibaraki, Japan

CH-1:IL07 **Reducing the Dielectric Losses in Heterostructured Ferroelectric Materials**
C. ELISSALDE[1], C. ESTOURNES[2], D. BERNARD[1], U.C. CHUNG[1], S. MORNET[1], R. COSTES[3], M. MAGLIONE[1], [1]ICMCB-CNRS, Université Bordeaux, Pessac, France; [2]CIRIMAT et Plateforme Nationale CNRS de Frittage Flash, PNF2 MHT, Université Paul Sabatier, Toulouse, France; [3]Thales Research and Technology, Palaiseau Cedex, France

CH-1:IL08 **Thermoplastic Ceramic-polymer Composited of 0-3 Connectivity for High Frequency Applications**
H. JANTUNEN, J. JUUTI, Microelectronics & Materials Physics Lab. and EMPART Research Group of Infotech Oulu, Oulu, Finland; M.T. SEBASTIAN, National Inst. for Interdisciplinary Science & Technology, Trivandrum, India

CH-1:IL09 **Oxide Nanosheets and Their Integration Technologies for High-k Dielectrics**
M. OSADA, T. SASAKI, WPI Center for Materials Nanoarchitectonics (MANA), National Inst. for Materials Science, Tsukuba, Japan, and CREST, JST, Japan

CH-1:IL10 **High Throughput Search of Dielectric Thin Films for Wafer Level Packaging**
JI-WON CHOI, KEUN JUNG, SEOK-JIN YOON, WAN-KEUN BANG, Thin Film Materials Research Center, KIST, Seoul, Korea; Samwon Vacuum Co., Ltd., Korea

CH-1:IL11 **Thin Films of Advanced Dielectrics for High Frequency Applications: Deposition, (Nano) Characterization and Device Fabrications**
R. LO NIGRO, Istituto per la Microelettronica e Microsistemi (IMM)-CNR, Catania, Italy

CH-1:L12 **Electric Field Breakdown of Polymer Based Nano-composite at Room and Cryogenic Temperatures**
H. RODRIGO[1], G.H. HELLER[1], A. INGROLE[2], Z (RICHARD) LIANG[2], D.G. CROOK[1], S.L. RANNER[1], [1]Center for Advanced Power Systems, Florida State University, Tallahassee, FL, USA; [2]Dept. of Industrial and Manufacturing Engineering, FAMU-FSU College of Engineering, Tallahassee, FL, USA

CH-1:L13 **High-performance Varactors**
A. TESTINO, Innovative Task Corporate Material R&D, EPCOS OHG, Deutschlandsberg, Austria

CH-1:L14 **Influence on the Annealing on the Thermal Stability of Ge-Sb-Te Materials for Recording Devices**
S.A. KOZYUKHIN, Kurnakov Institute of General and Inorganic Chemistry, Moscow, Russia; A.A. SHERCHENKOV, Moscow Institute of Electronic Technology, Russia

CH-1:L15 **Low Temperature Electrical and Dielectric Properties of Nb Doped BaSnO3**
P. SINGH, Dept. of Applied Physics, Inst. of Technology, Banaras Hindu University, Varanasi, India; O. PARKASH , D. KUMAR, Dept. of Ceramic Engineering, Inst. of Technology, Banaras Hindu University, Varanasi, India

Session CH-2
Ferroelectrics, Piezoelectrics

CH-2:IL01 **Advances in Pb-free Piezoelectric Materials**
A. SAFARI, The Glen Howatt Electroceramic Lab., Dept. of Matls Science and Eng., Rutgers University, Piscataway, NJ, USA

CH-2:IL02 **Effect of DC Poling Field on Domain Behaviour in Lead Free Piezoelectric Ceramics**
T. OGAWA, Dept. of Electrical and Electronic Eng., Shizuoka Institute of Science and Technology, Fukuroi, Shizuoka, Japan; M. FURUKAWA. T. TSUKADA, Materials & Process Development Centre, TDK Corporation, Narita, Chiba, Japan

CH-2:IL03 **Piezoelectric Materials in Thin Form for MEMS and NEMS Applications**
D. REMIENS, C. SOYER, IEMN-CNRS, Villeneuve d'Ascq, France

CH-2:IL04 **Fractal Geometry and Properties of Doped BaTiO3 Ceramics**
V. MITIC[1,2], V.B. PAVLOVIC[3], LJ. KOCIC[1], V. PAUNOVIC[1], LJ. ZIVKOVIC[1], [1]University of Nis, Faculty of Electronic Engineering, Nis, Serbia; [2]Institute of Technical Sciences of SASA, Belgrade, Serbia; [3]University of Belgrade, Faculty of Agriculture, Belgrade, Serbia

CH-2:IL05 **Theory and Analysis of Transient Response to High Power Signals in Lead-based or Lead-free Piezoelectric Ceramics**
T. TSURUMI, S. TAKAHASHI, M. HAGIWARA, M. YANAGIHASHI, T. HOSHINA, H. TAKEDA, Nano-Phononics Lab., Graduate School of Science and Eng., Tokyo Institute of Technology, Ookayama, Meguro, Tokyo, Japan

CH-2:IL06 **Integrated ZnO Surface Acoustic Wave Microfluidics and Biosensors**
J.K. LUO, Centre for Material Research &Innovation, University of Bolton, UK; Y.Q. FU, School of Eng. and Physical Sciences, Heriot Watt University, UK; W.I. MILNE, Dept. of Engineering, University of Cambridge, UK

CH-2:IL07 **MEMS Piezoelectric Energy Harvester with Shear Mode**
SEOK-JIN YOON, HYUN-CHEOL SONG, CHONG-YUN KANG, Thin Film Materials Research Center, Korea Inst. of Science & Technology, Seoul, Korea

CH-2:L08 **Hydrothermal Synthesis of Lead-free Piezoeletric Powders and Epitaxial Films**
G.K.L. GOH, Institute of Materials Research and Engineering, Singapore

CH-2:L09 **Linear Characterization at Shear Resonance of Lossy Piezoceramics Using a Non-standard, Thickness Poled, Shear Plate**
L. PARDO, ICMM-CSIC, Cantoblanco, Madrid, Spain; F. MONTERO DE ESPINOSA, Instituto de Acústica, CETEF, CSIC, Madrid, Spain; A. GARCÍA, ICMM-CSIC, Cantoblanco, Madrid, Spain; K. BREBOEL, Limiel ApS, Langebaek, Denmark

CH-2:IL10 **Large Remanent Polarization in BiFeO3 Based Single Crystals**
Y. NOGUCHI, H. MATSUO, Y. KITANAKA, M. MIYAYAMA, Research Center for Advanced Science and Technology, The University of Tokyo, Tokyo, Japan

CH-2:IL11 **Piezo-ferroelectric Thin Films: From Nucleation to Functionality**
P. MURALT, Ceramics Laboratory, Swiss Federal Institute of Technology EPFL, Lausanne, Switzerland

CH-2:IL12 **Correlation Between Powder Properties and Processing Conditions of Mechanically Activated Nanocrystalline BaTiO3**
V.B. PAVLOVIC, Fac. of Mech. Eng., Univ. of Belgrade, Serbia; V.P. PAVLOVIC, Joint Lab. for Adv. Matls of the Serbian Academy of Sciences and Arts, Belgrade, Serbia; J. KRSTIC, Inst. of Chemistry, Tech. and Metallurgy, Belgrade, Serbia; M.J. SCEPANOVIC, Center for Solid State Physics and New Materials, Inst. of Physics, Belgrade, Serbia; V. MITIC, Fac. of Electronic Eng., University of Nis, Serbia; J. BLANUŠA, Vinca Institute of Nuclear Sciences, Belgrade, Serbia; D. POPOVIC, Faculty of Physics, University of Belgrade, Serbia

CH-2:L13 **Preparation of Textured Niobium-doped Bismuth Titanate Ceramics by Tape Casting**
E.C. AGUIAR, E. LONGO, **J.A. VARELA**, Chemistry Institute, UNESP, Araraquara, SP, Brazil

CH-2:L14 **Bulk Crystallisation of (00l) Oriented Fresnoite Sr2TiSi2O8 in Glass-Ceramics of the Sr-Ti-Si-K-B-O System**
N. MAURY, M. GONON, Université de Mons, Faculté Polytechnique de Mons, Material Science, Mons, Belgium; F. CAMBIER, Belgian Ceramic Research Centre, Mons, Belgium

CH-2:L15 **Electromechanical Properties of BaTiO3 Ceramics Prepared by Spark Plasma Sintering**
H. MAIWA, N. MATSUMOTO, Shonan Institute of Technology, Fujisawa, Japan

CH-2:L16 **Sm-Ti Co-substituted BiFeO3 Thin Films Prepared by Sol-gel Technique**
DONG HONG, SHENGWEN YU, JINRONG CHEN, School of Material Science and Engineering, Shanghai University, Shanghai, China

CH-2:L17 **Impedance Modelling of Multi-layer Ceramic Capacitors**
JONG-SOOK LEE, YONG KIM, EUI-CHOL SHIN, HYUN-HO SEO, Chonnam National University, Gwangju, Korea; JI-YOUNG PARK, CHANG-HOON KIM, GANG-HUN HUR, Samsung Electromechanics, Korea

CH-2:L18 **Stress Induced Effect on Electrical Properties of CSD-derived Ferroelectric Thin Films**
H. SUZUKI[1], T. OHNO[2], N. SAKAMOTO[1], N. WAKIYA[1], T. MATSUDA[2], T. HAYASHI[3], [1]Shizuoka University, Hamamatsu, Shizuoka, Japan; [2]Kitami Institute of Technology, Japan; [3]Shonan Institute of Technology, Japan

CH-2:L19 **Synergistic Information Encoding by Combinatorial Pulse Operation of Ferroelectric Ceramic Capacitors**
D. RICINSCHI, T. KANASHIMA, M. OKUYAMA, Graduate School of Engineering Science, Osaka University, Toyonaka, Osaka, Japan

CH-2:L20 **Interfacial and Electrical Properties of Thin-film Structures Based on Ferroelectric Titanate/III-V Semiconductor**
J.H. HAO, W. HUANG, Dept. of Applied Physics and Materials Research Center, The Hong Kong Polytechnic University, Hong Kong, P.R. China

CH-2:L21 **Preparation and Properties of Lead Free Alkali Niobates Doped with Bi and Cu**
C. MICLEA, C. TANASOIU, C.F. MICLEA, L. AMARANDE, L. TRUPINA, M. CIOANGHER, National Institute for Materials Physics, Magurele-Bucharest, Romania; C. PLAVITU, C.T. MICLEA, M. SUSU, Hyperion University, Bucharest, Romania

Session CH-3
Magnetic Ceramics

CH-3:IL01 **Magnetostrictive Galfenol Torque Sensor Devices for Smart by-Wire Steering System in Automobile Technology**
Y. FURUYA, T. OKAZAKI, Science and Technology, Hirosaki University, Hirosaki, Japan; C. SAITO, Namiki Precision Company, Japan; M. SHIMADA, Nissan Motors, Japan

CH-3:IL02 **Magnetic Oxide Thin Films Grown by Pulsed Laser Deposition for Applications in Spintronics**
L. MORELLON[1,2,3], J.ORNA[1,3], G. SIMON[1,3], P.A. ALGARABEL[2,3], J.A. PARDO[1,4], A. FERNANDEZ-PACHECO[1,3], C. MAGEN[3,5], J.M. DE TERESA[2,3], M.R. IBARRA[1,2,3], [1]Inst. de Nanociencia de Aragon, Universidad de Zaragoza, Zaragoza, Spain; [2]Inst. de Ciencia de Materiales de Aragon, Universidad de Zaragoza-CSIC, Zaragoza, Spain; [3]Depto de Física de la Materia Condensada, Universidad de Zaragoza, Zaragoza, Spain; [4]Depto de Ciencia y Tecnologia de Materiales y Fluidos, Universidad de Zaragoza, Zaragoza, Spain; [5]Inst. de Nanociencia de Aragon-ARAID, Universidad de Zaragoza, Zaragoza, Spain

CH-3:L03 **Sintering and Properties of Microwave Ferrite Ceramics**
G.M. BASAN, M. TIMUCIN, Metallurgical and Materials Eng. Dept., Middle East Technical University, Ankara, Turkey

CH-3:L04 **Oriented Barium Hexaferrite Thick Films Prepared by Electrophoretic Deposition in a Magnetic Field**
S. OVTAR, Ljubljana, Slovenia; D. LISJAK, M. DROFENIK, Jozef Stefan Institute, Ljubljana, Slovenia

CH-3:IL05 **Beyond Conventional Magneto-optical Spectroscopy of Magnetic Oxides**
J.M. CAICEDO, **G. HERRANZ**, D. HRABOVSKÝ, F. SÁNCHEZ, I.C. INFANTE, J. FONTCUBERTA, Institut de Ciencia de Materials de Barcelona (ICMAB), CSIC, Bellaterra, Spain; R. RAMOS, S.K. ARORA, I.V. SHVETS, Centre for Research on Adaptive Nanostructures and Nanodevices (CRANN), School of Physics, Trinity College Dublin, Ireland

CH-3:IL06 **Spin and Orbital Magnetic Moments in Magnetic Double Perovskites Probed by X-ray Magnetic Circular Dichroism Under High Magnetic Fields**
M. SIKORA, PACS, AGH University of Science and Technology, Krakow, Poland

CH-3:L07 **Magnetoelectric Coupling in Multi-ferro Fe-Pd / PZT / Fe-Pd Laminate Composites**
T. OKAZAKI, Y. FURUYA, Y. SADO, Science and Technology, Hirosaki University, Hirosaki, Japan; C. SAITO, Namiki Precision Company, Japan

CH-3:L08 **Interactions Between Barium Ferrite Particles in Polar Solvents**
D. LISJAK, S. OVTAR, M. DROFENIK, Jozef Stefan Inst., Ljubljana, Slovenia

CH-3:L09 **Characteristics and Properties of Magnetic Nanocomposites Obtained Using Nanomagnetic Fluids**
N. CRAINIC[1], D. BICA[2], A. TORRES MARQUES[3], N.C. POPA[2], P.J. NOVOA[4], O. MARINICA[1], F. DAVIN[5], L. VEKAS[2], [1]"Politehnica" University of Timisoara, National Center for Engineering of Systems with Complex Fluids (NCESCF); [2]Romanian Academy - Timisoara Branch, Center for Advanced and Fundamental Technical Research (CAFTR); [3]Universidade do Porto, Fac. de Engenharia da Universidade do Porto (FEUP); [4]Inst. de Engenharia Mecanica e Gestao Industrial (INEGI), Unidade de Materiais Compositos (CEMACOM), Porto, Portugal; [5]CSM Instruments, Peseux, Switzerland

CH-3:IL10 **Novel Materials for all Oxide-based Spintronics**
L. ALFF, Institute for Materials Science, TU Darmstadt, Darmstadt, Germany

CH-3:IL11 **Magnetic Nanoparticles for Applications in Medicine and Technique**
P. GOERNERT, P. PAYER, M. ROEDER, Innovent, Jena, Germany; R. MUELLER, R. HERGT, IPHT, Jena, Germany; H. SPEPANKOVA, P. KRISTAN, V. CHLAN, Charles University, Prague, Czech Republic

CH-3:IL12 **Application of Permanent Magnets for Microwave Absorbers in GHz Range**
S. SUGIMOTO, Dept. of Material Science, Tohoku University, Sendai, Japan

Session CH-4
Varistors and Thermistors

CH-4:IL01 **Low Temperature Deposition of Nickel Manganite Thin Films**
SONG WON KO, JING LI, E. DICKEY, S. TROLIER-McKINSTRY, Materials Research Institute, Pennsylvania State University, University Park, PA, USA

CH-4:IL02 **Energetics and Electronic Structure of Native Defects and Dopants in ZnO**
F. OBA, Dept. of Materials Science and Eng., Kyoto University, Kyoto, Japan

CH-4:IL03 **Preparing and Electric Properties of BaTiO3-based Lead-free PTCR Ceramics**
G.R. LI, S.L. LENG, L.Y. ZHENG, J.T. ZENG, H.R. ZENG, T.B. WANG, Q.R. YIN, Shanghai Institute of Ceramics, Chinese Academy of Sciences, Shanghai, China

CH-4:IL04 **Defect Structure of Zinc Oxide and Related Properties**
H. HANEDA[1], I. SAKAGUCHI[1], N. OHASHI[1], H. RYOKEN[1, 2], S. HISHITA[1], [1]National Institute for Materials Science, Tsukuba, Ibaraki, Japan; [2]Dept. of Appl. Sci. for Electronics & Matls, Kyushu University, Kasuga, Fukuoka, Japan

CH-4:IL05 **Local Measurements of Functional Properties in Electro-ceramics**
C. LEACH, School of Materials, University of Manchester, Manchester, UK

CH-4:IL06 **Advances in Varistor Ceramics**
F. GREUTER, ABB Corporate Research, Baden-Daettwil, Switzerland

CH-4:IL07 **Origin of Stoichiometry Influence in High Performance NaxCo2O4-y**
SEAN LI, School of Materials Science and Eng., The University of New South Wales, Sydney, Australia

CH-4:IL08 **NTC Thermistors: Past, Present and Future**
A. FETEIRA, School of Chemistry, University of Birmingham & Dept. of Physics, University of Warwick, UK

CH-4:L09 **Defect Chemistry of Ba-excess Donor-doped BaTiO3 Thermistor Ceramics**
H. KATSU, C. PITHAN, R. WASER, Forschungszentrum Jülich, Jülich, Germany

CH-4:L10 **Structure, Microstructure and Electrical Properties of $Mn_{3-x}Co_xO_4$ ($0<x<3$) Spinel Ceramics: an Interesting System for Negative Temperature Coefficient (NCT) Thermistors**
H. BORDENEUVE, CH. TENAILLEAU, **S. GUILLEMET-FRITSCH**, A. ROUSSET, Institut Carnot CIRIMAT/UPS/CNRS Université Paul Sabatier, Toulouse, France; V. POULAIN, S. SCHUURMAN, Vishay, Bruxelles, Belgium

Session CH-5
Optical, Electro-optical and Magneto-optical Ceramics and Devices

CH-5:IL01 **Bi-doped Glass Optical Fibers: Properties and Applications**
E. DIANOV, Fiber Optics Research Center, Moscow, Russia

CH-5:IL02 **Ultra-compact Gbps PLZT Electro-optic Modulators on Si Substrate**
M. NAKADA[1, 2], T. SHIMIZU[1], H. MIYAZAKI[1], K. OHASHI[1], [1]MIRAI-Selete, Tsukuba, Ibaraki, Japan; [2]NEC Corporation, Tsukuba, Ibaraki, Japan; H. TSUDA, J. AKEDO, AIST, Tsukuba, Ibaraki, Japan

CH-5:IL03 **Abnormal Effects of Sonic Metamaterials**
YAN-FENG CHEN, National Lab. of Solid-State Microstructures & Dept. of Materials Science and Eng., Nanjing University, Nanjing, China

CH-5:L04 **Design, Characterization and Fabrication of Nd3+ Doping Profiles in Transparent YAG Laser Ceramics**
R. GAUME, J.A. WISDOM, R.L. BYER, Stanford University, Stanford, CA, USA

CH-5:L05 **RxM2(PO4)3-based Phosphates (M = Zr, Hf). Synthesis, Luminescence and Ionic Conductivity**
D.M. BYKOV, Nizhny Novgorod State University, Nizhny Novgorod, Russia; P. DORENBOS, Delft University of Techlology, Delft, The Netherlands; G.Sh. SHEKHTMAN, Inst. of High-Temperature Electrochemistry, Ekaterinburg, Russia; Ph. RAISON, R.J.M. KONINGS, European Commission, JRC, Inst. for Transuranium Elements, Karlsruhe, Germany; A.I. ORLOVA, Nizhny Novgorod State University, Nizhny Novgorod, Russia

CH-5:L06 **Thermal Stability of Ge-Sb-Te Materials for Phase - Change Memory Devices**
A.A. SHERCHENKOV, Moscow Institute of Electronic Technology, Russia; S.A. KOZYUKHIN, Kurnakov Institute of General and Inorganic Chemistry, Moscow, Russia

CH-5:IL07 **Advanced Ceramics for Optical Applications**
JAN MA, School of Materials Science and Engineering and Temasek Labs, Nanyang Technological University, Singapore

CH-5:IL08 **Integration of Ceramic Thin Films with Optical Fiber Devices for Chemical and Biological Sensing**
HAI XIAO, Dept. of Electrical and Computer Engineering, Missouri University of Science and Technology, Rolla, MO, USA

CH-5:IL09 **Charge Transfer Transitions in 3d Transition Metals Oxides**
R.V. PISAREV, Ioffe Physical-Technical Institute, St. Petersburg, Russia

CH-5:L10 **Development of Highly Sensitive Techniques for Characterizing Optical Gain and Losses in Laser Ceramics**
YE HE, R. GAUME, A. MARKOSYAN, R.L. BYER, Ginzton Lab., Stanford University, Stanford, CA, USA

CH-5:L11 **Magnetic and Magneto-Optical Characterization of Diluted Magnetic Colloidal Suspensions**
O. PASCU, J.M. CAICEDO, J. FONTCUBERTA, G. HERRANZ, A. ROIG, Institut de Ciencia de Materials de Barcelona (ICMAB), CSIC, Bellaterra, Spain

Poster Presentations

CH:P01 **Microwave Lossy Composite with AlN Matrix**
I.P. FESENKO, S.M. DUB, V.I. CHASNYK, T.B. SERBENYUK, I.I. FESENKO, Bakul Institute for Superhard Materials, Kyiv, Ukraine

CH:P02 **Preparation and Characterization of Dielectric Behavior of A2/3Cu3Ti4O12 (A= Nd, Sm, Gd, Dy) Ceramics**
D. SZWAGIERCZAK, J. KULAWIK, Institute of Electron Technology, Cracow Division, Cracow, Poland

CH:P03 **Addition of Cu and Co in the Microwave Absorption of Ba2Zn2Fe12O22**
R.C. LIMA, M.S. PINHO, Brazilian Navy Research Institute (IPqM), Ilha do Governador, Rio de Janeiro, RJ, Brazil; T. OGASAWARA, Dept. of Metallurgical and Matls Eng., Federal University of Rio de Janeiro (COPPE/UFRJ), RJ, Brazil

CH:P04 **Microwave Dielectric Properties of Doped Ba(Mg1/3Ta2/3)O3 Ceramics**
C. JINGA, E. ANDRONESCU, S. JINGA, University "Politehnica" of Bucharest, 011061 Bucharest, Romania; A. IOACHIM, National Institute of Materials Physics, Bucharest-Magurele, Romania

CH:P05 **Structural and Dielectric Studies on PbZr0.5Ti0.5O3 Solid Solution Synthesized by Adopting low Calcination Synthesis Route**
G. SRIVASTAVA, A. GOSWAMI, A.M. UMARJI, Materials Research Centre, Indian Institute of Science, Bangalore, India

CH:P06 **Fabrication and Characterization of Ti Modified BiFeO3-PbTiO3 High Temperature Piezoelectric Ceramics**
LONG ZHAO, JIANGUO CHEN, GUIYANG SHI, JINRONG CHENG, SHENGWEN YU, School of Materials Science and Engineering, Shanghai University, Shanghai, P.R. China

CH:P07 **Preparation and Characterization of Nanofibers Barium Strontium Titanate Using the Electrospinning Route**
B.S. FARACO, A.K. ALVES, C.P. BERGMAN, Federal University of Rio Grande do Sul, Porto Alegre, Brazil

CH:P08 **Fabrication of MFIS-FETs Using PVDF-TrFE Films and ZrO2 Buffer Layers**
GWANG-GEUN LEE, **BYUNG-EUN PARK**, Dept. of Electrical and Computer Engineering, University of Seoul, Seoul, Korea

CH:P09 **Low Fired X8R Dielectric Buried into LTCC Substrate**
H. NAGHIBZADEH, T. RABE, Federal Institute for Material Research and Testing, Berlin, Germany

CH:P10 **Polydomain Structure in PbTiO3 / PbZr0.2Ti0.8O3 Superlattices**
C. HUBAULT, M.G. KARKUT, N. LEMÉE, Lab. de Physique de la Matiere Condensée, Université de Picardie Jules Verne, Amiens, France; L. DUPONT, K. DJELLAB, Lab. de Réactivité et Chimie des Solides, LRCS UMR 6007, Amiens, France; A. PERRIN, Unité Sciences Chimiques de Rennes, UMR 6226 CNRS/Université de Rennes 1, Rennes, France; J. HOLC, M. KOSEC, Jozef Stefan Institute, Ljubljana, Slovenia

CH:P11 **Compositionally Graded BST Ceramics Prepared by Tape Casting**
V.N. SHUT, S.R. SYRTSOV, V.L. TRUBLOVSKY, Institute of Technical Acoustics, National Academy of Sciences, Vitebsk, Belarus

CH:P12 **Dielectric and Ferroelectric Studies on SrBi1.5La0.5Nb2O9 Ceramics**
M. VERMA, K. SREENIVAS, **V. GUPTA**, Dept. of Physics and Astrophysics, University of Delhi, Delhi, India

CH:P13 **Development of Piezoelectric and Relaxor Ceramics for Sensor Materials**
P. SINGH, R. KUMAR, VII Semester, B.Tech. Metallurgy and Material Science Engineering, Visvesvaraya National Institute of Technology, Nagpur, India

CH:P14 **Fabrication and Magnetorheological Characteristics of Hollow Fe3O4 Nanoparticles**
B.O. PARK, B.J. PARK, **H.J. CHOI**, Dept. of Polymer Science and Engineering, Inha University, Incheon, Korea

CH:P15 **Magnetic Properties and High Frequency Response of Single-Phase Z-type Strontium Cobalt Hexaferrite Prepared by Polymerizable Complex Method**
T. KIKUCHI, T. NAKAMURA, T. YAMASAKI, Graduate School of Energy, University of Hyogo, Himeji, Japan; M. NAKANISHI, T. FUJII, J. TAKADA, Okayama University, Okayama, Japan; Y. IKEDA, Research Institute of Production Development, Kyoto, Japan

CH:P16 **Effects of the Co-presence of Conflicting Magnetic Anisotropies in Ba Ferrite Particles**
G. BOTTONI, Dept. of Physics, University of Ferrara, Ferrara, Italy

CH:P17 **In-situ Measurement of Phase Transition of Layered Perovskite BaLn2Mn2O7**
H. NAKANO[1], N. ISHIZAWA[2], H. SATOH[1], **N. KAMEGASHIRA**[1], [1]Toyohashi University of Technology, Toyohashi, Japan; [2]Nagoya Institute of Technology, Japan

CH:P18 **Magnetic Characterization of Iron Aluminosilicate Glass Microspheres**
J.R. MARTINELLI, F.F. SENE, C.N. KAMIKAWACHI, Nuclear and Energy Research Institute, Sao Paulo, Brazil; C.S. DE M. PARTITI, D.R. CORNEJO, Physics Institute, University of Sao Paulo, Brazil

CH:P19 **Simplified Measurement Method of Magnetic Permeability Temperature Profile for RF Device Applications**
A. KURAMOTO[1], T. AOYAMA[2], T. KANIE[3], Y. NORO[1], **T. TAKEO**[1], [1]Mie University, Tsu, Mie, Japan; [2]Tokai Polytechnic College; [3]Aoyama Technology, Japan

CH:P20 **Magnetic Behavior of Nanostructured Magnesioferrite Synthesized at Low Temperature**
S. DA DALT, V.C. SOUSA, C.P. BERGMANN, Dept. of Materials Engineering, Federal University of Rio Grande do Sul, Porto Alegre, Brazil

CH:P21 **Comparision of Strontium Hexaferrite Nanocrystalline Powder Processing by Dynamic H2 and Co Heat Treatment and Re-calcination**
H. KOOHDAR, **S.A. SEYYED EBRAHIMI**, A. YOURDKHANI, Center of Excellence in Magnetic Materials, School of Metallurgy and Materials Engineering, University of Tehran, Tehran, Iran

CH:P22 **The Improvement of Electrical Properties and Lifetime of Zinc Oxide Disk Affected from Humidity in Surge Arrester**
P. APIRATIKUL, **B. PLANG-KLANG**, P. NAKAVIWAT, Rajamangala University of Technology Thanyaburi, Pathumtani, Thailand

CH:P23 **Study of Metal Oxide Varistor Model for Steep Front Wave**
P. APIRATIKUL, B. PLANG-KLANG, P. NAKAVIWAT, Rajamangala University of Technology Thanyaburi, Pathumtani, Thailand

CH:P24 **Investigation of PTC Effect and Percolation Phenomena in Metal-filled Polymer Blends**
A. KANAPITSAS, **H. ZOIS**, C. TSONOS, Technological Educational Institute of Lamia, Lamia, Greece; Ye.P. MAMUNYA, National Academy of Sciences of Ukraine, Kiev, Ukraine

CH:P25 **High Temperature Relaxation Mechanisms of ZnO Varistor**
A. KANAPITSAS, C. TSONOS, Technological Educational Institute of Lamia, Dept. of Electronics, Lamia, Greece; I. STAVRAKAS, **C. ANASTASIADIS**, D. TRIANTIS, Technological Educational Institution of Athens, Dept. of Electronics, Athens, Greece; E. NEAGU, Technical University of Iasi, Dept. of Physics, Iasi, Romania; P. PISSIS, National Technical University of Athens, Physics Dept., Zografou, Athens, Greece

CH:P26 **Semiconducting Ceramics Produced from Nanocrystalline Barium Titanate Powder**
V.N. SHUT, **S.V. KOSTOMAROV**, Institute of Technical Acoustics, National Academy of Sciences, Vitebsk, Belarus

CH:P27 **Properties of ZnO-based Transparent Scintillation Ceramics**
E.I. GOROKHOVA, G.V. ANAN'EVA, V.A. DEMIDENKO, S.B. ERON'KO, Scientific Research and Technological Institute of Optical Material Science, S.I. Vavilov State Optical Institute All-Russia Science Center, St. Petersburg, Russia; P.A. RODNYI, I.V. KHODYUK, St. Petersburg State Polytechnic University, St. Petersburg, Russia

Focused Session CH-6
MULTIFERROICS

Oral Presentations

Session CH-6.1
Theory and Modeling of Materials and Phenomena

CH-6.1:IL01 **Dynamical Magnetoelectric Effects in Multiferroic Oxides**
Y. TOKURA, Dept. of Applied Physics, University of Tokyo; ERATO Multiferroics Project, JST, Japan

CH-6.1:IL02 **Symmetry and Mechanisms for Magnetically Driven Ferroelectricity**
J.L. RIBEIRO, Depto de Fisica, Universidade do Minho, Braga, Portugal

CH-6.1:IL03 **First Principles Study of the Magneto-electric Coupling and Phase Diagrams of Multiferroic RMn2O5**
LIXIN HE, Key Lab. of Quantum Information, University of Science and Technology of China, Hefei, China

CH-6.1:IL04 **Magnetic Switching of Relaxor Ferroelectrics: Theory**
R. PIRC, R. BLINC, J. Stefan Institute, Ljubljana, Slovenia; J.F. SCOTT, Cavendish Laboratory, Cambridge, UK

CH-6.1:IL05 **Ferroelectric and Multiferroic Tunnel Junctions: Insight from Theory**
E.Y. TSYMBAL, Dept. of Physics and Astronomy, University of Nebraska, Lincoln, Nebraska, USA

CH-6.1:IL06 **Static and Dynamic Magnetoelectric Effects in Magnets with Non-collinear Spin Orders**
M. MOSTOVOY, Zernike Institute for Advanced Materials, University of Groningen, Groningen, The Netherlands

CH-6.1:IL07 **Probing Chirality in Multiferroic Manganite Perovskites**
D.N. ARGYRIOU, E. WESCHKE, E. SCHIERLE, Helmholtz-Zentrum Berlin für Materialen und Energie, Berlin, Germany

Session CH-6.2
Advances in Materials, Synthesis and Processing

CH-6.2:IL01 **Multiferroicity due to Charge Ordering**
F. VAN DEN BRINK, Leibniz Institute IFW Dresden, Dresden, Germany

CH-6.2:L02 **Synthesis and Characterization of Aurivillius Phase Thin Films**
L. KEENEY, P.F. ZHANG, Tyndall National Institute, "Lee Maltings", Cork, Ireland; C. GROH, Materials Science Dept., Friedrich Schiller University of Jena, Germany; M.E. PEMBLEK, R.W. WHATMORE, Tyndall National Institute, "Lee Maltings", Cork, Ireland

CH-6.2:L03 **Multiferroics Properties and Piezoelectric Response of $BiFeO_3$ Thin Film Grown on $LaNiO_3$ Buffered Si (100) Substrate Via Pulsed Laser Deposition**
YAN FENG, **LU LI**, LAI MAN ON, Dept. of Mechanical Engineering, National University of Singapore, Singapore; ZHU TIEJUN, Dept. of Materials Science and Engineering, Zhejiang University, Hangzhou, P. R. China

Session CH-6.3
Magnetoelectric Characterization

CH-6.3:L01 **Large Ferroelectric and Magnetic Hystereses coexisting in BiFeO3 Thin Films**
M. OKUYAMA, JUNG-MIN PARK, T. KANASHIMA, Osaka University, Graduate School of Eng. Science, Dept. of Systems Innovation, Toyonaka, Japan

CH-6.3:L02 **Magnetic and Electric Relaxor Behavior and Spin Lattice Coupling in Epitaxially Grown Multiferroic 0.8Pb(Fe1/2Nb1/2)O3-0.2Pb(Mg1/2W1/2)O3 Thin Films**
W. PENG, N. LEMÉE, J.L. DELLIS, **M.G. KARKUT**, LPMC, University of Picardy Jules Verne, Amiens, France; V.V. SHVARTSMAN, P. BORISOV, W. KLEEMANN, Angewandte Physik, University Duisberg-Essen, Duisberg, Germany; Z. TRONTELJ, J. HOLC, M. KOSEC, R. BLINC, Jozef Stefan Institute, Ljubljana;. B. DKHIL, SPMS, Ecole Centrale Paris, Châtenay-Malabry, France

CH-6.3:L03 **Influence of Interface, Functionally Graded Composition, Boundary Condition, and Geometric Size on Magnetoelectric Effects in Multiferroic Composites**
E. PAN, R. WANG, Dept. of Civil Engineering and Dept. of Applied Mathematics, University of Akron, Akron, OH, USA

CH-6.3:L04 **Control Magnetization Electrically Using LSMO/BFO Heterostructures**
LU YOU, **JUNLING WANG**, School of Materials Science & Engineering, Nanyang Technological University, Singapore

CH-6.3:L05 **Electric-field-induced Paths in Multiferroic BiFeO3 from Atomistic Simulations**
S. LISENKOV, University of South Florida, Tampa, USA; D. RAHMEDOV, L. BELLAICHE, University of Arkansas, Fayetteville, USA

Session CH-6.4
Dynamics of Multiferroics

CH-6.4:IL01 **Microwave Multiferroic Heterostructures with Strong Magnetoelectric Coupling**
M. LIU, J. LOU, X. XING, O. OBI, C. PETTIFORD, **NIAN X. SUN**, Electrical and Computer Engineering Dept., Northeastern University, Boston, MA, USA

CH-6.4:IL02 **Electromagnons in Perovskite Manganites**
A. PIMENOV, University of Wuerzburg, Wuerzburg, Germany

CH-6.4:IL03 **Electric Modulation of Exchange Anisotropy in Multiferroic-ferromagnetic Heterostructures**
M. GAJEK[1,3], J. HERON[2], C-H. YANG[1], Y.H. CHU[5], L.W. MARTIN[4], R. RAMESH[1,2], [1]Dept. of Physics, University of California at Berkeley, Berkeley, CA, USA; [2]Dept. of Materials Science, University of California at Berkeley, Berkeley, CA, USA; [3]Dept. of Electrical Engineering and Computer Science, University of California at Berkeley, Berkeley, CA, USA; [4]Dept. of Materials Science and Engineering, University of Illinois at Urbana-Champaign, Urbana, IL, USA; [5]Dept. of Materials Science and Engineering, National Chiao Tung University, Hsin Chu, Taiwan, ROC

CH-6.4:L04 **Strain Induced Ferroelectricity in Antiferromagnetic EuTiO3 Thin Film**
S. KAMBA, V. GOIAN, M. KEMPA, V. BOVTUN, Institute of Physics ASCR, Prague, Czech Republic; J.H. LEE, D.G. SCHLOM, C.J. FENNIE, Cornell University, Ithaca, NY, USA

CH-6.4:IL05 **Soft X-ray Spectroscopic Investigations on Multiferroic Oxides**
JAE-HOON PARK, POSTECH, Pohang, Korea

CH-6.4:IL06 **Dynamic Effects in Multiferroic Manganites: Spin Excitations and Related Phenomena**
A.A. MUKHIN, V.D.TRAVKIN, V.YU IVANOV, Prokhorov General Physics Institute of RAS, Moscow, Russia; A. PIMENOV, A M. SHUVAEV, Experimentelle Physik 4, Universität Würzburg, Würzburg, Germany; A. LOIDL, Experimental-physik V, EKM, Universität Augsburg, Augsburg, Germany

CH-6.4:IL07 **Piezoelectric Control of Magnetic Properties in Thin Film Heterostructures**
K. DÖRR, A.D. RATA, A. HERKLOTZ, O. BILANI-ZENELI, M.C. DEKKER, L. SCHULTZ, IFW Dresden, Dresden, Germany; M. REIBOLD, Triebenberglabor, TU Dresden, Germany; M.D. BIEGALSKI, H.M. CHRISTEN, Oak Ridge National Laboratory, Oak Ridge, TN, USA

CH-6.4:IL08 **Magnetic Excitations in Multiferroics: an Inelastic Neutron Scattering Study**
M. BRADEN, II. Physikalisches Institut, University of Cologne, Cologne, Germany

Session CH-6.5
Structural Characterization and Spin Order of Multiferroics

CH-6.5:IL01 **Magnetically-induced Electric Polarziation in a Collinear Oxide Antiferromagnet and in an Organo-metallic Quantum Magnet**
M. KENZELMANN, Paul Scherrer Institute, Villigen-PSI, Switzerland

CH-6.5:IL02 **Structure, Electrical and Magnetic Properties of Hexagonal ReMnO3 Heterostructures**
C. DUBOURDIEU, I. GELARD, H. ROUSSEL, LMGP, CNRS, Grenoble INP, Grenoble, France; S. PAILHES, LLB, CNRS-CEA, CEA Saclay, Gif-sur-Yvette, France; N. JENATHAN, O. LEBEDEV, S. VAN TENDELOO, EMAT, University of Antwerp, Antwerpen, Belgium

CH-6.5:IL03 **Magnetoelectronic Coupling in Frustrated Spin Systems**
T.T.M. PALSTRA, Zernike Institute for Advanced Materials, University of Groningen, Groningen, The Netherlands

CH-6.5:L04 **Evidence for a Monoclinic alpha - Monoclinic beta First-Order Transition in BiFeO3 Thin Films**
H. TOUPET, **F. LE MARREC**, M.G. KARKUT, LPMC, Université de Picardie Jules Verne, Amiens, France; C. LICHTENSTEIGER, DPMC, Université de Genève, Genève, Switzerland; B. DKHIL, SPMS, Ecole Centrale Paris, Châtenay-Malabry, France

Session CH-6.6
New Effects

CH-6.6:IL01 **Electromagnons in Multiferroics**
D. DREW, CNAM, Physics Dept., University of Maryland, College Park, MD, USA

CH-6.6:IL02 **Novel and Original Features on the Model Multiferroic BiFeO3 Under Strain Effects**
B. DKHIL, UMR-8580 Ecole Centrale Paris - CNRS, Chatenay-Malabry, France

CH-6.6:IL03 **Multiferroic Phenomena in Charge Ordered Manganites**
V.S. AMARAL, F. FIGUEIRAS, Depto de Física and CICECO, Univ. de Aveiro, Aveiro, Portugal; I.K. BDIKIN, A.L. KHOLKIN, Depto de Engenharia Cerâmica e Vidro and CICECO, Univ. de Aveiro, Aveiro, Portugal; A.M.L. LOPES, CFNUL, Lisboa, Portugal; J.P. ARAÚJO, Depto de Física and IN-IFIMUP, Univ. do Porto, Porto, Portugal; J.G. CORREIA, CERN EP, Geneva, Switzerland and Inst. Tecnológico Nuclear, Sacavém, Portugal; Y. TOMIOKA, CERC, National Inst. of Advanced Industrial Science and Technology, Tsukuba, Ibaraki, Japan; Y. TOKURA, Dept. of Applied Physics, University of Tokyo, Tokyo, Japan

CH-6.6:IL04 **Magnetic Control of Electrical Polarization at Room Temperature**
J.F. SCOTT, Physics Dept., Cambridge University, Cambridge, UK; A. KUMAR, R.S. KATIYAR, Physics Dept., University of Puerto Rico; R. PIRC, R. BLINC, Jozef Stefan Institute, Ljubljana, Slovenia

CH-6.6:IL05 **Magnetoelectric Multiglass Ceramics (Sr,Mn)TiO3 and (K,Mn)TaO3**
W. KLEEMANN, V.V. SHVARTSMAN, P. BORISOV, S. BEDANTA, Angewandte Physik, Universität Duisburg-Essen, Duisburg, Germany; A. TKACH, P.M. VILARINHO, Dept. of Ceramics and Glass Engineering, CICECO, University of Aveiro, Aveiro, Portugal

CH-6.6:IL06 **Flexomagnetoelectric Interaction and New Effects in Multiferroics**
A.P. PYATAKOV[1,2], A.K. ZVEZDIN[2], [1]Physics Department, M.V. Lomonosov Moscow State University, Moscow, Russia; [2]A.M. Prokhorov General Physics Institute, Russian Academy of Science, Moscow, Russia

CH-6.6:IL07 **Local Polarization-dependent Electron Transport through Uni- and Multiaxial Ferroelectric Oxides**
P. MAKSYMOVYCH, Center for Nanophase Materials Science, Oak Ridge National Laboratory, Oak Ridge, TN, USA

CH-6.6:IL08 **Nonlinear Optics Applied to Magnetoelectric Multiferroics**
M. FIEBIG, HISKP, University of Bonn, Bonn, Germany

CH-6.6:L09 **Photoconductivity in Ferroelectric BiFeO3-PbTiO3 Thin Films**
XIAOWEN ZHOU, SHENGWEN YU, BINGRONG YUAN, JINRONG CHENG, School of Material Science and Engineering, Shanghai, China

Session CH-6.7
Devices and Applications

CH-6.7:IL01 **Microwave Magnetoelectric Interactions in Composites and Novel Devices**
Y. FETISOV, Moscow State Institute of Radio Engineering, Electronics and Automation, Moscow, Russia; G. SRINIVASAN, Dept. of Physics, Oakland University, Rochester, MI, USA

CH-6.7:IL02 **Multiferroic Tunnel Junctions: from Theory to Experiment**
CHUN-GANG DUAN, Key Laboratory of Polar Materials and Devices, East China Normal University, Shanghai, China

CH-6.7:IL03 **Tunneling Across a Ferroelectric Barrier: A First-principles Study**
D. BILC[1], F.D. NOVAES[1,2], P. ORDEJON[3], J. IÑIGUEZ[2], P. GHOSEZ[1], [1]Physique Théorique des Matériaux, Université de Liège, Sart Tilman, Belgium; [2]Institut de Ciència de los Materials de Barcelona-CSIC, Bellaterra, Spain; [3]Centre d'Investigacio en Nanociència i Nanotecnologia-CSIC, Bellaterra, Spain

CH-6.7:IL04 **Sub-THz Excitations in Ferrite-ferroelectric Heterostructures**
G. SRINIVASAN, Physics Dept., Oakland University, Rochester, MI, USA

CH-6.7:IL05 **Taking Advantage of Interface Effects to Design New Oxide Based Heterostructures for Spintronics**
A. BARTHÉLÉMY[1], M.BIBES[1], Z. SEFRIOUI[3], V. GARCIA[1,2], O. COPIE[1], M. BASLETIC[5], K. BOUZEHOUANE[1], S. FUSIL[1], E. JACQUET[1], D. IMHOFF[4], L.BOCHER[4], A. HAMZIC[5], J. SANTAMARIA[3], N. MATHUR[2], [1]Unité Mixte de Physique CNRS/Thales, Palaiseau, France; [2]University of Cambridge, Cambridge, UK; [3]GFMC, Dpto. Fisica Aplicada III, Universidad Complutense de Madrid, Spain; [4]Lab. de Physique des Solides, CNRS, Université Paris-Sud, Orsay, France; [5]Dept. of Physics, University of Zagreb, Zagreb, Croatia

CH-6.7:IL06 **Ferroelectric Tunnel Barriers for Electronics and Spintronics**
M. BIBES, Unité Mixte de Physique CNRS/Thales, Palaiseau, France

Poster Presentations

CH-6:P01 **Magnetoelectric Gyrator**
A.V. FILIPPOV, M.I. BICHURIN, Yaroslav-the-Wise Novgorod State University, Veliky Novgorod, Russia

CH-6:P02 **Microstructure, Magnetic and Dielectric Properties of CoFe2O4-Pb(Fe1/2Ta1/2)O3-PbTiO3 Composites**
J. KULAWIK, P. GUZDEK, D. SZWAGIERCZAK, Institute of Electron Technology, Cracow Division, Cracow, Poland

CH-6:P03 **The Ferroelectric and Optical Properties of BiFeO3-PbTiO3/ZnO:Al Heterostructure**
W.F. YANG, S.W. YU, J.R. CHENG, School of Materials Science and Engineering, Shanghai University, Shanghai, China

CH-6:P04 **Synthesis of Some Aurivillius Phases in the Bi-Fe-Ti-O System by Wet Chemical Methods**
D. ZIENTARA, M.M. BUCKO, J. POLNAR, AGH - University of Science and Technology, Faculty of Materials Science and Ceramics, Cracow, Poland

CH-6:P05 **Eu0.5Ba0.5TiO3 - A New Magnetoelectric Multiferroics**
V. GOIAN, S. KAMBA, P. VANEK, M. SAVINOV, D. NUZHNYY, K. KNIZEK, Institute of Physics ASCR, Prague, Czech Republic; J. PROKLESKA, Charles University, Prague, Czech Republic

CH-6:P06 **Magnetic Properties of Some Aurivillius Phases in the Bi-Fe-Ti-O System**
M.M. BUCKO, C. KAPUSTA, AGH - University of Science and Technology, Faculty of Materials Science and Ceramics, Cracow, Poland

CH-6:P07 **Effects of Magnetic Ordering on Ferroelectric Polarization Switching Behavior of YMnO3 Epitaxial Thin Film**
K. MAEDA, T. YOSHIMURA, N. FUJIMURA, Graduate School of Engineering, Osaka Prefecture University, Osaka, Japan

CH-6:P08 **Effects of LSCO Buffer Layer on the Microstructure and Electric Properties of Pb(Zr0.53Ti0.47)O3-CoFe2O4 Composite Films**
XUFANG YU, SHENGWEN YU, JINRONG CHENG, School of Materials Science and Engineering, Shanghai University, Shanghai, China

CH-6:P09 **Magnetoelectric Low-frequency Magnetic Field Sensor**
M.I. BICHURIN, YU.J. PUKINSKII, S.N. IVANOV, Novgorod State University, Veliky Novgorod, Russia; E. LIVERTS, A. GROSZ, E. PAPERNO, Ben-Gurion University of the Negev, Beersheva, Israel

CH-6:P10 **Magnetoelectric Gyrators for the Wide-frequency Range**
M.I. BICHURIN, A.V. FILIPPOV, R.V. PETROV, **S.V. AVERKIN**, G.A. SEMENOV, Novgorod State University, Veliky Novgorod, Russia

SYMPOSIUM CI
MAGNETIC AND TRANSPORT PROPERTIES OF OXIDES

Oral Presentations

Session CI-1
CMR Manganites

CI-1:IL01 **Emergent Phenomena in Complex Oxides under Spatial Confinement**
T.Z. WARD[1], **JIAN SHEN**[1, 2], [1]Materials Sciences and Technology Division, Oak Ridge National Laboratory, Oak Ridge, TN, USA; [2]Dept. of Physics, Fudan University, Shanghai, China

CI-1:IL02 **Bilayer Manganites: Neutron Scattering Studies**
T. CHATTERJI, JCNS, FZ Juelich outstation at Institut Laue-Langevin, Grenoble, France

CI-1:IL03 **Charge Ordering and Related Phenomena of Manganites on Nano-scale**
INDRANIL DAS, Saha Institute of Nuclear Physics, Experimental Condensed Matter Physics Division, Kolkata, India

CI-1:IL04 **Interface Magnetism in Complex Oxide Heterostructures and Nanostructures**
H. SRIKANTH, Dept. of Physics, University of South Florida, Tampa, FL, USA

CI-1:IL05 **Many Faces of Photoinduced Phases in CMR Manganites**
K. MIYANO, RCAST, University of Tokyo, Tokyo, Japan

CI-1:L06 **Self-adaptative Composition Modulation in Strained Manganite Thin Films**
J. FONTCUBERTA, I.C. INFANTE, F. SANCHEZ, Institut de Ciencia de Materials de Barcelona-CSIC, Bellaterra, CAT, Spain; S. ESTRADE, J. ARBIOL, **F. PEIRÒ**, EME/CeRMAE/IN2UB, Dept. d'Electronica, Universitat de Barcelona, Barcelona, CAT, Spain; F. DE LA PENA, M. WALLS, C. COLLIEX, Lab. de Physique des Solides, (UMR CNRS 8502), Universite Paris Sud, Orsay, France; M. WOJCIK, E. JEDRYKA, Inst. of Physics, Polish Academy of Sciences, Warszawa, Poland

CI-1:L07 **Synthesis and Magnetic Properties of Eu3+ Doped La0.67Ca0.33MnO3 Nanoplates**
D. DE[1, 2], S. RAM[2], S.K. ROY[1], [1]Dept. of Metallurgical and Materials Engineering, Indian Institute of Technology, Kharagpur, India; [2]Materials Science Centre, Indian Institute of Technology, Kharagpur, India

Session CI-2
Multiferroic Compounds

(Joint Session with Focused Session CH-6)

CI-2:IL01 **Room-temperature Multiferroic Coupling of BiFeO3**
J.-G. PARK, Dept. of Physics & Dept. of Energy Science, SungKyunKwan University, Suwon, Korea; Center for Strongly Correlated Materials Research, Seoul National University, Seoul, Korea

CI-2:IL02 **Exotic Ferroelectricity Induced by Spin or Charge Order**
S. PICOZZI, CNR-INFM, CASTI Regional Lab., L'Aquila, Italy

CI-2:IL03 **Electronic Orbital Currents and Polarization in Mott Insulators**
D. KHOMSKII, II. Physikalisches Institut, University of Köln, Köln, Germany

CI-2:IL04 **Strain Engineered Magnetoelectric Coupling and Ferroelectricity in Orthorhombic AMnO3 Epitaxial Thin Films**
J. FONTCUBERTA, X. MARTI, I. FINA, L. FABREGA, F. SANCHEZ, Institut de Ciencia de Materials de Barcelona (ICMAB-CSIC), Bellaterra, Spain; V. SKUMRYEV, Universitat Autonoma de Barcelona (UAB), Dept. Fisica, Bellaterra, Spain and Institut Catala de Recerca i Estudis Avancats, Barcelona, Spain; C. FERRATER, M. VARELA, Universitat de Barcelona, Dept. Fisica Aplicada i Optica, Barcelona, Spain

CI-2:IL05 **Uncovering Novel Giant Magnetoelectric Materials from First Principles**
C.J. FENNIE, Cornell University, School of AEP, Ithaca, NY, USA

Session CI-3
Magnetic Oxide Thin Films and Heterostructures

CI-3:IL01 **Tuning the Electronic Properties of the LaAlO3/SrTiO3 Interface**
A. CAVIGLIA[1], N. REYREN[1], S. GARIGLIO[1], C. CANCELLIERI[1], S. THIEL[2], G. HAMMERL[2], D. JACCARD[1], M. GABAY[3], T. SCHNEIDER[4], J. MANNHART[2], **J.-M. TRISCONE**[1], [1]DPMC, University of Geneva, Geneva, Switzerland; [2]Experimental Physics VI, Center for Electronic Correlations and Magnetism, Institute of Physics, University of Augsburg, Augsburg, Germany; [3]Laboratoire de Physique des Solides, Université d'Orsay, Orsay, France; [4]Physik Institut, University of Zurich, Zurich, Switzerland

CI-3:IL02 **Magnetotransport and Magnetic Properties of All Oxide Magnetic Multilayers**
N. KELLER[1], B. BERINI[1], J. SCOLA[1], W. NOUN[1], A. FOUCHET[1], E. POPOVA[1], D. SCHMOOL[2], I. SHEIKIN[3], A. DEMUIR[3], P. LEJAY[4], [1]GEMaC / CNRS - UVSQ, Versailles, France; [2]IFIMUP, Universitat do Porto, Porto, Portugal; [3]LNCMI, CNRS, Grenoble, France; [4]Institut Néel, Grenoble, France

CI-3:L03 **Measurement of the Transport Spin Polarization of Ru Doped CrO2 Using Point-contact Andreev Reflection**
M.S. OSOFSKY, Naval Resarch Laboratory, Washington, DC, USA; K. WEST, S.A. WOLF, J. LU, University of Virginia, Charlottesville, VA, USA

CI-3:L04 **Effects of Substrate Electrostriction on Thin Films of La0.67Ca0.33MnO3, a Manganite Prone to Phase Segregation**
F.J. MOMPEAN, A. ALBERCA, R. VILLANUEVA, N. BISKUP, A. DE ANDRÉS, M. GARCÍA-HERNÁNDEZ, ICMM/CSIC, Madrid, Spain; N.M. NEMES, F. BRUNO, J. SANTAMARÍA, Universidad Complutense de Madrid, Spain

CI-3:L05 **Role of Defects and Interfaces in Ferromagnetism of SnO2 Based Heterostructures**
A. ESPINOSA[1], M. GARCÍA-HERNÁNDEZ[1], N. MENÉNDEZ[2], C. PRIETO[1], A. DE ANDRÉS[1], [1]Inst. de Ciencia de Materiales de Madrid, Consejo Superior de Investigaciones Científicas, Cantoblanco, Madrid, Spain; [2]Dpto de Química-Física Aplicada, Univ. Autónoma de Madrid, Cantoblanco, Madrid, Spain

CI-3:IL06 **Tunable Interfaces in Manganite Multilayers**
C. PANAGOPOULOS, Nanyang Technological University, Singapore, and University of Crete, Crete

CI-3:IL07 **Phase Transitions in Narrow Band Manganite Thin Films**
U. SCOTTI DI UCCIO[1], L. ARUTA, C. BARONE, C. CANTONI, A. GALDI, A. GEDDO LEHMANN, F. CONGIU, N. LAMPIS, L. MARITATO, F. MILETTO GRANOZIO, S. PAGANO, P. PERNA, M. RADOVIC, [1]CNR-INFM, Complesso Monte S. Angelo, Napoli, Italy

CI-3:IL08 **Multichannel Transport of a Two-dimensional Electron Gas at the Interface in Oxide Superlattices**
J.S. KIM, S.S.A. SEO, R.K. KREMER, H.-U. HABERMEIER, B. KEIMER, **HO NYUNG LEE**, Materials Science and Technology Division, Oak Ridge National Laboratory, Oak Ridge, TN, USA

Session CI-4
Coexistence of Superconductivity and Magnetism

CI-4:IL01 **Antiferromagnetism and High-Tc Superconductivity in Cuprates**
H. MUKUDA, Graduate School of Engineering Science, Osaka University, Osaka, Japan

CI-4:IL02 **Coexistence of Superconductivity and Magnetism in Ruthenocuprates**
M. CUOCO, P. GENTILE, M. GOMBOS, A. VECCHIONE, **C. NOCE**, Lab. Regionale SuperMat, INFM-CNR, Baronissi (SA), Italy and Dipartimento di Fisica "E.R. Caianiello", Università di Salerno, Fisciano (SA), Italy

CI-4:IL03 **Inhomogeneous Superconductivity and 1/8 Problem in the Cuprates**
Y. KOIKE, T. ADACHI, Y. TANABE, Dept. of Applied Physics, Tohoku University, Sendai, Japan

CI-4:L04 **Investigations for the Growth of Large Underdoped Bi2Sr2CaCu2O8+d Single Crystals and Neutron Scattering Measurements**
S. DE ALMEIDA-DIDRY, F. GIOVANNELLI, I. MONOT-LAFFEZ, LEMA, UMR 6157 CNRS-CEA, Université François Rabelais, Blois, France; Y. SIDIS, P. BOURGES, Laboratoire Léon Brillouin (LLB), CEA-CNRS, CEA-Saclay, France

CI-4:L05 **Synthesis of Magnetic Nanoparticles and its Application to Obtain YBCO Nanocomposite Thin Films: Ex Situ Approach**
F. MARTINEZ-JULIAN, S. RICART, A. POMAR, A. PALAU, J.ARBIOL, F. SANDIUMENGE,T. PUIG, X.OBRADORS, L. PÉREZ-MIRABET, R. YÁÑEZ, J. ROS, ICMAB-CSIC, Barcelona, Spain

Session CI-5
Novel Synthesis and Processing Techniques

CI-5:IL01 **Flux-mediated Epitaxy of Complex Oxides**
Y. MATSUMOTO, Materials and Structures Laboratory, Tokyo Institute of Technology, Yokohama, Japan

CI-5:IL02 **Single Crystals of LnFeAsO1-xFx (Ln=La, Pr, Nd, Sm, Gd) and AFe2As2 (A=Ba, Rb, Ca, Eu): Growth, Structure and Superconducting Properties**
J. KARPINSKI, N.D. ZHIGADLO, S. KATRYCH, Z. BUKOWSKI, R. PUZNIAK, K. ROGACKI, P. MOLL, B. BATLOGG, Laboratory for Solid State Physics, ETH Zurich, Zurich, Switzerland; S. WEYENETH, H. KELLER, Physik-Institut der Universität Zürich, Zurich, Switzerland; M. TORTELLO, D. DAGHERO, R. GONNELLI, Dipartimento di Fisica, Politecnico di Torino, Torino, Italy

CI-5:IL03 **Iron-based Superconductors FeSe and FeTe**
Y. TAKANO, National Institute for Materials Science, Tsukuba, Japan

CI-5:IL04 **Dps Protein as a Bio-reactor to Synthesise Magnetic Nanoparticles**
C. SANGREGORIO, L. CASTELLI, L. SORACE, C. INNOCENTI, D. GATTESCHI, INSTM and Dept. of Chemistry, Univ. di Firenze, Sesto Fiorentino, Italy; P. CECI, E. CHIANCONE, C.N.R. Inst. of Molecular Biology and Pathology, Dept. of Biochemical Sciences, "Sapienza" Univ. of Rome, Rome, Italy

CI-5:IL05 **Bulk Synthesis and Crystal Growth of Magnetic and Superconducting Functional Materials**
T. ITO, National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Ibaraki, Japan

Session CI-6
Oxides with Diluted Magnetic Moments

CI-6:IL01 **Magnetism of Dilute Oxides**
J.M.D. COEY, School of Physics and CRANN, Trinity College, Dublin, Ireland

CI-6:IL02 **Electric Field Control of Room Temperature Ferromagnetism in Co-doped TiO2**
T. FUKUMURA, Inst. for Materials Research, Tohoku University, Sendai, Japan

CI-6:IL03 **Spin Manipulation in Co-doped ZnO**
H. SCHMIDT, Forschungszentrum Dresden-Rossendorf e.V., Dresden, Germany

CI-6:L04 **A Structural and Magnetic Study of the Hydrogen Mediated Spin Ordering in ZnCoO**
SE-YOUNG JEONG, SEUNGHUN LEE, WON-KYUNG KIM, Dept. of Cogno-Mechatronics Engineering, Pusan National University, Miryang, Korea; YONG CHAN CHO, SU JAE KIM, Team of Nano Fusion Technology, Pusan National University; SUNGKYUN PARK, Dept. of Physics, Pusan National University; IL KYOUNG JEONG, CHUL HONG PARK, Dept. of Physics Education, Pusan National University, Korea

CI-6:L05 **Comprehensive Study of Mn doped-ZnO Thin Films Grown by rf Sputtering and Ion Implantation Techniques**
A.G. ROLO, M.F. CERQUEIRA, F. OLIVEIRA, T. VISEU, J. AYRES DE CAMPOS, **T. DE LACERDA-ARÔSO**, M.I. VASILEVSKIY, Centro de Física, Universidade do Minho, Braga, Portugal; J.S. MARTINS, N.A. SOBOLEV, I3N and Dpto de Física, Universidade de Aveiro, Aveiro, Portugal; E. ALVES, ITN, Ion Beam Laboratory, Sacavém, Portugal

Session CI-7
Spectroscopy of Magnetic Oxides

CI-7:IL01 **Modeling Highly Resolved Spectroscopies of Complex Materials: From Qualitative to Quantitative**
A. BANSIL, Physics Dept., Northeastern University, Boston, MA, USA

CI-7:IL02 **New Electronic States in the Magnetic Materials Revealed by ARPES**
CHANGYOUNG KIM, Dept. of Physics, Yonsei University, Seoul, Korea

CI-7:L03 **RE L_3 X-ray Absorption Study of $REO_{(1-x)}F_xFeAs$ (RE = La, Pr, Nd, Sm) Oxypnictides**
B. JOSEPH[1], A. IADECOLA[1], M. FRATINI[2], A. BIANCONI[1], A. MARCELLI[3], N.L. SAINI[1], [1]Dipartimento di Fisica, University of Rome "La Sapienza", Roma, Italy; [2]Istituto di Fotonica e Nanotecnologie, CNR Roma, Italy; [3]Laboratori Nazionali di Frascati, INFN, Frascati, Italy

CI-7:IL04 **Photoemission Spectroscopy of Perovskite-type Oxides under Epitaxial Strain**
A. FUJIMORI, Dept. of Physics, University of Tokyo, Tokyo, Japan

CI-7:IL05 **Manipulation Electronic Structure by Laser Pump-photoemission Probe in Oxides**
T. MIZOKAWA, Dept. of Complexity Science and Engineering, University of Tokyo, Tokyo, Japan

Session CI-8
Quantum Phase Transitions and Magnetism in Oxides

CI-8:IL01 **Quantum Critically in Low Dimensional Oxides**
T. GIAMARCHI, University of Geneva, Geneva, Switzerland

CI-8:IL02 **Intrinsic Lattice Instabilities in Magnetic Oxides Close to the Metal-insulator**
F. RIVADULLA, Physical Chemistry Dept., University of Santiago do Compostela, Santiago do Compostela, Spain

CI-8:L03 **Room Temperature Ferromagnetism in Nanostructured Mn-doped Cuprous Oxide Fibres**
A. AHMED, N.S. GAJBHIYE, Dept. of Chemistry, Indian Institute of Technology, Kanpur, India

CI-8:IL04 **Novel Behaviour Near Quantum Phase Transitions and Beyond**
S.S. SAXENA, Cavendish Laboratory, University of Cambridge, Cambridge, UK

CI-8:IL05 **Universality Classes for Coulomb-frustrated Phase Separation. From Incommensurate Charge Density Wave to Stripes**
C. DI CASTRO, Dipartimento di Fisica, Università "La Sapienza", Roma, Italy

CI-8:IL06 **Quantum Critical Fluctuations in the Frustrated Kondo Lattice $Pr_2Ir_2O_7$**
M. BRANDO, J.G. DONATH, F. STEGLICH, Max Planck Institute for Chemical Physics of Solids, Dresden, Germany; P. GEGENWART, I Institute of Physics, University of Gottingen, Gottingen, Germany; S. NAKATSUJI, Institute for Solid State Physics, University of Tokyo, Tokyo, Japan

Poster Presentations

CI:P01 **Current-induced Asymmetric Electroresistance in Nd0.7Sr0.3MnO3 Epitaxial Thin Films**
JIANFENG WANG, J. GAO, Dept. of Physics, The University of Hong Kong, Hong Kong

CI:P02 **Effect of Electron Doping in Hole Doped La0.7Ca0.3MnO3 on Electrical, Magnetic and Magneto-transport Properties**
A. KHARE[1], R.J. CHOUDHARY[2], S. KUMAR[3], S.P. SANYAL[1], [1]Dept. of Physics, Barkatullah University, Bhopal, India; [2]UGC-DAE-Consortium for Scientific Research, Indore, India; [3]SNME, Changwon National University, Changwon, Republic of Korea

CI:P03 **Nonlinear Electrical Transport Through the Grain Boundary Tunneling in La-deficient Compound La0.9Mn0.9Co0.1O3**
K. DE, A. ROY, C.J.R. SILVA, M.J.M. GOMES, Physics Centre and Centre of Chemistry, University of Minho, Braga, Portugal

CI:P04 **Phase Coexistence in Nano-sized (La,Ca)MnO3 Manganites Investigated by Neutron Powder Diffraction and Magnetization Measurements**
M. FERRETTI, A. MARTINELLI, CNR-INFM-LAMIA, Genova, Italy; M.R. CIMBERLE, CNR-IMEM, Genova, Italy

CI:P05 **Multiferroic Mn-doped BaTiO3 Thin Films**
Y. SHUAI, D. BUERGER, L. LI, S. ZHOU, M. HELM, H. SCHMIDT, Inst. of Ion Beam Physics and Materials Research, Forschungszentrum Dresden-Rossendorf, Dresden, Germany

CI:P06 **The Electroresistance Effect Obtained in a Pr0.5Ca0.5MnO3 Magnetic Oxide Thin Film, by Ferroelectric Field in a Ferroelectric/Manganite Heterostructure**
R. SOULIMANE, Lab. de Catalyse et Synthèse en Chimie Organique, Algérie; A.-M. HAGHIRI, Lab. de Photonique et de Nanostructures, LPN-CNRS, Marcoussis, France; W. PRELLIER, G. POULLAIN, R. BOUREGBA, B. MERCEY, Lab. de Cristallographie et de Sciences des Matériaux, CRISMAT-ISMRA, CNRS UMR 6508, Caen, France

CI:P07 **Effects of Field/Current on Epitaxial Thin Films of Tetravalent Hf-doped Manganites**
J. GAO, L. WANG, Dept. of Physics, The University of Hong Kong, Hong Kong, China

CI:P08 **Characterization of Mn-doped ZnO/Al2O3 Multilayered Nanostructures Grown by Pulsed Laser Deposition**
A. KHODOROV[1], S. LEVICHEV[1], O. KARZAZI[2], A. CHAHBOUN[1, 2], **A.G. ROLO**[1], N.P. BARRADAS[3], E. ALVES[3], C.J. TAVARES[1], D. EYIDI[4], J.-P. RIVIÈRE[4], M.F. BEAUFORT[4], M.J.M. GOMES[1], [1]Physics Centre, University of Minho, Braga, Portugal; [2]LPS, Physics Department, Faculty of Sciences, Fes, Morocco; [3]ITN, Ion Beam Laboratory, Sacavém, Portugal; [4]PhyMat, University of Poitiers, Futuroscope-Chasseneuil, France

CI:P09 **Electron Spin Resonance of Nickelate Lanthanum**
N. POIROT, LEMA, UMR 6157 CNRS-CEA, Université François Rabelais, Tours, France; R.A. SOUZA, Swiss Light Source, Paul Scherrer Institut, Villigen PSI, Switzerland

CI:P10 **Phonon Scattering and Charge Excitation in La0.5Sr0.5CoO3**
D.K. MISHRA, A. ANJU, V.G. SATHE, UGC-DAE Consortium for Scientific Research, University Campus, Indore, India

SYMPOSIUM CJ

SCIENCE AND TECHNOLOGY FOR SILICATE CERAMICS

Oral Presentations

Session CJ-1
Science of Silicate Ceramics

CJ-1:IL01 **New Silicate Glass-ceramic Materials and Composites**
D. HOTZA, A.P. NOVAES DE OLIVEIRA, Group of Ceramic and Glass Materials (CERMAT), Dept. of Mechanical Engineering (EMC), Federal University of Santa Catarina (UFSC), Florianópolis, SC, Brazil

CJ-1:IL02 **Characterisation of Microstructure and Crystallographic Texture of Ceramics**
D. CHATEIGNER, CRISMAT-ENSICAEN, IUT-Caen, Université de Caen Basse-Normandie, Caen, France

CJ-1:IL03 **Effect of Compositional Modification on Sintering Behaviour and Microstructures of Porcelain Tiles**
F. KARA, A. KARA, Anadolu University, Dept. of Materials Science and Engineering, Eskisehir, Turkey; P. DAG, Seramik Arastirma Merkezi, Teknoloji Gelistirme Bolgesi, Eskisehir, Turkey; M. TUNA, Kutahya Seramik, Kutahya, Turkey; H. KIRAN, Ege Seramik, Izmir, Turkey

CJ-1:IL04 **Glass Ceramic Systems Suitable for Conventional Ceramic Glazes**
B. KARASU, Anadolu University, Dept. of Materials Science and Engineering, Eskisehir, Turkey

CJ-1:IL05 **New Development in the Non Contact Measurement of Thermo-mechanical Properties of Materials**
M. PAGANELLI, Expert System Solutions Srl, Modena, Italy; D. PAGANELLI, Ingegneria dei Materiali, Università di Modena, Italy

CJ-1:L06 **Use of Iron-rich Slag as Raw Material for Production of Glassy and Glass-ceramic Pyroxene Materials**
E.I. CEDILLO GONZÁLEZ[1], **J.J. RUIZ VALDÉS**[1,2], A. ÁLVAREZ MÉNDEZ[1], [1]Facultad de Ciencias Químicas, Universidad Autónoma de Nuevo León, Monterrey, N.L., Mexico; [2]Centro de Innovación, Investigación y Desarrollo en Ingeniería y Tecnología CIIDIT, Universidad Autónoma de Nuevo León, Apodaca, N.L., Mexico

CJ-1:L07 **Influence on the Compression Strength of a High-Porous Silica Material by Using Different Types of Layer Silicates as an Inorganic Binder in Extrusion Process**
D. SCHARF, F. CLEMENS, Empa, Swiss Federal Labs for Materials Testing and Research, Dübendorf, Switzerland; D. HESSELBARTH, M. DANZINGER, Sika Technology AG, Zürich, Switzerland; Th. GRAULE, Empa, Swiss Federal Labs for Materials Testing and Research, Dübendorf, Switzerland

CJ-1:IL08 **Use of Phase Diagrams to Guide Ceramic Production from Alternative Raw Materials**
A.M. SEGADAES, University of Aveiro, Dept. of Ceramics and Glass Engineering (CICECO), Aveiro, Portugal

CJ-1:IL09 **Clay Structural Transformations During Firing**
P. BLANCHART, S. DENIEL, N. TESSIER-DOYEN, GEMH, ENSCI, Limoges, France

CJ-1:L10 **Effect of Marl Addition on the Properties of Wall and Floor Tile Bodies**
K. KAYACI[a], **A. KARA**[b,c], Z.E. OYTAÇ[a,c], C. GENÇ[d], [a]Termal Seramik Sanayi Ltd., Bilecik, Turkey; [b]Anadolu University, Dept. of Material Sci. and Eng., Eskisehir, Turkey; [c]Ceramic Research Center, Eskisehir, Turkey; [d]Istanbul Technical University, Dept. of Geological Eng., Istanbul, Turkey

CJ-1:L11 **The Role of the Kaolinite-mullite Reaction Sequence in Moisture Mass Gain in Fired Kaolinite**
H. MESBAH, M.A. WILSON, M.A. CARTER, School of Mechanical, Aerospace and Civil Engineering, The University of Manchester, Manchester, UK

CJ-1:IL12 **Synthesis and Properties of Hybrid Lamellar Silica**
G. TOUSSAINT, C. HENRIST, **R. CLOOTS**, Chemistry of Inorganic Materials, University of Liege, Liege, Belgium

CJ-1:IL13 **Simple Rheological Tests and Protocols for SME Ceramic Producers**
C. GALASSI, **D. GARDINI**, CNR-ISTEC, Faenza, Italy

Session CJ-2
Innovation in the Silicate Ceramics Industry

CJ-2:IL01 **Long-term Optical and Thermal Examinations of Ceramic Wall System with Solar-altitude Dependent Reflectance**
H. KAKIUCHIDA, Materials Research Inst. for Sustainable Development, National Inst. of Advanced Industrial Science and Technology, Nagoya, Japan

CJ-2:IL02 **Mechanical Behaviour of Porcelain Stoneware Bodies: from Green to Fired**
A. TUCCI, L. ESPOSITO, E. RASTELLI, Centro Ceramico Bologna, Bologna, Italy

CJ-2:L03 **Consolidation of Sand by Alkaline Silicate Solution**
S. LUCAS, J. SORO, S. ROSSIGNOL, GEMH-ENSCI, Limoges, France; J-L. GELET, FERRAZ-SHAWMUT, Saint Bonnet-de-Mure, France

CJ-2:L04 **Effect of Alkaline Earth Oxide on Firing Behaviour of Single Fired Wall Tile Bodies**
O. CENGIZ[a], A. KARA[a,b], [a]Dept. of Material Science and Engineering, Anadolu University, Eskisehir, Turkey; [b]Ceramic Research Center, Eskisehir, Turkey

CJ-2:IL05 **Innovative Use of Industrial Solid Waste in Silicate Ceramics**
S.K. DAS, Central Glass & Ceramic Research Institute, Kolkata, India

CJ-2:IL06 **Lightweight Aggregate Processed from Waste Materials**
V. DUCMAN, ZAG Ljubljana, Ljubljana, Slovenia; B. MIRTIC, NTF, Ljubljana, Slovenia

CJ-2:L07 **Development of Photochromic Coatings on Ceramic Tiles**
B. ATAY[1,2], M. GURBUZ[1], A. KUCUK[2], A. DOGAN[1, 3], [1]Anadolu University, Dept. of Material Science and Eng., Eskisehir, Turkey; [2]Kaleseramik Canakkale Kalebodur Seramik Sanayi A.S., Can-Canakkale, Turkey; [3]Advanced Technologies Reseach Center (ITAB), Anadolu Univesity, Eskisehir, Turkey

CJ-2:L08 **Correction of Criteria for Clay Drying Sensitivity on the Basis of Bigot's Curve**
Z. LALIC, **M. ARSENOVIC**, Z. RADOJEVIC, Institute for Testing of Materials, Belgrade, Serbia

CJ-2:IL09 **Fracture Propagation in Porcelain Tiles During Cooling**
V. CANTAVELLA, E. SANCHEZ, E. BANNIER, F. GILABERT, Instituto de Tecnologia Ceramica (ITC), AICE, Universitat Jaume I, Castellon, Spain

CJ-2:IL10 **Glassceramics from Vitreous and Ceramic Wastes**
J.Ma. RINCON, IETcc, CSIC, Madrid, Spain

CJ-2:L11 **Comparison of Weibull Modulus of Aluminosilicate Ceramics Sintered at Various Temperatures**
D.A. PAPARGYRIS, **A.D. PAPARGYRIS**, General Dept. of Applied Sciences, Lab. of Materials Testing, Technological & Educational Institute of Larissa, Larissa, Greece

CJ-2:L12 **Use of TV Screen Hazardous Waste as a Silica Source in Glass-Ceramic Systems: SiO2-Al2O3-[MgO or CaO]**
H.I. CARDENAS-RAMIREZ, G.E. CAMARGO-NEGRETE, G.C. DÍAZ T., J. CHÁVEZ C., Fac. de Ciencias Químicas e Ingeniería, Universidad Autónoma de Baja California, Mesa de Otay, Tijuana, B.C., México; Inst. de Investigaciones en Materiales, UNAM, DF, México

Session CJ-3
Nanotechnology and Advanced Solutions in Silicate Ceramics

CJ-3:IL01 **Development of New VOC Removal Composite Catalyst Using Silicate Honeycomb Substrate**
M. OZAWA, Ceramic Research Laboratory, Nagoya Institute of Technology, Tajimi, Gifu, Japan

CJ-3:IL02 **Testing of Photocatalytic Activity of Self-cleaning Surfaces**
U. CERNIGO, M. KETE, **U. LAVRENCIC STANGAR**, Lab. for Environmental Research, University of Nova Gorica, Nova Gorica, Slovenia

CJ-3:L03 **High Temperature Structural Stabilisation of Turkish Sepiolites**
I. KARA, A. OZCAN, Anadolu University, Eskisehir, Turkey; S. AKAR, Eskisehir Osmangazi University, Eskisehir, Turkey

CJ-3:L04 **Microwave-assisted Green Synthesis of Noble Metal Nanoparticles**
M. BLOSI, M. DONDI, ISTEC-CNR Institute of Science and Technology for Ceramics, National Research Council, Faenza, Italy; S. ALBONETTI, F. GATTI, Dept. of Industrial Chemistry and Materials, University of Bologna, Bologna, Italy; G. BALDI, CERICOL Colorobbia Research Centre, Sovigliana Vinci, Italy

CJ-3:IL05 **Nano-sized Coatings Modification Applied in Microfiltration Membrane Technology**
JIAN-ER ZHOU, QIBING CHANG, YONGQING WANG, XUEBING HU, XIAOZHEN ZHANG, Jingdezhen Ceramic Institute, Jingdezhen, P.R. China

CJ-3:IL06 **Nanostructured Glassy and Ceramic Surfaces: Development of "Active" Materials for an Innovative Approach to Building Industry**
G. BALDI, A. CIONI, V. DAMI, Colorobbia Italia, Soligliana-Vinci (FI), Italy

CJ-3:L07 **Effect of Nanosized TiO2 on Nucleation and Growth of Cristobalite in Sintered Fused Silica Cores for Investment Casting**
G. CASARANO, A. LICCIULLI, Università del Salento, Dipartimento Ingegneria dell'Innovazione, Lecce, Italy; **A. CHIECHI**, D. DISO, Salentec Advanced Technologies, Cavallino (LE), Italy; P. BENE, D. BARDARO, Centro di Progettazione Design e Tecnologie dei Materiali, Brindisi, Italy; M. DI FOGGIA, Europea Microfusioni Aerospaziali Spa, Morra de Sanctis (AV), Italy

CJ-3:L08 **New Low Temperature Routes For the Preparation of Strontium Orthosilicate Using High Surface Area Mesostructured Silica**
J.L. SOARES, **F.M. VICHI**, Institute of Chemistry, University of Sao Paulo, Sao Paulo, Brazil

Session CJ-4
Decoration, Colour and Design of Silicate Ceramics

CJ-4:IL01 **Digital Decoration of Ceramic Tiles: Current Situation and Outlook**
M. DONDI, CNR-ISTEC, Faenza, Italy

CJ-4:IL02 **Innovations and New Trends in Ceramic Tile Decoration**
A. MORENO BERTO, Instituto de Tecnologia Ceramica, AICE, Universitat Jaume I, Castellon, Spain

CJ-4:L03 **CoAl2O4 Nanopigment Obtained by Combustion Synthesis**
F. BONDIOLI, **SH. SALEM**, S.H. JAZAYERI, A. ALLAHVERDI, M. SHIRVANI, Dept. of Material and Environmental Engineering, University of di Modena e Reggio Emilia, Modena, Italy; School of Chemical Engineering, Iran University of Science and Technology, Tehran, Iran

CJ-4:IL04 **Development of New Ceramic Dyes**
G. MONROS, Dpt. Quimica Inorganica i Organica, Universitat Jaume I, Castellon, Spain

CJ-4:IL05 **New nMetal-sepiolite Bioactive Nanocomposites as a Special Effects Pigments (Colors and Shining) for Decoration of Ceramic Tiles**
J.S. MOYA, ICMM-CSIC Cantoblanco, Madrid, Spain

CJ-4:IL06 **Novel Ceramic Pigments Based on Industrial Wastes**
W. HAJJAJI[1], G. COSTA[2], M.J. RIBEIRO[2], M.P. SEABRA[1], **J.A. LABRINCHA**[1], [1]Ceramics and Glass Eng. Dept., CICECO, University of Aveiro, Aveiro, Portugal; [2]ESTG, Polytechnic Institute of Viana do Castelo, Viana do Castelo, Portugal

Poster Presentations

CJ:P01 **Almost Complete Nitridation of Mesoporous Silica to Mesoporous Silicon (Oxy)Nitride with Ammonia**
F. HAYASHI, **M. IWAMOTO**, Chemical Resources Laboratory, Tokyo Institute of Technology, Yokohama, Japan

CJ:P02 **Microstructural Evolution of Fast Firing Floor Tiles Produced by Experimental Design Method**
A. KODA, G. ARSLAN, Anadolu University, Material Science and Engineering Dept., Eskisehir, Turkey

CJ:P03 **Use of Spodumene in Porcelain Stoneware Formulations**
T. AYDIN, Dept. of Material Science and Engineering, Anadolu University, Material Science and Engineering Dept., Eskisehir, Turkey; A. KARA, Ceramic Research Center, Eskisehir, Turkey

CJ:P04 **New Development of Color Cement and Concrete with High Mechanical Strength**
A. AMIRARJMAND, Y. MOHAMMADI, A.S. MOHAJER, S.H. MIRHOSSEINI, Academic Center for Education, Culture and Research - Yazd branch, Yazd, Iran

CJ:P05 **Pozzolanic Activity of Glass Powder as Partial Replacement of Portland Cement**
A. KHMIRI, B. SAMET, M. CHAABOUNI, Laboratoire de Chimie Industrielle, Ecole Nationale d'Ingénieurs de Sfax, Sfax, Tunisie

CJ:P06 **Fast Firing of Glazed Tiles Containing Paper Mill Sludge and Glass Cullet**
G. TONELLO, E. FURLANI, S. MASCHIO, D. MINICHELLI, S. BRUCKNER, Universita di Udine, Dipartimento Scienze e Tecnologie Chimiche, Udine, Italy; E. LUCCHINI, Universita di Trieste, Dipartimento di Ingegneria dei Materiali e delle Risorse Naturali, Trieste, Italy

CJ:P07 **Translucent and Thin Porcelain Tile Body**
U.E. ANIL, Kaleseramik A.S., Can, Turkey

CJ:P08 **Influence of Clayey Material on the Sintering Behaviour of Ceramics Containing Paper Sludge and Glass Cullet**
E. FURLANI, S. MASCHIO, G. TONELLO, E. ANEGGI, D. MINICHELLI, S. BRUCKNER, Università di Udine, Dipartimento di Scienze e Tecnologie Chimiche, Udine, Italy; E. LUCCHINI, Universitò di Trieste, Dipartimento di Ingegneria dei Materiali e delle Risorse Naturali, Trieste, Italy

CJ:P09 **Thermal and Mechanical Performances of Porous Porcelain Stoneware Tiles**
E. RAMBALDI, L. ESPOSITO, Centro Ceramico Bologna, Bologna, Italy

CJ:P10 **Development of Synthetic Soapstone from Natural Soapstone Powder and Debris**
C.E.S. AMORIM, M.G.A. RANIERI, R.P. MOTA, M.A. ALGATTI, FEG-DFQ-UNESP, Guaratinguetá, SP, Brazil; E. CAMPOS, Escola de Especialistas da Aeronáutica, Guaratinguetá, SP, Brazil; F.C.L. MELO, AMR/IAE/CTA, Sao José dos Campos, SP, Brazil

CJ:P11 **Determining the Chemical Composition of Glass Phases in Sanitarywares by Quantititive X-ray Diffraction Analysis**
H. SARI, S. KURAMA, Anadolu University, Department of Materials Science and Engineering, Eskisehir, Turkey

CJ:P12 **Research-studies on Hard Porcelain Glazes**
A. GOLEANU, S.C. Apulum S.A., Alba Julia, Romania

CJ:P13 **Structural Evolution and Mechanical Properties of Silicate Ceramics Sintered with BaF2 and CaF2 Nanoparticles**
R. TORRES, H. VALLE, Mexichem Fluor; L. FLORES, Facultad de Quimica-UASLP; **O. DOMINGUEZ**, IM-UASLP, San Luis Potosi, Mexico

CJ:P14 **Quantitative Infrared Thermography (IRT) and Holographic Interferometry (HI): Nondestructive Testing (NDT) for defects detection in the Silicate Ceramics Industry**
S. SFARRA, D. AMBROSINI, A. PAOLETTI, D. PAOLETTI, Dept. of Mechanical, Management and Energy Engineering (DIMEG), University of L'Aquila, Loc. Monteluco di Roio (AQ), Italy; C. IBARRA-CASTANEDO, A. BENDADA, X. MALDAGUE, Computer Vision and Systems Lab., Dept. of Electrical and Computer Engineering, Laval University, Quebec City, Canada

CJ:P15 **Visible and Infra-red Reflectance of Several Typical Japanese Glazes for Roof Tiles and Wall Tiles**
T. SUGIYAMA, H. KAKIUCHIDA, M. OHASHI, National Institute of Advanced Industrial Science and Technology, Materials Research Institute for Sustainable Development, Nagoya, Japan

CJ:P16 **Colour Properties of Y2O3-Al2O3-Cr2O3 Pigments as a Result of Precursors Morphology**
E. STOBIERSKA, M.M. BUCKO, J. LIS, K. KUZMINSKA, AGH - University of Science and Technology, Faculty of Materials Science and Ceramics, Cracow, Poland

CJ:P17 **New Red Chromium-calcium Titanate Red Ceramic Pigment**
C. GARGORI, R. GALINDO, M. LLUSAR, S. CERRO, A. GARCIA, G. MONROS, Dpt. Quimica Inorganica i Organica, Universitat Jaume I, Castellon, Spain

CJ:P18 **The Effect of Ferrochromium Fly Ash as a Pigment on Wall Tile Glaze**
Z. BAYER, N. AY, Anadolu University, Dept. of Materials Science and Eng., Eskisehir, Turkey

CJ:P19 **M-doped Al2TiO5 (M=Cr, Mn, Co) Solid Solutions and their Use as Ceramic Pigments**
M. OCANA, Instituto de Ciencia de Materiales de Sevilla-CSIC/US, Sevilla, Spain; M. DONDI, ISTEC-CNR, Faenza, Italy; T. STOYANOVA LYUBENOVA, J.B. CARDA, Universitat Jaume I, Castellon, Spain

CJ:P20 **Synthesizes of Nano Yellow and Red Pigments from Recycling of Dust Arc Furnaces**
M.R. BOLURFORUSH, A. AMIRARJMAND, Y. MOHAMMADI IRAVANI, S.H. MIRHOSSEINI, Academic Center for Education, Culture and Research-Yazd branch, Yazd, Iran

CJ:P21 **Crystallisation of Gahnit in CMAS Glass Forming System. Mechanism and Kinetics of the Process**
D. HERMAN, T. OKUPSKI, Koszalin University of Technology, Koszalin, Poland

SYMPOSIUM CK
GEOPOLYMERS AND GEOCEMENTS: LOW ENVIRONMENTAL IMPACT CERAMIC MATERIALS

Oral Presentations

Keynote Lecture

CK:KL **Status and Prospects of Research and Application of Alkali-activated Materials**
P.V. KRIVENKO, Kiev, Ukraine

Session CK-1
Preparation

CK-1:IL01 **Synthesis Routes of Novel Inorganic Polymer and Geopolymer-type Materials**
K.J.D. MacKENZIE, MacDiarmid Inst. for Advanced Materials and Technology, Victoria University of Wellington, Wellington, New Zealand

CK-1:IL02 **Preparation of Geopolymeric Materials from Swage Sludge Slag, a Novel Active Filler**
N. YAMAGUCHI, Ceramic Research Center of Nagasaki, **K. IKEDA**, Prof. Emeritus of Yamaguchi University, Ube, Japan

CK-1:IL03 **The Role of Molecular Research in the Commercialization of Geopolymer Concrete in Australia**
J.S.J. VAN DEVENTER, P. DUXSON, Zeobond Pty Ltd, Somerton, Victoria, Australia; J.L. PROVIS. C.E. WHITE, Dept. of Chemical & Biomolecular Eng., The University of Melbourne, Victoria, Australia

CK-1:IL04 **The Suitability of Different Clay Resources in Respect to Form Geopolymeric Binders**
A. BUCHWALD, ASCEM B.V., Beek, The Netherlands

CK-1:L05 **The Incorporation of Gallium Into Inorganic Polymer Structures: Synthesis and Thermal Behaviour**
A.T. DURANT, K.J.D. MACKENZIE, Victoria University of Wellington, Wellington, New Zealand

CK-1:L06 **Kinetic Analysis of Processes Underlying Geopolymerization and Gain of Strength**
C. CHEN, W. GONG, **W. LUTZE**, I.L. PEGG, The Catholic University of America, Washington, DC, USA

CK-1:L07 **Understanding Study of Silicate-based Gel formed during the Setting of Ceramic Materials**
M.T. TOGNONVI, S. ROSSIGNOL, J.P. BONNET, GEMH-ENSCI, Limoges, France; A. LECOMTE, SPCTS-ENSCI, Limoges, France; D. MASSIOT, CEMHTI-CNRS UPR 3079, Orléans, France

CK-1:IL08 **Preparation and Stability of Alkali Activated Materials from Slags and Fly-ashes**
V. BILEK, ZPSV a.s., Brno, Czech Republic

CK-1:IL09 **Recent Development of Magnesium-based Cements - Magnesium Phosphate Cement and Magnesium Oxychloride Cement**
ZONGJIN LI, FEI QIAO, C.K. CHAU, Dept. of Civil and Environmental Eng., The Hong Kong University of Science and Technology, Hong Kong, China

CK-1:L10 **Study and Characterization of in-situ Geomaterial Foam by DTA-TGA Coupled with Mass-spectroscopy**
E. PRUD'HOMME, P. MICHAUD, S. ROSSIGNOL, GEMH, Limoges, France; E. JOUSSEIN, GRESE, Limoges, France; J-M. CLACENS, S. ARII-CLACENS, LACCO, Poitiers

CK-1:L11 **Geopolymer Synthesis from SiO2 and Al(OH)3 Precursors Using K and Na Activators**
M. LIZCANO, H. KIM, **M. RADOVIC**, Texas A&M University, College Station, TX, USA

CK-1:L12 **Fly Ash Beneficiation and Geopolymer Properties**
N.W. CHEN-TAN, A. VAN RIESSEN, Curtin University, Perth, Australia

CK-1:IL13 **Geopolymer Binders in Composite Cements and Ceramic-like Materials**
Ch. KAPS, M. HOHMANN, Bauhaus-University Weimar, Chair of Building Chemistry, Weimar, Germany

CK-1:IL14 **Dissolution-reorientation-polycondensation Processes of Metakaolin in Alkaline Solutions Related to Geopolymerization**
YUNSHENG ZHANG, Jiangsu Key Laboratory for Construction Materials, Southeast University, Nanjing, P.R.China

CK-1:L15 **Use of Sodium Silicate Gel as Precursor of Binder for Cold Consolidated Materials**
M.T. TOGNONVI, **J. SORO**, S. ROSSIGNOL, J.P. BONNET, GEMH-ENSCI, Limoges, France

CK-1:L16 **New Geopolymers Based on Rice Husk Ash**
Y. LUNA GALIANO, C. FERNÁNDEZ PEREIRA, J. RAMÓN MOLAS FLORES, University of Seville, Chemical and Environmental Eng. Dept., Seville, Spain

CK-1:L17 **Geopolymer Development by Powders of Metakaolin and Wastes in Thailand**
C. TIPPAYASEM[1], S. BUNSARI[3], L. PUNSUKUMTANA[3], S. SAJJAVANICH[2], **D. CHAYSUWAN**[1], [1]Dept. of Materials Engineering, Kasetsart University, Bangkok, Thailand; [2]Dept. of Civil Engineering, Kasetsart University, Bangkok, Thailand; [3]Dept. of Science Service, Ministry of Science and Technology, Bangkok, Thailand

CK-1:IL18 **Mechanical Response of Discontinuous Filament Polymer Fiber Reinforced Geopolymers**
B. VARELA, J.F. DEAN, Dept. of Mechanical Engineering, Rochester Institute of Technology, Rochester, NY, USA

CK-1:IL19 **Chemical and Physical Features Governing the Properties of Geopolymers Produced from Fly Ash**
H.W. NUGTEREN, M.T. KREUTZER, Delft University of Technology, Product and Process Eng. Group, Delft, The Netherlands; G.-J. WITKAMP, Delft University of Technology, Process Equipment Group, Delft, The Netherlands

CK-1:L20 **Physical, Mechanical and Micro-structural Properties of Fly-Ash Based Geopolymeric Bricks Produced by Pressure Forming Process**
O. ARIOZ, Cimsa, Ready-Mixed Concrete Company, Eskisehir, Turkey; **K. KILINC**, M. TUNCAN, A. TUNCAN, O. ZEYBEK, Dept. of Civil Engineering, Anadolu University, Eskisehir, Turkey; T. KAVAS, Dept. of Materials Science & Engineering, Afyon Kocatepe University, Afyonkarahisar, Turkey

CK-1:L21 **Lightweight Geopolymer Materials for Insulating Applications: Electric and Thermal Properties**
E. KAMSEU[1], C. LEONELLI[1], A. LIBBRA[2], A. MUSCIO[2], [1]Dept. of Materials and Environmental Engineering, University of Modena and Reggio Emilia, Modena, Italy; [1]Dept. of Mechanical and Civil Engineering, University of Modena and Reggio Emilia, Modena, Italy

CK-1:L22 **Durability of Geopolymer Concrete upon Seawater Exposure**
S. ASTUTININGSIH, D.M. NURJAYA, H.W. ASHADI, D. DHANESWARA, N. SWASTIKA, Faculty of Engineering, University of Indonesia, Depok, Indonesia

Session CK-2
Characterization

CK-2:IL01 **The Application of Micromechanics on Alkali-activated Materials**
F. SKVARA, Institute of Chemical Technology Prague, Prague; **V. SMILAUER**, J. NEMECEK, L. KOPECKY, Czech Technical University in Prague, Dept. of Mechanics, Prague, Czech Republic

CK-2:IL02 **The Alkali-activation of Aluminosilicates - Some Chemical Perspectives**
D.E. MACPHEE, Dept. of Chemistry, University of Aberdeen, Old Aberdeen, Scotland

CK-2:L03 **Mechanical Properties of Metakaolin Geopolymers: A Microstructural Study**
E. KAMSEU, **C. LEONELLI**, DIMA, Università di Modena e Reggio Emilia, Modena, Italy; A. TUCCI, L. ESPOSITO, Centro Ceramico Bologna, Bologna, Italy

CK-2:L04 **High-temperature Mechanical Property of Cf/geopolymer Composites After Heat Treatment and Repeated Impregnation by Sol-SiO2**
DECHANG JIA, PEIGANG HE, TIESONG LIN, MEIRONG WANG, Harbin Institute of Technology, Harbin, P.R. China

CK-2:L05 **Evaluation of the Stability of Waste-based Geopolymeric Artificial Aggregates for Wastewater Treatment Processes Under Different Curing Conditions**
I. SILVA, Castelo Branco Polytechnic Institute and Centre of Materials and Building Technologies, University of Beira Interior, Covilhã, Portugal; J. CASTRO-GOMES, A. ALBUQUERQUE, Centre of Materials and Building Technologies, University of Beira Interior, Covilhã, Portugal

CK-2:IL06 **Atomic Structure and Microstructure of Geopolymer and Crystallized Geopolymer Ceramics**
W.M. KRIVEN, J.L. BELL, P.E. DRIEMEYER, P. SARIN, R.P. HAGGERTY, N. XIE, University of Illinois at Urbana-Champaign, Dept. of Materials Science and Engineering, Urbana, IL, USA

CK-2:IL07 **In Situ Characterization of Fresh and Aged Geopolymer Materials**
S. ROSSIGNOL, GEMH ENSCI, Limoges, France

CK-2:IL08 **Mechanical Properties of Geopolymers: Flexural Strength and Microstructure**
L. ESPOSITO, Centro Ceramico Bologna, Bologna, Italy

CK-2:L09 **Comparative Study of the Consolidation Process and Properties of Clay Based Geomaterials and "Geomimetic" Lateritic Clay Based Materials**
G.L. LECOMTE, G. LECOMTE, Groupe d'Etude des Matériaux Hétérogènes-ENSCI, Limoges, France; A. WATTIAUX, Institut de Chimie de la Matière Condensée de Bordeaux, Pessac, France

CK-2:L10 **Development of Alkali Activated Metakaolin/Slag/Fly Ash Binders**
M.I. OLMOS-ALEJO, L.Y. GÓMEZ-ZAMORANO, Facultad de Ingeniería Mecánica y Eléctrica, Universidad Autónoma de Nuevo León, San Nicolás de los Garza, Nuevo León, México

CK-2:L11 **Development of a National Database for Facilitating Widespread Recycling of Fly Ash into Geopolymer Concrete**
E.N. ALLOUCHE, I. DIAZ, Dept. of Civil Engineering, Louisiana Tech University, Ruston, LA, USA

CK-2:L12 **New Geopolymers Based on Electric Arc Furnace Slag**
M.C. BIGNOZZI, F. SANDROLINI, Dipartimento di Chimica Applicata e Scienza dei Materiali, Università di Bologna, Bologna, Italy; L. BARBIERI, I. LANCELLOTTI, Dipartimento di Ingegneria dei Materiali e dell'Ambiente, Università di Modena e Reggio Emilia, Modena, Italy

CK-2:L13 **Phase and Strength Evolution of Fly Ash Geopolymers Exposed to Standard Fire Conditions**
W.D.A. RICKARD, A. VAN RIESSEN, J. TEMUUJIN, R.P. WILLIAMS, Centre for Materials Research, Curtin University of Technology, Perth, WA, Australia

CK-2:L14 **Evaluation of the Thermal Conductivity of Model Materials and Elaboration of a Porous Material**
J. BOURRET, E. PRUD'HOMME, S. ROSSIGNOL, D. SMITH, GEMH ENSCI, Limoges, France

Session CK-3
Industrialization & Application

CK-3:IL01 **Medium to Long Term Engineering Properties and Performance of High-strength Geopolymer Concrete Systems**
K. SAGOE-CRENTSIL, CSIRO Materials Science and Engineering, Highett, Victoria, Australia

CK-3:IL02 **Geopolymers in Conservation of Stone Monuments and Buildings**
A. TEIXEIRA-PINTO, Universidade de Tras-os-Montes e Aldo Douro, Vila Real, Portugal

CK-3:L03 **Use of Local Raw Materials for Construction Purposes**
H. RAHIER, M. ESAIFAN, J. WASTIELS, Vrije Universiteit Brussel, Brussels, Belgium; I. ALDABSHEH, F. SLATYI, M. ALSHAAER, H. KHOURY, Materials Research Laboratory, University of Jordan, Amman, Jordan

CK-3:L04 **Mechanical Properties of Geopolymer Composites Affected by their Microstructure**
M. STEINEROVA, Academy of Sciences of the Czech Republic, Institute of Rock Structure and Mechanics, v.v.i., Prague, Czech Republic

CK-3:L05 **Development of Building Materials Through Alkaline Activation of Construction and Demolition Waste (CDW)**
J.G. RAPAZOTE, C. LAGINHAS, A. TEIXEIRA-PINTO, Universidade de Trás-os-Montes e Alto Douro, Dpto de Engenharias, Vila Real, Portugal

CK-3:IL06 **Solidification and Stabilization of Radioactive metal Isotopes and Radioactive Wastes in Geopolymer Matrix**
T. HANZLICEK, I. PERNA, Institute of Rock Structure and Mechanics of the Czech Academy of Sciences, Prague, Czech Republic

CK-3:L08 **Geopolymers as Waste Encapsulation Materials: Impact of Anions on the Materials Properties**
F. FRIZON, D. LAMBERTIN, Atomic Energy Commission, DEN, Marcoule, Waste Treatment and Conditioning Research Dept., Bagnols-sur-Cèze, France

CK-3:L09 **Bond Strength of Geopolymers Concrete with Reinforcing Steel**
P.K. SARKER, R. VASILE, Dept. of Civil Engineering, Curtin University of Technology, Perth, Australia

CK-3:L10 **Metal Ion Exchanged Geopolymers and Their Applications**
O. BORTNOVSKY, P. BEZUCHA, Research Institute of Inorganic Chemistry, Usti nad Labem, Czech Republic; P. SAZAMA, Z. SOBALIK, Z. TVARUZKOVA, J. DEDECEK, J. Heyrovsky Institute of Physical Chemistry, Academy of Sciences of the Czech Republic, Prague, Czech Republic

CK-3:L11 **Geopolymer Coating for Rehabilitation of Concrete-Based Wastewater Collection Systems**
E. ALLOUCHE, **C. MONTES**, Department of Civil Engineering, Louisiana Tech University, Ruston, LA, USA

CK-3:L12 **Recycling of MSWI Residues by Means of Stabilization/ Solidification in Geopolymer-based Matrix**
R. CIOFFI, F. COLANGELO, Dept. of Technology, University Parthenope, Naples, Italy; F. MONTAGNARO, L. SANTORO, University Federico II, Naples, Italy

CK-3:L13 **Recycling of Industrial Waste Water by its Immobilization in Geopolymer Cement**
D. TAVOR, A. WOLFSON, T. MEYOHAS, S. RONEN, Center of Green Processes, Chemical Engineering Dept., Sami Shamoon College of Eng., Beer-Sheva, Israel

CK-3:L14 **How to Assess the Environmental Sustainability of Geopolymers? A Live Cycle Perspective**
M. WEIL, Karlsruher Institut for Technologie (KIT), Institute for Technology Assessment and Systems Analysis (ITAS), Germany; K. DOMBROWSKI, Freiberg University of Mining and Technology, Institute for Ceramic, Glass, and Construction Materials, Germany; A. BUCHWALD, Bauhaus-University Weimar, Chair of Building Chemistry, Germany

Poster Presentations

CK:P01 **Formation of Tetra-coordinated Aluminum in the Low Temperature Ashes**
P. STRAKA, Institute of Rock Structure and Mechanics ASCR, v.v.i., Prague, Czech Republic

CK:P02 **Geopolymerization of Meta-kaolins with Different Morphologies**
J. DEDECEK, J. Heyrovsky Institute of Physical Chemistry, Academy of Sciences of the Czech Republic, Prague, Czech Republic; **V. MEDRI**, S. FABBRI, ISTEC-CNR, Faenza, Italy; Z. SOBALIK, Z. TVARUZKOVA, J. Heyrovsky Institute of Physical Chemistry, Academy of Sciences of the Czech Republic, Prague, Czech Republic; A. VACCARI, Dipartimento di Chimica Industriale e dei Materiali, University of Bologna, Bologna, Italy

CK:P03 **Alkali Activated Biomass Fly Ash as Geopolymers**
R. RAJAMMA, V.M. FERREIRA, Dpto de Eng. Civil/CICECO, Universidade de Aveiro, Aveiro, Portugal; J.A. LABRINCHA, Dpto de Eng. Cerâmica e do Vidro/CICECO, Universidade de Aveiro, Aveiro, Portugal

CK:P04 **Study of the Adherence of the Steel-polysialate Concrete**
D.P. DIAS, LECIV-UENF, Campos dos Goytacazes, Rio de Janeiro, Brazil

CK:P05 **Chemical and Biological Characterization of Geopolymers for Potential Application as Hard Tissue Prostheses**
M. CATAURO, F. BOLLINO, D. VERARDI, Dept. of Mechanical and Aerospace Engineering, Second University of Naples, Aversa, Italy; I. LANCELLOTTI, E. KAMSEU, C. LEONELLI, Dept. of Materials and Environmental Engineering, University of Modena and Reggio Emilia, Modena, Italy

SYMPOSIUM CL

REFRACTORIES: RECENT DEVELOPMENTS IN MATERIALS, PRODUCTION AND USE

Oral Presentations

Keynote Lecture

CL:KL **The Federation for International Refractories Research and Education (FIRE): Progress and Outcome on Research, Education and Industrial Partnership**
M. RIGAUD, Professor Emeritus, University of Montreal, Canada

Session CL-1
Raw Materials

CL-1:IL01 **Reactive Oxide Micropowders and Chemical Additives for Refractory Castables**
C. PARR, G. ASSIS, CH. WÔHRMEYER, H. FRYDA, Kerneos S.A., Neuilly sur Seine, France

CL-1:IL02 **Synthesis of Carbide Ceramic Powders by Carbothermal Reduction of Organic Precursors**
T. NISHIMURA, H. TANAKA, N. HIROSAKI, National Institute for Materials Science, Tsukuba, Ibaraki, Japan; S. ISHIHARA, Nagoya Institute of Technology, Nagoya, Aichi, Japan; J.-S. LEE, Hanyang University, Seoul, Republic of Korea; S.-H. LEE, Korea Institute of Materials Science, Changwon, Gyeongnam, Republic of Korea

CL-1:IL03 **The Phase Equilibrium Diagrams as a Tool for the Design and Use of Refractories**
A.H. DE AZA, Instituto de Ceramica y Vidrio (ICV) - CSIC, Madrid, Spain

CL-1:L04 **Exploitation of Ceramic Wastes by Recycling in Alumina-Mullite Refractories**
F. MAZZANTI, A. BRENTARI, A. COGLITORE, C. MINGAZZINI , M. LABANTI, M. SCAFÈ, S. SANGIORGI, M. VILLA, ENEA, Engineering of Components and Processes Section - Faenza Research Centre, Faenza, Italy; S. MARTELLI, Centro Sviluppo Materiali S.p.A., Rome, Italy

CL-1:L05 **Phase Equilibria and Crystal Structures in Ternary Systems Ce, Eu, Yb-VIIIb Group Element-Boron**
O. SOLOGUB, P. ROGL, Institute of Physical Chemistry, University of Vienna, Vienna, Austria; L. SALAMAKHA, E. BAUER, Institute of Solid State Physics, Vienna University of Technology, Vienna, Austria; G. GIESTER, Institute of Mineralogy and Crystallography, University of Vienna, Vienna, Austria

CL-1:IL06 **The Latest Trend in Refractories for Iron and Steelmaking in Nippon Steel Corporation**
T. MATSUI, Refractory Ceramics R&D Division, Nippon Steel Corporation, Futtsu city, Chiba pref., Japan

CL-1:L07 **Fabrication of Cellular Aluminium Metal by Lost Foam Technique**
K.A. GULER, G. OZER, Z. TASLICUKUR, Metallurgical and Materials Eng., Yildiz Technical University, Istanbul, Turkey

CL-1:L08 **The Effect of Additives on Performance of Chromite Base Ladle Filler Sands for Continuous Casting**
F. FARSHIDFAR, **M.G. KAKROUDI**, SH. KHAMENEH ASL, Dept. of Material Science and Engineering, Faculty of Mechanical Engineering, University of Tabriz, Tabriz, Iran

Session CL-2
Testing

CL-2:IL01 **Testing Procedures for Postmortem Analyses on Refractories Used in Non-Ferrous Furnaces**
G. OPREA, Materials Engineering, University of British Columbia, Vancouver, BC, Canada

CL-2:IL02 **How to Enhance Strain to Rupture of Refractory Materials for Thermal Shock Applications?**
M. HUGER[1], T. OTA[2], N. TESSIER-DOYEN[1], T. CHOTARD[1], P. MICHAUD[1], [1]Groupe d'Etude des Matériaux Hétérogènes (GEMH), ENSCI, Limoges, France; [2]Nagoya Institute of Technology, Nagoya, Aichi, Japan

CL-2:L03 **Thermo Mechanical Comparison Between SFRC With No Cement and a Similar Ultra Low Cement Castable**
A.P. SILVA, D.G. PINTO, T.C. DEVEZAS, Dept. Electromechanical Eng. (CAST), University of Beira Interior, Covilha, Portugal; A.M. SEGADAES, Dept. Ceramics and Glass Eng. (CICECO), University of Aveiro, Aveiro, Portugal

CL-2:L04 **Fracture Resistance Investigations of Refractory Materials**
G. GOGOTSI, Pisarenko Institute for Problems of Strength, Kiev, Ukraine

CL-2:IL05 **Standard Testing of Refractories**
X. BUTTOL, INISMa - Institut National Interuniversitaire des Silicates, Sols et Matériaux, Mons, Belgium; J.-P. ERAUW, CRIBC - Centre de Recherche de l'Industrie Belge de la Céramique, Belgium

CL-2:IL06 **Characterisation of the Fracture Path in "Flexible" Refractories**
H. HARMUTH, Chair of Ceramics, University of Leoben, Leoben, Austria

CL-2:L07 **Mechanical Evaluation of Al2O3-MgO-C Refractory Bricks by Stress-strain Curves**
V. MUNOZ, A.L. CAVALIERI, A.G. TOMBA MARTINEZ, División Cerámicos - INTEMA, Mar del Plata, Argentina

CL-2:L08 **Resistance Parameters During Water Quench Test of Low Cement Castable**
S. MARTINOVIC, M. VLAHOVIC, Institute for Technology of Nuclear and Other Mineral Raw Materials, Belgrade, Serbia; J. MAJSTOROVIC, University of Belgrade, Faculty of Mining and Geology, Belgrade, Serbia; **T. VOLKOV-HUSOVIC**, University of Belgrade, Faculty of Technology and Metallurgy, Belgrade, Serbia

CL-2:IL09 **The Fracture Toughness of Refractories**
R.C. BRADT, The University of Alabama, Tuscaloosa, AL, USA

CL-2:IL10 **Thermomechanical Characterisation of Monolithic Castables**
T. CUTARD, N. DONVAL, A. MAZZONI, C. MICHEL, Toulouse University, Mines Albi, Research Center on Tools Materials and Processes (ICA-CROMeP), Albi, France; F. NAZARET AUROCK, MDI, ZA Albitech, Albi, France

CL-2:L11 **Electrical Characterization of Alumina-Based Bodies Containing Al-Rich Anodizing Sludge**
M.J. RIBEIRO, UIDM, ESTG, Polytechnique Institute of Viana do Castelo, Viana do Castelo, Portugal; J.A. LABRINCHA, Ceramics and Glass Engineering Dept., CICECO, University of Aveiro, Aveiro, Portugal

Session CL-3
Manufacturing, Selection, Design and Use

CL-3:IL01 **Carbon Containing Castables and More**
C.G. ANEZIRIS, S. DUDCZIG, Institute of Ceramic, Glass and Construction Materials, TU Bergakademie Freiberg, Freiberg, Germany

CL-3:IL02 **Microtexture Control of Alumina Using Anisotropic Alumina Particles**
S. HASHIMOTO, S. HONDA, Y. IWAMOTO, Nagoya Institute of Technology, Nagoya-shi, Japan; H. HIRANO, Towa Refractory Engineering, Kani-shi, Japan

CL-3:L03 **Application of Organic Thickening Agents to the Rheology Study of Ceramic Slurries Used in the Investment Casting Process**
J. FERENC[1], H. MATYSIAK[2], J. MICHALSKI[3], K.J. KURZYDLOWSKI[1], [1]Faculty of Materials Eng., Warsaw University of Technology, Warsaw, Poland; [2]University Research Centre "Functional Materials", Warsaw University of Technology, Warsaw, Poland; [3]Materials Engineers Group Sp. z o.o., Warsaw, Poland

CL-3:L04 **Adding Borates to Al2O3-MgO Refractory Castables**
M.A.L. BRAULIO, V.C. PANDOLFELLI, Federal University of Sao Carlos, Materials Engineering Dept., Materials Microstructure Engineering Group - GEMM, Sao Carlos, SP, Brazil

CL-3:L05 **Sintering Studies on Magnesia-Rich Chromium-Free Spinel-Bonded Basic Refractories**
R. LODHA, C. OPREA, T. TROCZYNSKI, G. OPREA, Dept. of Materials Engineering, University of British Columbia, Vancouver, BC, Canada

CL-3:IL06 **Analysis and Interpretation of Liquid Oxide Corrosion Microstructure**
J. POIRIER, CEMHTI-CNRS, Orleans, France

CL-3:IL07 **Aluminum Titanate Refractories for Molten Aluminum**
Y. OHYA, Gifu University, Gifu, Japan

CL-3:L08 **Interactions Between Superalloys and Mould Materials for Investment Casting of Turbine Blades**
F. VALENZA, IENI-CNR, Genova, Italy; R. NOWAK, N. SOBCZAK, Foundry Research Institute, Krakow, Poland; A. PASSERONE, IENI-CNR, Genova, Italy; M. DI FOGGIA, Europea Microfusioni Aerospaziali, Morra De Sanctis, Italy; M.L. MUOLO, IENI-CNR, Genova, Italy

CL-3:L09 **Effect of Grain Boundary Cracks on Corrosion Behavior of Aluminum Titanate Ceramics in Molten Aluminum Alloy**
M. TANAKA, K. KASHIWAGI, N. KAWASHIMA, S. KITAOKA, Japan Fine Ceramics Center, Nagoya, Japan; O. SAKURADA, Y. OHYA, Gifu University, Gifu, Japan

CL-3:L10 **Interaction Between the Ceramic CaZrO3 and the Melt of Titanium Alloys**
CHONGHE LI, YONGHUI GAO, XIONGGANG LU, WEIZHONG DING, ZHONGMING REN, KANG DENG, Shanghai Key Laboratory of Modern Metallurgy & Materials Processing, Shanghai University, Shanghai, China

CL-3:IL11 **Engineered Expansion Design of in situ Spinel Castables**
M.A.L. BRAULIO, **V.C. PANDOLFELLI**, Federal University of Sao Carlos, Materials Engineering Dept., Materials Microstructure Engineering Group - GEMM, Sao Carlos, SP, Brazil

CL-3:IL12 **Novel Refractory Development for Synthetic Rutile Manufacture via the Becher Process**
N.A. STONE, CSIRO Process Science & Engineering, Melbourne, Victoria, Australia; W.W. WRIGHT, Rio Tinto, Melbourne, Victoria, Australia; M.O'BYRNE, S.BOW, Iluka Resources Pty Ltd, Geraldton, Western Australia, Australia

CL-3:IL13 **Nanostructured Refractories: Current Situation and Future Prospects**
SHAOWEI ZHANG, Dept. of Engineering Materials, The University of Sheffield, Sheffield, UK

CL-3:IL14 **Novel Basic Carbon Slidegate Refractory for Ca-treated Steel Application**
A. REZAIE, M. SNYDER, P. DESAI, R&D Dept., Vesuvius Research, Pittsburgh, PA, USA

Session CL-4
System Modeling, Simulation and Failure Analysis

CL-4:IL01 **Thermal Shock Criteria of Refractory Ceramics: Limitations of Conventional Analyses and Some Numerical Approaches to Improve the Prediction of the Resistance to Thermal Shock**
N. SCHMITT, LMT Cachan (ENS de Cachan, CNRS, UPMC), Cachan, France, also at IUFM de Créteil (UPEC), Saint Denis, France

CL-4:IL02 **A New Generation of Refractories to Enable Gasifier Fuel Flexibility**
J.P. BENNETT, KYEI-SING KWONG, H. THOMAS, R. KRABBE, J. NAKANO, National Energy Technology Laboratory, Albany, OR, USA

CL-4:IL03 **Modelling of Joint Effect in Refractory Structures**
E. BLOND[1], A. GASSER[1], M. LANDREAU[2], T.M.H. NGUYEN[1], [1]Institut PRISME, Polytech' Orléans, Orléans, France; [2]CPM, Parc d'Activités Forbach Ouest, Forbach, France

CL-4:L04 **Nozzle Wear Mechanisms Developed by Contact with Slag and Steel During Casting Process**
V. PEIRANI, L. SANTINI, E. BENAVÍDEZ, **E. BRANDALEZE**, Dpto de Metalurgia, Facultad Regional San Nicolás, Universidad Tecnológica Nacional, San Nicolás, Argentina

CL-4:L05 **Simulation of Moulding of Refractory Bricks**
D. GRUBER, H. HARMUTH, Chair of Ceramics, University of Leoben, Leoben, Austria

CL-4:L06 **Sizing of a Refractory Castable Gas-burner Using Thermo-mechanical Simulations**
F. NAZARET[1], T. CUTARD[2], O. BARRAU[1], [1]AUROCK Pépinière Albisia, Albi, France; [2]Toulouse University, Mines Albi, Research Center on Tools Materials and Processes (ICA-CROMeP), Albi, France

CL-4:L07 **Effect of Joint Condition and Friction Force on Thermal Stress Analysis of BOF**
Y. HINO, Slag and Refractories Dept., Steel Research Laboratory, JFE Steel Corporation, Chiba, Japan; Y. KIYOTA, Slag and Refractories Dept., Steel Research Laboratory, JFE Steel Corporation, Fukuyama, Japan; Y. HATTORI, JFE Sekkei Ltd., Kurashiki, Japan

CL-4:L08 **Selection Criteria and Tools for Refractory Materials to be used in Pulverised Coal Combustion Reactors**
P. MICELI, A. DI DONATO, U. MARTINI, Centro Sviluppo Materiali SpA, Rome, Italy

CL-4:L09 **Damage of High Zirconia Fused-cast Refractories During Cooling: an XRD and EBSD Study**
A. SIBIL, T. DOUILLARD, M. R'MILI, N. GODIN, G. FANTOZZI, Laboratoire MATEIS, INSA Lyon, Villeurbanne, France

CL-4:L10 **Investigation of Refractory Corrosion of a Gas-stirred Steel Ladle by Simulation**
S. VOLLMANN, H. HARMUTH, University of Leoben, Leoben, Austria

CL-4:L11 **Constitutive Equations for Creep of Cement Bonded Alumina-Magnesia Refractory Castables with Different Microsilica Contents**
A.G. TOMBA MARTINEZ, Materials Science and Technology Research Institute (INTEMA), Ceramics Division, Argentina; M.A.L. BRAULIO, V.C. PANDOLFELLI, Federal University of São Carlos, Materials Engineering Dept., Materials' Microstructural Engineering Group (GEMM), Brazil

Poster Presentations

CL:P01 **Thermal Shock Behavior of Zircon Based Refractories**
N.M. RENDTORFF, G. SUAREZ, Y.L. BRUNI, L.B. GARRIDO, **E.F. AGLIETTI**, CETMIC, Centro de Tecnología de Recursos Minerales y Cerámica (CONICET La Plata-CIC), M.B. Gonnet, Prov. de Buenos Aires, Argentina

CL:P02 **Calcium Zirconate as the Secondary Phase of Magnesia Refractories**
J. SZCZERBA, AGH - University of Science and Technology, Dept. of Ceramics, Cracow, Poland

CL:P03 **The Effect of Type of Spinel on the Thermal and Mechanical Properties of Magnesite Refractories**
A. CAKIR[1, 3], S. TURAN[2], A. SESVER[3], B. ÖZDEMIR[3], [1]Anadolu University, Graduate School of Sciences, Ceramic Engineering Program A.D, Eskisehir, Turkey; [2]AnadoluUniversity, Material Science and Engineering, Eskisehir, Turkey; [3]Kütahya Magnesite Company, Kütahya, Turkey

CL:P04 **Corrosion of an Alumina Refractory by Potassium Salts Refractory in High Temperature Combustion Environments**
NA LI, L. HUPA, P. YRJAS, M. HUPA, Process Chemistry Centre, Åbo Akademi University, Turku, Finland

CM - 2nd International Conference
DISCLOSING MATERIALS AT NANOSCALE

Oral Presentations

Session CM-1
Nanomaterials and Systems at Nanoscale

CM-1:IL01 **Chemistry of Functional Nanoporous Materials**
A. VINU, International Center for Materials Nanoarchitectonics, World Premier International Research Center, NIMS, Tsukuba, Japan

CM-1:IL02 **Synthesis of Nanoparticles of Rare-earth Doped Fluorides**
M. MORTIER, P. GREDIN, LCMCP-CNRS, Chimie ParisTech and UPMC, Paris, France; G. PATRIARCHE, LPN-CNRS, Marcoussis, France; L. AIGOUY, LPEM-CNRS, ESPCI ParisTech, Paris, France

CM-1:IL03 **Nanogaps for Sensing**
F. FAVIER, Institut Charles Gerhardt Montpellier, UMR 5253 CNRS, Université Montpellier 2, Montpellier, France

CM-1:IL04 **Nanopatterns and Nanomaterials: Synthesis, Characterization and Applications**
HUA ZHANG, School of Materials Science and Engineering, Nanyang Technological University, Singapore

CM-1:IL05 **Tailoring Chemomechanical Interface Properties: A Nanomolecular Approach**
G. RAMANATH, Materials Science and Engineering Dept. and New York State Center for Future Energy Systems Rensselaer Polytechnic Institute, Troy, NY, USA

CM-1:IL06 **Morphology-Controlled Synthesis of Inorganic Nanostructures**
L. GAO, State Key Laboratory of High Performance Ceramics and Superfine Microstructure, Shanghai Institute of Ceramics, CAS, Shanghai, China

CM-1:L07 **Processing and Characterization of Multi-Walled Carbon Nanotube - Alumina Ceramic Matrix Composites**
M. ESTILI, A. KAWASAKI, Dept. of Materials Processing, Graduate School of Engineering, Tohoku University, Sendai, Japan

CM-1:L08 **Synthesis and Structure Resolution of the First Tri-continuous Mesoporous Material**
YU HAN, King Abdullah University of Science and Technology, Thuwai, Saudi Arabia; DALIANG ZHANG, Structural Chemistry and Berzelii Center EXSELENT on Porous Materials, Stockholm University, Stockholm, Sweden

CM-1:IL09 **Nanomaterials for Light Harvesting**
D.L. OFFICER, Intelligent Polymer Research Institute, University of Wollongong, Wollongong, NSW, Australia

CM-1:IL10 **Layer-by-Layer Assembly of Transition Metal Oxide Nanosheets Into Functional Ultrathin Films**
T. SASAKI, Y. EBINA, M. OSADA, International Center for Materials Nanoarchitechtonics (MANA), National Institute for Materials Science (NIMS), Tsukuba, Ibaraki, Japan

CM-1:IL11 **Nanocrystal Based Architectures for Optoelectronics and Photonics**
N. GAPONIK, Physical Chemistry, TU Dresden, Germany

CM-1:L12 **Nano/Micro-protusions on Cu-based Alloys Grown by Ar Ion Irradiation**
M. NAMATAME, S. ODA, Dept. of Metallurgy, Tohoku University, Sendai, Japan; S.-I. TANAKA, Institute of Multidisciplinary Research for Advanced Materials, Tohoku University, Sendai, Japan

CM-1:IL13 **Inorganic Nanotubes (INT) and Fullerene-like Structures (IF): Progress Report**
R. TENNE, Dept. of Materials and Interfaces, Weizmann Institute of Science, Rehovot, Israel

CM-1:IL14 **Rare - Earth - Doped Silicate Glass - Ceramic Thin Films for Integrated Optical Devices**
S. Berneschi[1], G. Alombert-Goget[2], C. Armellini[2, 3], M. Brenci[1], I. Cacciari[1], A. Chiappini[2], A. Chiasera[2], M. Ferrari[2], S. Guddala[2, 4, 5], E. Moser[4, 2], G. Nunzi Conti[1], S. Pelli[1], G. C. Righini[1], [1]IFAC - CNR, Nello Carrara Institute of Applied Physics, Sesto Fiorentino (FI), Italy; [2]IFN-CNR, Institute of Photonics & Nanotechnology, CSMFO Lab., Povo (TN), Italy; [3]FBK, Trento, Italy; [4]Dipartimento di Fisica, University of Trento, Povo, Italy; [5]School of Physics, University of Hyderabad, Hyderabad, India

CM-1:IL15 **Hot Spot Phenomenon in Ceramic Rod and Its Application**
M. TAKATA, T. OKAMOTO, Dept. of Electrical Engineering, Nagaoka University of Technology, Nagaoka, Niigata, Japan

CM-1:L16 **Er3+/Yb3+/Ce3+ Co-doped Fluoride Glass Ceramics Waveguides for Application in the 1.5µm Telecommunication Window**
B.R. BOULARD, I. SAVELII, C. DUVERGER-ARFUSO, Y. GAO, LdOF Laboratory, Université du Maine, Le Mans, France ; G. ALOMBERT, Y. JESTIN, M. FERRARI, IFN-SCFMO group, Trento, Italy; F. PRUDENZANO, DIASS, Politecnico di Bari, Bari, Italy

CM-1:L17 **Nanostructured Titania Films with Improved Photocatalytic Activity**
M. KURTOGLU, T. LONGENBACH, Y. GOGOTSI, Dept. of Materials Science and Engineering, A.J. Drexel Nanotechnology Institute, Drexel University, Philadelphia, PA, USA

CM-1:L18 **AC-to-DC Power Conversion by As-Grown Single-walled Carbon Nanotube Diodes**
G. MALLICK[1], P.M. AJAYAN[2], S.P. KARNA[1], [1]Weapons and Materials Research Directorate, ATTN: RDRL-WM, US Army Research Laboratory, Aberdeen Proving Ground, MD, USA; [2]Dept. of Chemical Engineering and Mechanical Science, MS-321, Rice University, Houston, TX, USA

CM-1:L19 **Structural and Optical Characterization of Eu3+ Doped TiO2 Nanoparticles Synthesized Through Shape Transformation**
J. KULJANIN-JAKOVLJEVIC, **Z. SAPONJIC**, M. RADOICIC, M. MITRIC, J. NEDELJKOVIC, Vinca Institute of Nuclear Sciences, Belgrade, Serbia

CM-1:L20 **Fabrication of Fe-doped SnO2-TiO2 Spinodal Phase-Separated System and Its Semiconductive Properties**
M. HASHIMOTO, T. SEKINO, S.-I. TANAKA, IMRAM, Tohoku University, Sendai, Japan; T. SHIMIZU, T. KUSUNOSE, ISIR, Osaka Univ., Suita, Japan

Session CM-2
Nanomaterials Characterization and Techniques

CM-2:IL01 **Raman Spectroscopy of Functionalized Carbon Nanostructures**
J. MAULTZSCH, Institut f. Festkörperphysik, Technische Universität Berlin, Berlin, Germany

CM-2:IL02 **Non-contact Atomic Force Microscopy for Nano-characterization**
M. ABE, Y. SUGIMOTO, S. MORITA, Graduate School of Engineering, Osaka University, Suita, Japan

CM-2:IL03 **Size and Surface Effects on Emission Properties of Lanthanide Doped Upconversion NaYF4 Nanoparticles**
G.M. CHOW, Dept. of Materials Science and Engineering, National University of Singapore, Kent Ridge, Republic of Singapore

CM-2:IL04 **Low-frequency Raman Scattering in Nanometric Structures**
A. MERMET, E. DUVAL, LPCML, Université Lyon, Villeurbanne, France

CM-2:IL05 **STEM Characterization of Atomic Structures and Segregated atoms at Ceramic Interface**
Y. IKUHARA[1, 2, 3], Y. SATO[1, 2], N. SHIBATA[1], T. MIZOGUCHI[1], T. YAMAMOTO[1, 2], [1]Institute of Engineering Innovation, The University of Tokyo, Tokyo, Japan; [2]Nanostructures Research Laboratory, Japan Fine Ceramic Center, Nagoya, Japan; [3]WPI Advanced Institute for Materials Research, Tohoku University, Sendai, Japan

CM-2:IL06 **Effects of Surface Hydrogenation on Diamond-like Carbon Films by In-situ UPS**
D.H.C. CHUA, Dept. of Materials Science & Engineering, National University of Singapore, Singapore

CM-2:L07 **MgO Nanocubes in Compressed Powders**
A.K. STERNIG, D. KOLLER, N. SIEDL, M. MÜLLER, J. BERNARDI, **O. DIWALD**, Institute of Materials Chemistry, Vienna University of Technology, Vienna, Austria; Institute of Particle Technology, Friedrich-Alexander-University, Erlangen, Germany; K.P. MCKENNA, P.V. SUSHKO, A.L. SHLUGER, London Centre for Nanotechnology and Dept. of Physics & Astronomy, University College London, London, UK; WPI-Advanced Institute for Materials Research, Tohoku University, Sendai, Japan

CM-2:L08 **Scanning Auger Electron Spectroscopy: a New and Universal Technique for Identifying Graphene**
MINGSHENG XU, International Center for Young Scientists, NIMS, Tsukuba, Japan; D. FUJITA, International Center for Young Scientists, Advanced Nano Characterization Center, International Center for Materials Nanoarchitectonics, NIMS, Japan; N. HANAGATA, Nanotechnology Innovation Center, National Institute for Materials, Japan

CM-2:L09 **Synthesis of Carbon Nanotubes/Gold Nanoparticles Hybrids for Environmental Applications**
L. MINATI[1], G. SPERANZA[1], S. TORRENGO[1, 2], L. TONIUTTI[2], B. ROSSI[2], C. MIGLIARESI[3], D. MANIGLIO[3], A. CHIASERA[4], M. FERRARI[4], [1]FBK, Povo-Trento, Italy; [2]Dept. Physics, University of Trento, Italy; [3]Dept. Material Eng., University of Trento, Italy; [4]CNR-IFN, CSMFO Lab., Povo-Trento, Italy

CM-2:L10 **New MoO3-x Nanowire Based Materials for Polymer-fiber Composites**
V. DOMENICI[1], M. CONRADI[2], M. REMSKAR[3], A. MRZEL[3], M. CHAMBERS[4], B. ZALAR[3], [1]Dipartimento di Chimica e Chimica Industriale, Università degli studi di Pisa, Pisa, Italy; [2]Institute of Metals and Technology, Ljubljana, Slovenia; [3]J. Stefan Institute, Ljubljana, Slovenia; [4]Krsko Nuclear Power Plant, Krsko, Slovenia

CM-2:L11 **Structure Analysis of Nanocomposite Materials for Energy Related Applications**
M.L. TRUDEAU, A.M. SERVENTI, K. ZAGHIB, Materials Science, Hydro-Quebec Research Institute, Varennes, Quebec, Canada; D. ANTONELLI, Sustainable Energy Research Center, University of Glamorgan, Pontypridd, UK; R. GAUVIN, Dept. of Mining and Materials Engineering, McGill University, Montréal, Québec, Canada

CM-2:L12 **Surface-enhanced Raman Scattering of Quercetin with Nanoparticles for Optical Probing in Cells**
YANG ZHANG, J.H. HAO, Dept. of Applied Physics, The Hong Kong Polytechnic University, Hong Kong, P.R. China; H.H. LIANG, Dept. of Applied Biology and Chemical Technology, The Hong Kong Polytechnic University, Hong Kong, P.R. China

CM-2:L13 **XPS Study of In Situ One-Step Ammination of Nanocrystalline Diamond Films**
S. TORRENGO[1, 2], A. MIOTELLO[1], G. SPERANZA[2], L. MINATI[2], M. FERRARI[3], A. CHIASERA[3], M. DIPALO[4], E. KOHN[4], 1Physics Dep. University of Trento, Povo, Trento, Italy; [2]FBK-IRST, Povo, Trento, Italy; [3]CNR-IFN, CSMFO Lab., Povo, Trento, Italy; [4]Institute of Electron Devices & Circuits, Ulm University Ulm, Germany

CM-2:L14 **Manufacturing of Barium Titanate Thin Films with Designed Microstructure by a Sol-gel Process: In-situ SAXS Investigation of the Precursor System**
T.M. STAWSKI, S.A. VELDHUIS, J.E. TEN ELSHOF, H.L. CASTRICUM, D.H.A. BLANK, University of Twente, Inorganic Materials Science group, Enschede, The Netherlands

Session CM-3
Nanomanufacturing

CM-3:IL01 **Self Assembly of Nanosystems Assisted with Local External Fields**
M. AONO, International Center for Materials Nanoarchitectonics (MANA), National Institute for Materials Science (NIMS), Tsukuba, Japan

CM-3:IL02 **Opal-type Photonic Crystals: Fabrication and Application**
A. CHIAPPINI[1], G. ALOMBERT-GOGET[1], C. ARMELLINI[1,2], S. BERNESCHI[3], M. BRENCI[3], I. CACCIARI[3], C. DUVERGER-ARFUSO[4], S. GUDDALA[1,5,6], M. FERRARI[1], E. MOSER[1,5], D.N. RAO[6], G.C. RIGHINI[3], [1]CNR-IFN, CSMFO Lab., Povo, Trento, Italy; [2]FBK, Povo, Trento, Italy; [3]CNR-IFAC, Nello Carrara Institute of Applied Physics, MDF-Lab, Sesto Fiorentino (FI), Italy; [4]Lab. LdOF, UMR CNRS 6010, Université du Maine, Le Mans, France; [5]Dipartimento di Fisica, Università di Trento, Povo, Italy; [6]School of Physics, University of Hyderabad, Hyderabad, India

CM-3:IL03 **Self-assembly and Soft Lithography for Nanostructure Fabrication**
H. WOLF, C. KÜMIN, E. LÖRTSCHER, A. REY, IBM Research GmbH, Zurich Research Laboratory, Rüschlikon, Switzerland; C. HÜCKSTÄDT, N.D. SPENCER, Dept. of Materials, ETH Zürich, Zürich, Switzerland

CM-3:IL04 **Iron Oxide Nanostructural Materials and Their Enhanced Sensing Performance**
D. WANG, IPE CAS, Beijing, China; R.B. YU, USTB, Beijing, China; X.Y. LAI, J. LI, Z.M. LI, IPE CAS, Beijing, CHINA

CM-3:IL05 **SPM-based Nanofabrication and Analysis of Atomic-scale Magnetic Systems**
R. WIESENDANGER, Interdisciplinary Nanoscience Center Hamburg, University of Hamburg, Hamburg, Germany

CM-3:IL06 **Supramolecular Approaches for Novel Functional Hybrid Materials**
K. ARIGA, World Premier International (WPI) Research Center for Materials Nanoarchitectonics (MANA), National Institute for Materials Science (NIMS), Tsukuba, Ibaraki, Japan

CM-3:IL07 **Luminescent Nanoparticles as Efficient Labels in DNA-Microarray**
F. ENRICHI, R. RICCO', A. MENEGHELLO, CIVEN and Nanofab, Marghera (Venezia), Italy

CM-3:IL08 **Design of Size and Interconnection of Novel Complex Oxide Powder**
S. WADA, University of Yamanashi, Kofu, Japan

Session CM-4
Theory, Modeling and Simulation

CM-4:IL01 **Simulation of Complex Photonic Materials**
A. QUANDT, A. LEYMANN, Institut für Physik, Universität Greifswald, Greifswald, Germany

CM-4:IL02 **Finite Bias Effects on the STM Images and STS Spectra of C60 Weakly Coupled to Au(111)**
M. COBIAN, F.D. NOVAES, A. GARCIA, ICMAB-CSIC, Bellaterra, Spain; H. UEBA, Dept. of Electronics, Toyama University, Gofuku, Toyama, Japan; **P. ORDEJON**, N. LORENTE, CIN2, Bellaterra, Spain

CM-4:IL03 **Multiscale Simulation of Nanostructured Photovoltaic Cells**
ZHIGANG SHUAI, Dept. of Chemistry, Tsinghua University, Beijing, China

CM-4:IL04 **Lithography Simulation: Modeling and Applications**
P. EVANSCHITZKY, A. ERDMANN, Fraunhofer IISB, Erlangen, Germany

CM-4:IL05 **Computational Modeling and Design of Point Defects in Bioactive Calcium Phosphates**
K. MATSUNAGA, Dept. of Materials Science & Eng., Kyoto University, Kyoto, Japan; Nanostructures Research Lab., Japan Fine Ceramics Center, Nagoya, Japan

CM-4:IL06 **1D Nanostructures from Carbon and Other Elements**
G. SEIFERT, Physikalische Chemie, Technische Universität Dresden, Dresden, Germany

CM-4:L07 **Theory of Molecular Electronics: Wires, Diodes, and Transistors**
S.P. KARNA, G. MALLICK, US Army research Lab., Weapons and Materials Research Directorate, Aberdeen Proving Ground, MD, USA; H. HE, R. PANDEY, Dept. of Physics and Multi-Scale Technology Institute, Michigan Technological University, Houghton, MI, USA

CM-4:L08 **Thermal Conductivity of Ceramic Nanocomposites - The Phase Mixture Modeling Approach**
W. PABST, J. HOSTASA, Institute of Chemical Technology, Prague, Dept. Glass and Ceramics, Prague, Czech Republic

CM-4:L09 **Estimation Technique for Optical Dielectric Constant of Polymorphous SiO2 Through First-principles Molecular Orbital Calculation**
K. HIROSE, D. KOBAYASHI, Institute of Space and Astronautical Science, JAXA, Japan; S. IGARASHI, H. NOHIRA, Tokyo City University, Japan

CM-4:IL10 **Structure, Magnetic and Spintronic Characteristics of Sandwiched Metal-organic Clusters and Molecular Wires**
JINLAN WANG, XIUYUN ZHANG, LIYAN ZHU, Department of Physics, Southeast University, Nanjing, P.R. China

CM-4:IL11 **Models and Simulations of the Growth of Carbon Nanotubes**
S.C. HENDY, D. SCHEBARCHOV, MacDiarmid Institute for Advanced Materials and Nanotechnology, Victoria University of Wellington, Wellington, New Zealand; A. AWASTHI, Industrial Research Ltd, Lower Hutt, New Zealand; B. COX, University of Wollongong, Wollongong NSW, Australia

Session CM-5
R&D Advances in Devices and Applications

CM-5:IL01 **Design of Biomolecule-nanoparticle Complexes for Highly Sensitive Biological Detection**
CHUNHAI FAN, Shanghai Institute of Applied Physics, CAS, Shanghai, China

CM-5:IL02 **Development of Carbon Nantube Alumina Composite and Their Application to Industrial Production**
M. OMORI, G. YAMAMOTO, T. HASHIDA, Graduate School of Engineering, Tohoku University, Sendai, Japan; A. OKUBO, H. KIMURA, Institute for Materials Research, Tohoku University, Sendai, Japan

CM-5:L03 **The Ballistic Impact Characteristics of Woven Fabrics Impregnated with a Colloidal Suspension and Flattened Rolls**
CHUN-GON KIM, IL-JIN KIM, GUN LIM, Dept. of Aerospace Engineering, KAIST, Daejeon, Korea; Byung-il YOON, Agency for Defense Development, Daejeon, Korea

CM-5:L04 **Design of Nanostructured Sol-Gel Coatings for Targeted Applications**
E. SCOLAN, R. PUGIN, S. PASCHE, B. WENGER, G. VOIRIN, Centre Suisse d'Electronique et Microtechnique SA, Neuchâtel, Switzerland

CM-5:L05 **Microsensors and Microreactors Based on Multi-Walled Carbon Nanotubes Decorated with Metal and Metal Oxide Nanoparticles**
R.V. GELAMO, C. VERISSIMO, A.R. VAZ, F.P. ROUXINOL, **S.A. MOSHKALEV**, CCS-UNICAMP, Campinas, SP, Brazil

CM-5:IL06 **Environmental Applications of Photocatalysis**
J.C. YU, Dept. of Chemistry and Environmental Science Programme, The Chinese University of Hong Kong, Shatin, New Territories, Hong Kong, China

CM-5:IL07 **Plasmonic Light Concentrators**
T.J. ANTOSIEWICZ, P. WROBEL, Faculty of Physics, University of Warsaw, Warsaw, Poland

CM-5:IL08 **Preparing of Nano MLCC Powders for Ultrathin-layer BME-MLCC Application**
X.H. WANG, Y.C. ZHANG, L.T. LI , State Key Laboratory of New Ceramics and Fine Processing, Dept. of Materials Science and Engineering, Tsinghua University, Beijing, China

CM-5:IL09 **A ZnO Nanorod Homojunction Light-Emitting Diode**
X.W. SUN, School of Electrical and Electronic Engineering, Nanyang Technological University, Singapore

Poster Presentations

CM:P01 **Room Temperature Fabrication of Highly Crystallized ZnO Thin Films on Polymer Substrates by using Nanosheet Seed Layer**
T. SHIBATA, T. OHNISHI, I. SAKAGUCHI, M. OSADA, K. TAKADA, T. SASAKI, NIMS & JST-CREST, Tsukuba, Ibaraki, Japan; T. KOGURE, The University of Tokyo, Tokyo, Japan

CM:P02 **Thermal Properties of Nanocomposite Films Consisting of PVA and TiO2 Nanoparticles of Different Shapes**
M. RADOICIC, Z. SAPONJIC, M. MARINOVIC-CINCOVIC, **J. NEDELJKOVIC**, Vinca Institute of Nuclear Sciences, Belgrade, Serbia

CM:P03 **Preparation of PVA/Sm2O3 Composites Nanofibers by Electrospinning Tecnique**
P. FRONTERA, C. BUSACCA, V. MODAFFERI, P.L. ANTONUCCI, Dip. Meccanica e Materiali, Università Mediterranea di Reggio Calabria; M. LOFARO, CNR-ITAE Institute, Messina

CM:P05 **Growth Kinetics of Nanowires in Glass-ceramic with Rare Earths for Optical Data Storage**
S. JINGA, E. ANDRONESCU, C. JINGA, Dept. of Science and Engineering of Oxide Materials, Politehnica University, Bucharest, Romania; E. ROTIU, L. IONESCU, C. MAZILU, National Glass Institute, Bucharest, Romania; E. PAVEL, Storex Technologies, Bucharest, Romania

CM:P06 **Irradiation of a Nanocomposite of Pseudoboehmite-nylon 6,12**
A.H. MUNHOZ Jr.[1], R. MENEGHETTI PERES[1], L.H. SILVEIRA[1], L.G. ANDRADE E SILVA[2], L.F. DE MIRANDA[1], [1]Universidade Presbiteriana Mackenzie, Sao Paulo, SP, Brasil; [2]Instituto de Pesquisas Energeticas e Nucleares - IPEN

CM:P07 **Synthesis of Photocatalytically Active Titania Nanoparticles**
O. MASHTALIR, S. POGULAY, M. VEROVCHUK, **A. GOGOTSI**, Materials Research Center, Kiev, Ukraine; M. KURTOGLU, I. KNOCKE, Y. GOGOTSI, Drexel University, Philadelphia, PA, USA

CM:P08 **Preparation of Perovskite-Type Niobate Nanosheets Having a Variable Thickness Composed of (NbO6)n Octahedron (n=4-6)**
Y. EBINA, K. AKATSUKA, T. SASAKI, National Institute for Materials Science, Tsukuba, Japan

CN - 6th International Conference
ADVANCED INORGANIC FIBRE COMPOSITES FOR STRUCTURAL AND THERMAL MANAGEMENT APPLICATIONS

Oral Presentations

Session CN-1
Production and Properties of Reinforcements, Preforms, and Matrix Materials

CN-1:IL01 **Advanced Ceramic Fibers**
D. SPORN, Fraunhofer-Institute für Silicatforschung, Wuerzburg, Germany

CN-1:IL02 **Composites with Ceramic Matrix Through Sol-gel Route**
S. MANOCHA, M. VYAS, L.M. MANOCHA, Dept. of Materials Science, Sardar Patel University, Vallabh Vidyanagar, India

CN-1:IL03 **Electrospinning of Ceramic Nanofibers**
W. SIGMUND, University of Florida, Gainesville, FL, USA, and Hanyang University

CN-1:L04 **Si-C-O Fibers in Gas Reactive Atmospheres**
M. BRISEBOURG, G. PUYOO, H. PLAISANTIN, **G. CHOLLON**, Lab. des Composites Thermostructuraux, University of Bordeaux, Pessac, France

CN-1:IL05 **Syntheses of Carbon Nanotubes in the Forms of Array, Fluff, and Cable**
T.Y. TSAI, H.M. CHEN, **N.H. TAI**, Dept. of Materials Science and Engineering, National Tsing-Hua University, Hsin-chu, Taiwan; T.W. CHOU, Dept. of Mechanical Engineering, University of Delaware, Newark, DE, USA

CN-1:IL06 **Ceramic Fibers - Manufacturing, Properties and Applications**
B. CLAUß, ITCF Denkendorf, Denkendorf, Germany

CN-1:L07 **Continuous Non-oxide Nanofibers Produced with a Polymer-derived Ceramic Approach**
V. SALLES, S. BERNARD, A. BRIOUDE, D. CORNU, P. MIELE, Laboratoire des Multimatériaux et Interfaces UMR UCBL/CNRS 5615 - Université Lyon 1 Villeurbanne, France

CN-1:L08 **Composites Reinforced by Flexible Basalt Fibers: State of Art in Production, Processing and Application**
R.M. KOZLOWSKI, Institute for Eng. of Polymer Materials and Dyes, Toruñ, Poland; K. SZAMALEK, Z. STACHURA, S. TRACZYK, L. STOCH, Institute of Glass, Ceramics, Refractory and Construction Materials, Warszawa, Poland

Session CN-2
Processing and Fabrication

CN-2:IL01 **Fabrication, Microstructures, Mechanical Properties and High Temperature Performance of Tungsten Matrix Composites Reinforced by TiC and ZrC Particles**
YU ZHOU, YUJIN WANG, Guiming SONG, Taiquan ZHANG, School of Materials Science and Engineering, Harbin Institute of Technology, Harbin, China

CN-2:IL02 **CVI-derived Ceramic Composites (CMC) for Aerospace Application**
K. HANDRICK, H. LANGE, S. WEILAND, A. STEINACHER, MT Aerospace AG, Augsburg, Germany

CN-2:L03 **Hierarchical SiC-based Ceramic Matrix Composites Reinforced with SiC Nanowires Grafted Carbon Fibers**
B. LU[1, 3]; S.M. DONG[1, 2]; Z. WANG[1, 2]; X.Y. ZHANG[1, 2], Y.S DING[1, 2], [1]Structural Ceramics and Composites Engineering Research Center, Shanghai Institute of Ceramics, CAS, Shanghai, P.R. China; [2]State Key Laboratory of High Performance Ceramics and Superfine Microstructure, Shanghai Institute of Ceramics, CAS, Shanghai, P.R. China; [3]Graduate University of Chinese Academy of Sciences, Beijing, P.R. China

CN-2:IL04 **Effect of Nanoreinforcements on Structure and Properties of Carbon/Carbon Composites**
L.M. MANOCHA, R.B. PANDE, VISHAL MANKADIA, S. MANOCHA, Dept. of Materials Science, Sardar Patel University, Vallabh Vidyanagar, India

CN-2:IL05 **Microstructures and Properties of Ultra-high-temperauture Ceramics (UHTCs) based Composites with Carbon Fibers as Reinforcements**
SHAOMING DONG, Shanghai Institute of Ceramics, Chinese Academy of Sciences, Shanghai, China

CN-2:L06 **Ablation and Thermal Properties of Carbon Fiber Reinforced Polymeric Matrix Composites Prepared by Spray-up Process**
M.M. DOKUR, B. ALKAN, N. SOLAK, M. URGEN, G. GOLLER, Istanbul Technical University, Istanbul, Turkey

Session CN-3
Laminated Composite Structures

CN-3:IL01 **Design and Preparation of Laminated Composites**
DONGLIANG JIANG, The State Key Lab of High Performance Ceramics and Superfine Microstructure Shanghai Institute of Ceramics, CAS, Shanghai, China

CN-3:IL02 **Joining and Integration of Ultra High Temperature Ceramic Composites**
R. ASTHANA, Dept. of Engineering and Technology, University of Wisconsin-Stout, Menomonie, WI, USA; M. SINGH, Ohio Aerospace Institute, NASA Glenn Research Center, Cleveland, OH, USA

CN-3:IL03 **Damage-tolerant Laminate-type Hybrid Ceramics**
Y. KAGAWA, Research Center for Advanced Science and Technology (RCAST), The University of Tokyo and National Institute for Materials Science (NIMS), Tokyo, Japan

CN-3:L04 **Optomechanical Borosilicate Glass Matrix Composites**
BO PANG, D. MCPHAIL, A.R. BOCCACCINI, Dept. of Materials, Imperial College London, London, UK

Session CN-4
Property, Modeling and Characterization

CN-4:IL01 **Interfaces and Interphases in Ceramic Matrix Composites: Influence on Mechanical Properties and Lifetime at High Temperature**
J. LAMON, CNRS/Université de Bordeaux, Laboratoire des Composites Thermostructuraux, Pessac, France

CN-4:IL02 **Modeling Tools for CMC Materials**
D. KOCH, Advanced Ceramics Group, University of Bremen, Bremen, Germany

CN-4:L03 **Interfacial Properties of Tungsten Fiber/Tungsten Matrix Composites**
J. DU, T. HÖSCHEN, J-H. YOU, Max-Planck-Institut für Plasmaphysik, EURATOM Association, Garching, Germany; M. RASINSKI, Warsaw University of Technology, Faculty of Materials Science and Engineering, Warsaw, Poland; S. WURSTER, W. GROSINGER, Erich Schmid Institute of Materials Science of the Austrian Academy of Sciences, Leoben, Austria

CN-4:L04 **Investigation of Thermal Properties of 3D- C/SiC Composites**
PING HE, SHAOMING DONG, LE GAO,YUSHENG DING, XIANGYU ZHANG, Shanghai Institute of Ceramics, CAS, Shanghai, China

CN-4:L05 **Fracture Toughness of Carbon Fibre and Particle Reinforced Biomorphic SiC**
J. SCHMIDT, German Aerospace Center (DLR), Stuttgart, Germany; A. NEUBRAND, Fraunhofer-Inst. für Werkstoffmechanik (IWM), Freiburg, Germany

CN-4:IL06 **High Temperature Creep of Metal- and Ceramic-matrix Composites**
S.T. MILEIKO, Inst. of Solid State Physics of RAS, Chernogolovka, Russia

CN-4:IL07 **Modeling Infiltration of Fiber Preforms From X-ray Tomography Data**
G.L. VIGNOLES, W. ROS, I. SZELENGOWICZ, Univ. Bordeaux 1, LCTS, Pessac, France; C. MULAT, C. GERMAIN, M. DONIAS, Univ. Bordeaux, IMS, Talence, France

Session CN-5
Composite for Thermal Management

CN-5:IL01 **Integration of High Conductivity Carbon Based Materials for Thermal Management Applications: Technical Issues and Challenges**
M. SINGH, A.L. GYEKENYESI, Ohio Aerospace Institute, NASA Glenn Research Center, Cleveland, OH, USA; R. ASTHANA, Dept. of Engineering & Technology, University of Wisconsin-Stout, Menomonie, WI, USA

CN-5:IL02 **Processing and Thermomechanical Properties of Copper-Carbon Nanofibres Composites for Thermal Management Applications**
J.M. MOLINA-ALDAREGUIA, Fundación IMDEA-Materiales, Madrid, Spain; J.M. CÓRDOBA, M. ODÉN, IFM, Linköping University, Sweden; J. TAMAYO-ARIZTONDO, M.R. ELIZALDE, CEIT and Tecnun, San Sebastián, Spain; E. NEUBAUER, AIT-Austrian Inst. of Technology GmbH, Seibersdorf, Austria

CN-5:L03 **Adehesive Bonded Lap and Over-lap Joints of C/C-SiC, C/C Composites and Titanium Specimens**
SHRADDHA SINGH, **V.K. SRIVASTAVA**, Dept. of Mechanical Engineering, Institute of Technology, Banaras Hindu University, Varanasi, India

CN-5:L04 **Low Cost Carbon Fiber Based Composites**
K. KOWBEL, FMC, Tucon, AZ, USA

CN-5:IL05 **Atomistic Scale Thermal Transport in Composites and Its Interfaces**
AJIT K. ROY, Air Force Research Lab., Materials and Manufacturing Directorate Thermal Sciences and Materials Branch (AFRL/RXBT), Wright-Patterson AFB, OH, USA

CN-5:IL06 **Design Aspects and Requirements of Ceramic Matric Composites (CMC´s) for Space Engines**
S. BEYER, S. SCHMIDT, Astrium Space Transportation, Munich, Germany; C. WILHELMI, EADS Innovation Works, Munich, Germany; M. BOUCHEZ, MBDA, Bourges, France

CN-5:L07 **Mechanical Properties of High Thermal Conductivity Silicon Nitride *In-Situ* Composite**
Y. ZHOU, K. HIRAO, **T. OHJI**, National Institute of Advanced Industrial Science and Technology (AIST), Nagoya, Japan

CN-5:L08 **The Development of Alumina-based Ceramic Matrix Composites for the SHEFEX II Thermal Protection System (TPS)**
P. MECHNICH, B. KANKA, M. SCHMÜCKER, DLR Institute of Materials Research, Cologne, Germany; B. ESSER, DLR Institute for Aerodynamics and Flow Technology, Cologne, Germany

Session CN-6
Applications

CN-6:IL01 **Carbon/Carbons and Their Industrial Applications**
R. WEISS, Schunk Kohlenstofftechnik GmbH, Heuchelheim, Germany

CN-6:IL02 **CMCs for Friction Applications**
W. KRENKEL, H. MUCHA, N. LANGHOF, Ceramic Materials Engineering, University of Bayreuth, Bayreuth, Germany

CN-6:IL03 **SA-Tyannohex-based Composites for High Temperature Applications**
T. ISHIKAWA, Ube Industries, Ltd., Ube, Japan

CN-6:IL04 **Modeling and Characterization of SiC/SiC Composites for Aerospace Applications**
J.A. DiCARLO, NASA Glenn Research Center, Cleveland, OH, USA

CN-6:IL05 **Carbon/Carbon Brake Materials**
P. FILIP, Center for Advanced Friction Studies, Southern Illinois University Carbondale, IL, USA

Poster Presentations

CN:P01 **Application of Fibre Produced by Plasma Spray Method in Cementitious Composition**
R. DICKUVIENE, K.BRINKIENE, J.CESNIENE, R. KEZELIS, Lithuanian Energy Institute, Kaunas, Lithuania

CN:P02 **Irradiation of a Polypropylene-glass Fiber Composite**
L.H. SILVEIRA[1], L.G. ANDRADE E SILVA[2], **L.F. MIRANDA**[1], [1]Universidade Presbiteriana Mackenzie, São Paulo, SP, Brazil; [2]Instituto de Pesquisas Energéticas e Nucleares (IPEN/CNEN-SP), Brazil

CN:P03 **Numerical Modelling of SiC-Matrix Composite Production by Liquid Silicon Infiltration Process**
A.V. KULIK, V.I. KULIK, YU.V. ZAGASHVILI, Baltic State Technical University, St.Petersburg, Russia; M.S. RAMM, S.E. DEMIN, Reseach-and-production company “Ceracom” Ltd, St.Petersburg, Russia

CN:P04 **Effect of Surface-modified Si-Al-C® Fibre Addition on Mechanical Properties of Silicon Carbide Composite**
H. MORIYASU, J. KITA, H. SUEMASU, S. KODA, K. ITATANI, Sophia University, Tokyo, Japan; I.J. DAVIES, Curtin University of Technology, Perth, Australia

CN:P05 **Production of Ceramic Composites by CVI Technology: Validation of Process Codes**
F. BURGIO, M. LABANTI, S. SANGIORGI, M. SCAFE', ENEA Faenza Research Centre, Faenza, Italy; L. PILLONI, ENEA Casaccia Research Centre, S. Maria di Galeria, Roma, Italy

CN:P06 **Study of Tribotechnical Properties of Cf/SiC-Composites in Combination with Different Riders**
V.I. KULIK, Baltic State Technical University, St.Petersburg, Russia; A.S. NILOV, S.E. RYABIKOV, L.I. SOLOV'EV, Reseach-and-production company “Ceracom” Ltd, St.Petersburg, Russia; A.P. GARSHIN, St.Petersburg State Polytechnical University, St.Petersburg, Russia; V.V. SAVICH, N.A. SHIPITSA, A.PH. ILYUSCHENKO, A.A. DMITROVICH, Powder metallurgy institute, Minsk, Republic of Belarus

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SYMPOSIUM FB - Materials and Process Innovations in Hydrogen Production and Storage

Co-Chairs: Maximilian Fichtner, *Germany* J. Karl Johnson, *USA* Shin-Ichi Orimo, *Japan* Marco Vittori Antisari, *Italy (Programme Chair)* Andreas Züttel, *Switzerland* *Members:* Etsuo Akiba, *Japan* Marcello Baricco, *Italy* Craig Buckley, *Australia* Ping Chen, *Singapore* Bernard Dam, *The Netherlands* Andrew Dicks, *Australia* Martin Dornheim, *Germany* Dan Eliezer, *Israel* Helmer Fjellvag, *Norway* Yogi Goswami, *USA* Z. Xiao Guo, *UK* Michael J. Heben, *USA* Michael Hirscher, *Germany* M. Ashraf Imam, *USA* Puru Jena, *USA* Hannes Jonsson, *Iceland* Jae Sung Lee, *Korea* Robert Leisure, *USA* Nathan S. Lewis, *USA* Jeffrey R. Long, *USA* Max Lu, *Australia* Zong-Qiang Mao, *P.R. China* Tomoya Matsunaga, *Japan* Laurens Mets, *USA* Darius Milcius, *Lithuania* Nazim Z. Muradov, *USA* Dag Noreus, *Sweden* Jens K. Norskov, *Denmark* James A. Ritter, *USA* Louis Schlapbach, *Switzerland* Aldo Steinfeld, *Switzerland* Ned Stetson, *USA* Bill Summers, *USA* Gavin Walker, *UK* Irene Yarovsky, *Australia* Ragaiy Zidan, *USA* Marco Zoppi, *Italy*

SYMPOSIUM FC - Fuel Cells: Materials and Technology Challenges

Co-Chairs: Bert Rietveld, *The Netherlands* Prabhakar Singh, *USA* Harumi Yokokawa, *Japan* Tianshou Zhao, *Hong Kong* *Programme Chair:* Vincenzo Antonucci, *Italy* *Members:* Antonino S. Arico', *Italy* Sukhvinder Badwal, *Australia* Frano Barbir, *Croatia* Jay B. Benziger, *USA* Roberto Bove, *The Netherlands* Kwong-Yu Chan, *Hong Kong* Chu-Sheng Chen, *P.R. China* Lutgard C. De Jonghe, *USA* Fatih Dogan, *USA* Koichi Eguchi, *Japan* Thomas F. Fuller, *USA* Juergen Garche, *Germany* Nancy L. Garland, *USA* Dave Ghosh, *Canada* Sossina M. Haile, *USA* John T.S. Irvine, *UK* San Ping Jiang, *Singapore* Prashant V. Kamat, *USA* Xianguo Li, *Canada* Göran Lindbergh, *Sweden* Aristide F. Massardo, *Italy* Mogens Mogensen, *Denmark* Chikashi Nishimura, *Japan* Janusz Nowotny, *Australia* Ilan Riess, *Israel* Rolf Rosenberg, *Finland* Nigel M. Sammes, *USA* Jacobo Santamaria, *Spain* Kazunari Sasaki, *Japan* Mauro Scagliotti, *Italy* Günther G. Scherer, *Switzerland* Matthew Seabaugh, *USA* Subhash C. Singhal, *USA* Ulrich Stimming, *Germany* Detlef Stolten, *Germany* Yung-Eun Sung, *Korea* Werner Tillmetz, *Germany* Eric Wachsman, *USA* Chao-Yang Wang, *USA* Shu Yamaguchi, *Japan*

SYMPOSIUM FD - Electrochemical Energy Storage Systems: the Next Evolution

Co-Chairs: Yet-Ming Chiang, *USA* Arumugam Manthiram, *USA* Tsutomu Ohzuku, *Japan* Bruno Scrosati, *Italy (Programme Chair)* Jean-Marie Tarascon, *France* *Members:* Doron Aurbach, *Israel* Peter G. Bruce, *Scotland* B.V.R. Chowdari, *Singapore* Fausto Croce, *Italy* Jeff R. Dahn, *Canada* Nancy Dudney, *USA* Bruce Dunn, *USA* Steve G. Greenbaum, *USA* Clare P. Grey, *USA* Hiroaki Hatori, *Japan* Chi-Chang Hu, *Taiwan* Jari Keskinen, *Finland* Doug Macfarlane, *Australia* Nookala Munichandraiah, *India* Katsuhiko Naoi, *Japan* Peter H.L. Notten, *The Netherlands* Petr Novak, *Switzerland* Shigeto Okada, *Japan* Su-Moon Park, *Korea* Stane Pejovnik, *Slovenia* S.R.S. Prabaharan, *Malaysia* Jai Prakash,

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SYMPOSIUM FE - Advances in Materials and Technologies for Efficient Direct Thermal-to-electrical Energy Conversion

Co-Chairs: Kunihito Koumoto, *Japan (Programme Chair)* David Michael Rowe, *UK* Ali Shakouri, *USA* *Members:* Lukian Ivanovich Anatychuk, *Ukraine* Viatcheslav Andreev, *Russia* Hiroaki Anno, *Japan* Theodorian Borca-Tasciuc, *USA* Harald Böttner, *Germany* Thierry Caillat, *USA* S.K. Chou, *Singapore* Ryoji Funahashi, *Japan* David C. Johnson, *USA* Tsuyoshi Kajitani, *Japan* Mercouri Kanatzidis, *USA* Holger Kleinke, *Canada* Heiner Linke, *USA* Antoine Maignan, *France* Mamoun Muhammed, *Sweden* Eckhard Müller, *Germany* George S. Nolas, *USA* Michitaka Ohtaki, *Japan* Peter Franz Rogl, *Austria* Brian C. Sales, *USA* Hubert Scherrer, *France* Ryosuke Suzuki, *Japan* Ichiro Terasaki, *Japan* Janusz Tobola, *Poland* Terry M. Tritt, *USA* Ctirad Uher, *USA* Rama Venkatasubramanian, *USA* Anke Weidenkaff, *Switzerland* Krzysztof T. Wojciechowski, *Poland* Jihui Yang, *USA* Veljko Zlatic, *Croatia*

SYMPOSIUM FF - Materials Challenges for Future Nuclear Fission and Fusion Technologies

Co-Chairs: Harald Bolt, *Germany* Hua-Tay Lin, *USA (Programme Chair)* Tatsuo Shikama, *Japan* *Members:* Jarir Aktaa, *Germany* David Bacon, *UK* Nadine Baluc, *Switzerland* Alfredo Caro, *USA* Michel Chatelier, *France* Sergei Dudarev, *UK* Thomas Fanghanel, *Germany* Kaiming Feng, *P.R. China* Monica Ferraris, *Italy* Zhengyi Fu, *P.R. China* E.R. Hodgson, *Spain* Jun-Hwa Hong, *Korea* Ji-Jung Kai, *Taiwan* Yutai Katoh, *USA* Akihiko Kimura, *Japan* Akira Kohyama, *Japan* Myeun Kwon, *Korea* Marion Le Flem, *France* Rainer Lindau, *Germany* Jochen Linke, *Germany* Stuart Maloy, *USA* Kazuo Minato, *Japan* Takeo Muroga, *Japan* Maylise Nastar, *France* Robert Odette, *USA* Ji Yeon Park, *Korea* Baldev Raj, *India* Joachim Roth, *Germany* Marek Rubel, *Sweden* Maria Samaras, *Switzerland* Leo Sannen, *Belgium* Naoki Soneda, *Japan* Roger E. Stoller, *USA* Toshiyuki Takagi, *Japan* Kostya Trachenko, *UK* Jaap Van Der Laan, *The Netherlands* Zhiguang Wang, *P.R. China* Wolfgang Wiesenack, *Norway* Brian D. Wirth, *USA* Yican Wu, *P.R. China* Michio Yamawaki, *Japan* Suyuan Yu, *P.R. China* Shengyun Zhu, *P.R. China* Steve J. Zinkle, *USA*

Focused Session FF-10 - Materials Technology for Nuclear Waste Treatment and Disposal

Chair: Kevin Fox, *USA* *Members:* Joonhong Ahn, *USA* Bruce Begg, Australia Rodney C. Ewing, *USA* Thorsten Geisler-Wierwille, Germany Russell Hand, Uk Kazuya Idemitsu, Japan Carol Jantzen, Usa Hitoshi Mimura, Japan Vincenzo Rondinella, Germany Sergey Stefanovsky, Russia Satoru Tanaka, Japan Francesco Troiani, Italy Pierre Van Iseghem, Belgium Eric R. Vance, Australia Etienne Vernaz, France William Weber, Usa Siegfied Weisenberger, Germany

SYMPOSIUM FG - Photovoltaic Solar Energy Conversion: Materials and Technology Challenges

Co-Chairs: Paul Dastoor, *Australia* Michael Grätzel, *Switzerland* Lawrence L. Kazmerski, *USA* Makoto Konagai, *Japan* *Programme Chair:* Nicola Romeo, *Italy* *Members:* Timothy J. Anderson, *USA* Harry A. Atwater, *USA* Guillermo Carlos Bazan, *USA* Carlo Alberto Bignozzi, *Italy* David Carlson, *USA* Richard Corkish, *Australia* Silvia Destri, *Italy* Bernhard Dimmler, *Germany* Ken Durose, *UK* Chris Ferekides, *USA* Carlo Flores, *Italy* Alex Freundlich, *USA* Stefan W. Glunz, *Germany* Huey-Liang Hwang, *Taiwan* Ghassan E. Jabbour, *USA* Ladislav Kavan, *Czech Republic* Valdotas Kazukauskas, *Lithuania* Dong-Hwan Kim, *Korea* Kwanghee Lee, *Korea* Antonio Luque, *Spain* Tom Markvart, *UK* Qingbo Meng, *P.R. China* Steven A. Ringel, *USA* Francesco Roca, *Italy* Hans-Werner Schock, *Germany* Ruud E.I. Schropp, *The Netherlands* Carole Sentein, *France* Wim Sinke, *The Netherlands* Jinsoo Song, *Korea* Hideki Sugihara, *Japan* Sam-Shajing Sun, *USA* Ayodhya Tiwari, *Switzerland* Marko Topic, *Slovenia* Takahiro Wada, *Japan* Wenjing Wang, *P.R. China* Tadeusz Zdanowicz, *Poland* Yuwen Zhao, *P.R. China*

SYMPOSIUM FH - Concentrating Solar Technologies: Materials and Technology Solutions for CPV and CSP Competitiveness

Co-Chairs: Viatcheslav Andreev, *Russia* Antonio Luque, *Spain* Mark Mehos, *USA (Programme Chair)* Robert Pitz-Paal, *Germany* *Members:* Atsuki Akisawa, *Japan* Kenji Araki, *Japan* Santanu Bandyopadhyay, *India* Vittorio Brignoli, *Italy* Bruno D'aguanno, *Italy* Alain Dollet, *France* N.J. Ekins-Daukes, *UK* Giuseppe Gabetta, *Italy* Henner Gladen, *Germany* Giorgio Graditi, *Italy* Andreas Haeberle, *Germany* Andreas Hauer, *Germany* Jorge M. Huacuz Villamar, *Mexico* Jacob Karni, *Israel* Sivanappan Kumar, *Thailand* Cherng-Tsong Kuo, *Taiwan* Sarah R. Kurtz, *USA* Giuliano Martinelli, *Italy* Diego Martinez, *Spain* Anton Meier, *Switzerland* Leonardo Merlo, *Italy* David R. Mills, *USA* Hans-Dieter Mohring, *Germany* Werner Platzer, *Germany* Xavier Py, *France* Volker Quaschning, *Germany* Carlos Ramos, *Mexico* K. Srinivas Reddy, *India* Valery D. Rumyantsev, *Russia* Franziska Scheffler, *Germany* S.A.

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SYMPOSIUM FI - Recent Developments in the Research and Application of Transparent Conducting and Semiconducting Oxides

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SYMPOSIUM FJ - Materials and Technologies for Solid State Lighting

Co-Chairs: April S. Brown, *USA* Chennupati Jagadish, *Australia* Iain Mcculloch, *UK* *Programme Chair:* Giovanni Bruno, *Italy* *Members:* Hiroshi Amano, *Japan* Herbert Boerner, *Germany* Alberta Bonanni, *Austria* Franco Cacialli, *UK* Luisa De Cola, *Germany* Russell D. Dupuis, *USA* Ian Ferguson, *USA* Bernard Gil, *France* Martin Heeney, *UK* Michael Heuken, *Germany* H.T.J.M. Hintzen, *The Netherlands* Julia W.P. Hsu, *USA* Sheng-Lung Huang, *Taiwan* Dave Irvine-Halliday, *Canada* Masashi Kawasaki, *Japan* Alois Krost, *Germany* Thomas F. Kuech, *USA* Hao-Chung Kuo, *Taiwan* Mike Leszczynski, *Poland* Yung-Sheng Liu, *Taiwan* Michael Lorenz, *Germany* Maria Losurdo, *Italy* Nicola Lovergine, *Italy* Francesco Naso, *Italy* Jeff Nause, *USA* Norbert H. Nickel, *Germany* David P. Norton, *USA* Jamie Phillips, *USA* David Rogers, *France* Timothy D. Sands, *USA* Alan Sellinger, *USA* Franky So, *USA* James S. Speck, *USA* Hongsuk Suh, *Korea* Christian Wetzel, *USA* Magnus Willander, *Sweden* Takafumi Yao, *Japan* Edward T. Yu, *USA*

SYMPOSIUM FM - Electromagnetic Metamaterials

Chair: Nikolay I. Zheludev, *UK* *Members:* Allan D. Boardman, *UK* Tie Jun Cui, *P.R. China* Nader Engheta, *USA* Yuri S. Kivshar, *Australia* Angrey N. Lagarkov, *Russia* Joshua Le-Wei Li, *Singapore* Joan Ferran Martin Antolin, *Spain* Susumu Noda, *Japan* Ekmel Ozbay, *Turkey* John Pendry, *UK* Vladimir M. Shalaev, *USA* Costas M. Soukoulis, *Greece* Sergei A. Tretyakov, *Finland* Lucio Vegni, *Italy* Martin Wegener, *Germany* Xiang Zhang, *USA* Said Zouhdi, *France*

FK - *6th International Conference* "Science and Engineering of Novel Superconductors"

Co-Chairs: Donald U. Gubser, *USA* Hideo Hosono, *Japan* Davor Pavuna, *Switzerland* *Programme Chair:* Attilio Rigamonti, *Italy* *Members:* Marcel Ausloos, *Belgium* Antonio Barone, *Italy* Johann W. Blatter, *Switzerland* Bernd Büchner, *Germany* Alexander I. Buzdin, *France* Paolo Calvani, *Italy* Paul Canfield, *USA* David Caplin, *UK* Tord Claeson, *Sweden* Edward W. Collings, *USA* Guy Deutscher, *Israel* Takeshi Egami, *USA* René Flükiger, *Switzerland* Laszlo Forro, *Switzerland* Hidetoshi Fukuyama, *Japan* Wilfried Goldacker, *Germany* Fedor Gomöry, *Slovakia* Xiao Hu, *Japan* Ienari Iguchi, *Japan* Peter Komarek, *Germany* Igor Mazin, *USA* Masato Murakami, *Japan* Vladimir M. Pan, *Ukraine* Dean E. Peterson, *USA* Justin Schwartz, *USA* Paul Seidel, *Germany* Yuh Shiohara, *Japan* Jozef Spalek, *Poland* Frank Steglich, *Germany* Setsuko Tajima, *Japan* Shoji Tanaka, *Japan* Yasutomo J. Uemura, *USA* Andrei Varlamov, *Italy* Nan Lin Wang, *P.R. China* Harald W. Weber, *Austria* Sergio Zannella, *Italy* Albert Zeller, *USA* Lian Zhou, *P.R. China* *Programme Committee:* Attilio Rigamonti, *Italy (Chair)* Claudio Castellani, *Italy* Andrea Gauzzi, *France* Renato S. Gonnelli, *Italy* Luigi Maritato, *Italy* Marina Putti, *Italy* Laura Romano', *Italy*

FL - *9th International Conference* "Medical Applications of Novel Biomaterials and Nano-biotechnology"

Co-Chairs: Zhongwei Gu, *P.R. China* Kazuhiko Ishihara, *Japan* John A. Jansen, *The Netherlands (Programme Chair)* Thomas Webster, *USA* *Members:* Luigi Ambrosio, *Italy* Rolando Barbucci, *Italy* Bikramjit Basu, *India* Fabio Beltram, *Italy* Mario Cannas, *Italy* Yilin Cao, *P.R. China* Jiang Chang, *P.R. China* Fuzhai Cui, *P.R. China* Wouter Dhert, *The Netherlands* Paul Ducheyne, *USA* Achim Goepferich, *Germany* J. Zach Hilt, *USA* Karin Hing, *UK* Lynn L.H. Huang, *Taiwan* Esmaiel Jabbari, *USA* Kazunori Kataoka, *Japan* Minna Kellomaki, *Finland* Young Ha Kim, *Korea* C. James Kirkpatrick, *Germany* Sunil Kumar, *Australia* Cato T. Laurencin, *USA* Claudio Migliaresi, *Italy* Antonios G. Mikos, *USA* Roger Narayan, *USA* Chikara Ohtsuki, *Japan* Akiyoshi Osaka, *Japan* Kinam Park, *USA* Josep A. Planell, *Spain* Laura Poole-Warren, *Australia* Seeram Ramakrishna, *Singapore* John A.M. Ramshaw, *Australia* Buddy Ratner, *USA* Alex Seifalian, *UK* Michael Sittinger, *Germany* Anna Tampieri, *Italy* Keiichi Torimitsu, *Japan* Ian Tucker, *New Zealand* Kathryn Uhrich, *USA* Jos Vander Sloten, *Belgium* Nobuhiko Yui, *Japan*

Outline Forum

Symposium FA
Advanced Fossil Fuel Energy Technologies:
The Materials Demand

Symposium FB
Materials and Process Innovations in Hydrogen Production and Storage

Symposium FC
Fuel Cells:
Materials and Technology Challenges

Symposium FD
Electrochemical Energy Storage Systems:
The Next Evolution

Symposium FE
Advances in Materials and Technologies for Efficient Direct Thermal-to-electrical Energy Conversion

Symposium FF
Materials Challenges for Future Nuclear Fission and Fusion Technologies

Focused Session ***FF-10***
Materials Technology for Nuclear Waste Treatment and Disposal

Symposium FG
Photovoltaic Solar Energy Conversion:
Materials and Technology Challenges

Symposium FH
Concentrating Solar Technologies:
Materials and Technology Solutions for CPV and CSP Competitiveness

Symposium FI
Recent Developments in the Research and Application of Transparent Conducting and Semiconducting Oxides

Symposium FJ
Materials and Technologies for Solid State Lighting

Symposium FM
Electromagnetic Metamaterials

Serial Conferences

FK
6th International Conference
Science and Engineering of Novel Superconductors

FL
9th International Conference
Medical Applications of Novel Biomaterials and Nano-biotechnology

SESSIONS TIMETABLE

5th Forum on New Materials - June 13-18, 2010

Sunday June 13

11.00-13.00 15.00-19.00
REGISTRATION
Palazzo dei Congressi
Via Amendola, 2
Montecatini Terme, Pistoia, Italy

15.00-19.00
POSTER MOUNTING

Monday June 14

Morning: 9.30-13.00

Opening Session
Welcome Addresses
Plenary Lectures (F:PL1-PL3)

Afternoon: 15.00-19.30

Symposium FA	(FA-1.1:IL01-IL04) (FA-2.1:IL01-IL03)
Symposium FB	(FB-1.1:IL01-L04) (FB-2.2:IL01-IL03)
Symposium FC	(FC-1:IL01-IL03) (FC-1:IL04-IL06)
Symposium FD	(FD-1:IL01-IL03) (FD-1:IL04:IL06)
Symposium FE	(FE-1:IL01-IL04) (FE-2:IL01-L04)
Symposium FF	(FF:KL) (FF-1:IL01-IL02) (FF-2:IL01-IL04)
Symposium FG	(FG:KL) (FG-1:IL01-L04) (FG-2:IL01-L03)
Symposium FI	(FI-1:IL01-IL04) (FI-1:IL05-L09)
Symposium FJ	(FJ-1:IL01-IL02) (FJ-1:IL03-L05)
Symposium FM	(FM-1:IL01-IL02) (FM-2:IL01-IL03)
Conference FK	(FK-1:IL01-IL03) (FK-2:IL01-L04)
Conference FL	(FL-1:IL01-IL03) (FL-1:IL04-IL06)

8.30-13.00
15.00-19.00
POSTER MOUNTING

21.30-23.00
Opening Concert
"Opera & Operetta Gran Galà"

Tuesday June 15

Morning: 8.30-13.00

Symposium FA	(FA-1.1:IL09-L13) (FA-1.2:IL01-L04)
Symposium FB	(FB-1.2:IL01-IL05) (FB-2.2:IL04-L07)
Symposium FC	(FC-1:IL07-L11) (FC-2:IL01-L04)
Symposium FD	(FD-1:IL07-L10) (FD-1:IL11:L15)
Symposium FE	(FE-1:IL09-L14) (FE-2:IL05-L08)
Symposium FF	(FF-1:IL03-L07) (FF-3:IL01-IL04) (FF-5:IL01-L03) (FF-5:L05-IL08) (FF-10.1:IL01-L04) (FF-10.1:IL05-L07)
Symposium FG	(FG-2:IL04-L07)
Symposium FH	(FH-1:IL01-L05)
Symposium FI	(FI-1:IL10-IL14) (FI-1:IL15-L18)
Symposium FJ	(FJ-1:IL06-L10) (FJ-2:IL01-L04)
Symposium FM	(FM-2:IL04-L08) (FM-3:IL01-L03)
Conference FK	(FK-2:IL05-L07) (FK-3:IL01-IL04) (FK-6:IL07)
Conference FL	(FL-1:IL07-IL10) (FL-3:IL01-IL03)

Afternoon: 15.00-19.30

Symposium FB	(FB-1.3:IL01-L06) *Joint Session with Symposium FA* (FB-2.3:IL01-IL04) (FB-2.8:IL01-IL03)
Symposium FC	(FC-1:L17-L20) (FC-4:IL01-L04)
Symposium FD	(FD-1:IL16-L19) (FD-2:IL01-L04)
Symposium FE	(FE-1:IL05-L08) (FE-2:IL09-L12)
Symposium FF	(FF-2:IL05-IL07) (FF-3:IL05-L07) (FF-10.2:IL01-L04)
Symposium FG	(FG-3:L16-L21)
Symposium FH	(FH-2:IL01-IL03)
Symposium FI	(FI-2:IL01-L05) (FI-2:IL06-L10)
Symposium FJ	(FJ-1:IL11-IL12) (FJ-1:IL13-L15)
Symposium FM	(FM-1:IL03-L05) (FM-4:IL01-L04)
Conference FK	(FK-1:L04-L06) (FK-2:L09-L11) (FK-3:IL05-IL11)
Conference FL	(FL-1:L11-L17) (FL-1:L18-L24) (FL-4:L18-L20) (FL-6:L05-L11)

Wednesday June 16

Morning: 8.30-13.00

Symposium FA	(FA-1.2:IL05-L08) (FA-1.3:IL01-IL03)
Symposium FB	(FB-2.3:IL05-IL08) (FB-2.4:IL01-L04)
Symposium FC	(FC-3:IL01-L05) (FC-3:IL06-IL08)
Symposium FD	(FD-2:IL05-L07) (FD-2:L08-IL10)
Symposium FE	(FE-2:IL13-L16) (FE-2:IL17-L20)
Symposium FF	(FF-4:IL01-IL04) (FF-7:IL01-L04) (FF-8:IL01) (FF-9:IL01-IL02) (FF-10.2:IL05-L08) (FF-10.3:IL01-L04)
Symposium FG	(FG-2:IL08-L11) (FG-3:IL01-L05)
Symposium FH	(FH-2:IL04-L07) (FH-3:IL01-L04)
Symposium FI	(FI-2:IL11-L15) (FI-2:IL16-L20)
Symposium FJ	(FJ-2:IL05-L08) (FJ-2:IL09-L12)
Conference FK	(FK-5:IL01-IL04) (FK-6:IL01-L05)
Conference FL	(FL-1:L25-L31) (FL-4:IL01-L05) (FL-4:IL06-L10)

14.45-20.00 *Tour to Florence*

Special shuttle train reserved to CIMTEC participants
Meeting point: Montecatini Terme Central Railway Station (Stazione Centrale)
Meeting time: 14.45

Thursday June 17

Morning: 8.30-13.00

Symposium FA	(FA-1.4:IL01-IL03) (FA-1.5:IL01-L05)
Symposium FB	(FB-2.2:IL08-L10) (FB-2.3:L09-L11) (FB-2.5:IL01-IL05)
Symposium FD	(FD-2:IL11-IL13) (FD-3:IL01-IL03)
Symposium FE	(FE-2:IL21-L25) (FE-2:IL26-L30)
Symposium FF	(FF-2:L08-L10) (FF-5:IL06) (FF-6:IL01-L04) (FF-6:IL05-L09) (FF-7:L05-L07) (FF-10.3:IL05-L07) (FF-10.3:IL08-IL10)
Symposium FG	(FG-3:IL06-L10) (FG-3:IL11-L15)
Symposium FH	(FH-2:IL08-L10) (FH-4:IL01-L05)
Symposium FI	(FI-2:IL21-L25) (FI-2:IL26-L30)
Symposium FJ	(FJ-2:IL13-IL15)
Symposium FM	(FM-5:IL01-L04) (FM-5:IL05-IL07)
Conference FK	(FK-4:IL01-IL03) (FK-7:IL01-L05)
Conference FL	(FL-4:IL11-IL14) (FL-4:IL15-IL17)

Afternoon: 15.00-20.00

Symposium FA	(FA-2.2:IL01-L04) (FA-2.3:IL01-IL02)
Symposium FB	(FB-2.2:L12-L14) (FB-2.3:L12-L17) (FB-2.6:IL05-L06) (FB-2.7:L05-L06)
Symposium FC	(FC-2:L09-L12) (FC-5:IL01-L04)
Symposium FF	(FF-6:L10-IL13) (FF-8:IL03-IL05) (FF-10.4:IL01-IL02)
Symposium FG	(FG-2:IL12-L15) (FG-4:IL04-L06)
Symposium FH	(FH-3:IL05-IL07) (FH-5:IL01-L03)
Symposium FI	(FI-2:IL31-L33) (FI-3:IL02-L04)
Symposium FJ	(FJ-3:IL01-IL03)
Symposium FM	(FM-3:IL04-L06) (FM-6:IL01-L02) (FM-7:L05-L06)
Conference FK	(FK-6:IL06) (FK-8:IL01-IL02)
Conference FL	(FL-2:IL01-L06) (FL-3:L04-L09) (FL-5:L04-L06)

18.30-20.00
POSTER DISCUSSION

Friday June 18

Morning: 8.30-13.00

Symposium FA	(FA-1.1:IL05-IL08) (FA-2.2:IL05-IL08)
Symposium FB	(FB-2.6:IL01-IL04) (FB-2.7:IL01-IL04)
Symposium FC	(FC-1:IL12-L16) (FC-2:IL05-IL08)
Symposium FE	(FE-3:IL01-L05) (FE-3:IL06-L10)
Symposium FF	(FF-6:IL14-L17) (FF-6:IL18-L23) (FF-7:IL08-IL11) (FF-10.4:IL03-IL05) (FF-10.5:IL01-IL03)
Symposium FG	(FG-3:IL22-L27) (FG-4:IL01-IL03)
Symposium FH	(FH-4:IL06-IL09) (FH-5:IL04-IL06)
Symposium FI	(FI-3:IL05-L09) (FI-3:IL10-IL13)
Symposium FJ	(FJ-3:IL04-IL06) (FJ-3:IL07-IL10)
Symposium FM	(FM-6:IL03-IL05) (FM-7:IL01-IL04)
Conference FK	(FK-7:IL06-IL09) (FK-8:IL03-IL06)
Conference FL	(FL-1:L32-L36) (FL-5:IL01-L03b) (FL-6:IL02-IL04)

14.45-19.30
Tour to Pisa
Meeting point: Main entrance Palazzo dei Congressi
Meeting time: 14.45

21.00-23.30
Conference Dinner

Code Number of contributions by Presenting Author
(in alphabetical order)

The Code Number XY-W:Z00 includes: XY Symposium; W Session; Z Type of presentation (PL, KL, IL, L, P)*; 00 Paper number

* PL Plenary KL Key-Note IL Invited Lecture L Contributed Lecture P Poster presentation

NOTE: Due to the restructuring of some symposia, the session number included in the Code may differ from the one selected by the Presenting Author in the Abstract Submission Form.

Nastar Maylise	FF-6:IL19
Natesan Ken	FA-1.5:IL01
Nawaz Muhammad	FG-4:L06
Neumeier Stefan	FF-10:P02
Ngayam-Happy Raoul	FF-6:L21
Nguyen Que Anh	FI-1:L17
Nguyen Thien Phap	FJ-2:L07
Nicholls John	FA-1.3:IL01
Nickel Norbert H.	FJ-2:IL02
Noe Mathias	FK-7:IL01
Nolan Mark	FI-2:L20
Nordlund Kai	FF-6:IL01
Noreus Dag	FB-2.2:IL01
Notten Peter H.L.	FD-1:IL11
Noufi Rommel	FG-2:IL12
Novak Sasa	FF:P05
Novakovic Nikola	FB:P15
Oates William	FL-1:L33
Obradors Xavier	FK-6:IL01
Ochoa Martinez Efrain	FG:P02
Odette Robert	FF-8:IL05
Ogata Masao	FK-4:IL03
Ogino Hiraku	FK-2:IL06
Oh Hyo-Jin	FB:P01
Oh Se Heang	FL-4:L19
Ohtake Shoji	FL:P33
Ohtaki Michitaka	FE-2:L12
Ohtsuki Chikara	FL-2:IL01
Ohzuku Tsutomu	FD-1:IL07
Okada Shigeto	FD-1:L13
Olson Dana	FG-3:IL01
Olsson Par	FF-7:L06
Olziersky Antonis	FI-2:L10
Omori Toshihiro	FA-1.1:L13
Onofrio Giovanni	FA:P01
Orsini Gabriele	FC-2:L04
Osaka Akiyoshi	FL-1:L11
Osaka Tetsuya	FD-1:IL17
Osetsky Yuri	FF-6:L09
Osofsky Michael	FK-6:L03
Otani Masashi	FC-1:L09
Ouattara-Brigaudet M.	FC-2:L09
Ozawa Masaki	FF-10.2:IL01
Padilla Willie J.	FM-1:IL01
Pagnier Thierry	FI-1:IL13
Paine David C.	FI-1:IL04
Palacios Pablo	FI:P06
Palomo Del Barrio Elena	FH-4:IL03
Papageorgiou Ch.	FE:P07
Pardo Enric	FK-7:IL04
Park Dong-Hoon	FI-3:L03
Park Ji Yeon	FF-1:L05
Park Su-Moon	FD-3:IL03
Parkin Ivan P.	FI-3:IL13
Parretta Antonio	FH-1:L04
Paul Neelima	FL-1:L15
Pendolino Flavio	FB-2.4:L04
Pentimalli Marzia	FB:P07
Pereira Jr. Joao Batista	FL-3:L09
Perkins John	FI-1:IL10
Pitz-Paal Robert	FH-3:IL01
Platzer Werner	FH-3:IL05
Poeml Philipp	FF-10.3:L07
Popovici Ionut	FG:P23
Porporati Alessandro A.	FL-6:L10
Posselt Matthias	FF-6:L23
Pottmaier Daphiny	FB-2.3:L15
Pozina Galia	FJ:P08
Prabaharan S.R.S.	FD-2:IL01
Prakash Raju	FD-1:L19
Prando Giacomo	FK-2:L09
Prete Paola	FG-3:L19
Price Tobias	FB-2.3:L16
Prieur Damien	FF-5:L03
Prikhna Tetiana	FK-3:L08
Principi Giovanni	FB-2.2:L14
Prokoshkina Vera	FL:P10
Prosini Pier Paolo	FB-1.1:L04
Proskuryakov Yuri	FG-2:IL10
Prusakova Lucie	FI:P07
Pugno Nicola	FL-4:L03
Putti Marina	FK-2:IL05
Qiu Pengfei	FE-2:L07
Quadakkers W. Joe	FA-1.1:IL02
Raison Philippe	FF-10.1:IL06
Raj Baldev	FF-8:IL03
Rajput Monika	FM-4:L04
Ram Rajeev	FE-3:IL01
Ramakrishna Seeram	FL-4:IL12
Rambabu Bobba	FD:P06
Ramos-Alvarez Paola E.	FC:P03
Ramos-Barrado Jose R.	FG:P28
Ratto Gian Michele	FL-2:IL04
Rech Bernd	FG-2:IL01
Reinhardt Carsten	FM-2:L08
Renneson Martin	FC:P15
Resnina Natalia	FL:P18
Rey Christian	FL-1:L30
Ribeiro Christiane	FL:P14
Richard Thierry	FB-1.3:L06
Riess Ilan	FC-1:IL02
Rieth Michael	FF-1:IL04
Rietveld Bert	FC-1:IL07
Rieznichenko Liudmyla	FL:P36
Ringel Steven	FG-3:L21
Roca Francesco	FG-3:IL11
Rodrigues Ribeiro R.	FL:P40
Rodriguez-Messmer E.	FH-2:IL09
Rogacheva Elena	FE-2:L29
Rogalla Horst	FK-8:IL01
Rogers David J.	FJ-3:IL02
Rogers Edward	FM-6:IL05
Rogl Gerda	FE-2:L28
Rogl Peter	FE-2:IL06
Roman'ko Marina	FL:P35
Roncallo Scilla	FG-2:L11
Rongeat Carine	FB-2.3:L09
Roozeboom Fred	FD-2:IL05
Ross Keith	FB-2.5:IL02
Roth Guenther	FF-10.2:IL02
Roth Joachim	FF-3:IL05
Rougier Aline	FI-3:IL12
Rubel Marek	FF-2:IL04
Ruiz Camacho Beatriz	FC-2:L10
Rumyantsev Valery D.	FH-2:IL01
Rumyantseva Marina	FI-2:IL31
Russo Alessandro	FL:P04
Ryklina Elena	FL-1:L35
Sabri Firouzeh	FL-1:L12
Salleo Alberto	FJ-2:IL01
Samaras Maria	FF-7:L04
Sammes Nigel M.	FC-1:IL03
Sanchez Kefren	FG-3:L12
Sanchez Gonzalez M.	FH-5:L03
Sands Timothy D.	FJ-3:IL04
Sani Elisa	FH-2:L07
Sannen Leo	FF-5:IL02
Santbergen Rudi	FG-3:L18
Santiago De Falco A.P.	FC:P13
Sapora Alberto	FL-4:L10
Sarno Angelo	FH-2:IL08
Sarychev Andrey K.	FM-2:IL03
Sato Shigeo	FK-8:IL02
Sauerborn Markus	FH-3:L04
Sauerzopf Franz M.	FK-5:IL01
Savadogo Oumarou	FC-2:IL02
Scharnweber Dieter	FL-6:IL03
Scheffler Franziska	FE-3:L03
Schiavo Benedetto	FB-2.2:L09
Schiller Guenter	FB-1.3:IL02
Schmechel Roland	FI-2:IL07
Schmitt Rainer	FH-4:IL02
Schock Hans-Werner	FG-2:IL13
Schuchinsky Alex	FM-3:IL05
Schwartz Justin	FK-7:IL09
Scorrano Sonia	FL:P24
Seidel Paul	FK-2:L04
Seifalian Alexander	FL-1:IL04
Sendova-Vassileva M.	FE:P09
Sergi Francesco	FC-5:L02
Serra Anna	FF-6:IL18
Shakouri Ali	FE-1:IL01
Shalaev Vladimir M.	FM-5:IL06
Sheel David	FI-2:IL17
Shigesato Yuzo	FI-2:IL27
Shikama Tatsuo	FF-4:IL02
Shimoda Kazuya	FF-2:L08
Shimoda Keiji	FB:P09
Shin Eui-Chol	FB:P02
Sholl David	FA-2.2:L04
Short Rick	FF-10.4:IL04
Show Yoshiyuki	FC:P11
Shukla Ashok K.	FC-3:IL07
Shvarts Maxim	FH-1:IL02
Sibilia Concita	FM-3:IL02
Siefer Gerald	FH-2:IL02
Siegel Nathan	FH-4:IL01
Sikavitsas Vassilios I.	FL-4:IL15
Silhanek Alejandro	FM:P03
Silmy Kamel	FH-3:IL07
Simon Patrice	FD-2:IL12
Singh Rajendra Kumar	FL:P08
Sitar Zlatko	FJ-1:L14
Sivan Yonatan	FM-3:L03
Slade Alexander	FH-5:IL04
Slaoui Abdelillah	FG-2:IL05
Slosarczyk Anna	FL:P05
Smolyaninov Igor	FM-5:IL05
Smolyaninova Vera	FM-6:L02
Snead Lance	FF-3:IL04
Snyder G. Jeffrey	FE-1:IL09
Snyder Robert	FI-1:L09
So Franky	FJ-3:IL07
Solak Nuri	FC:P17
Somers Joe	FF-5:IL06

SCIENTIFIC PROGRAMME

5th FORUM ON NEW MATERIALS

OPENING SESSION

WELCOME ADDRESSES

Plenary Lectures

F:PL1 **Graphene: Magic of Flat Carbon**
A. GEIM, University of Manchester, UK

F:PL2 **Programmed Molecular Assembly for Tailored Functional Materials**
T. AIDA, JST ERATO-SORST NANOSPACE PROJECT, Center for Nanobio Integration, and Dept. of Chemistry & Biotechnology, The University of Tokyo, Tokyo, Japan

F:PL3 **First Principles Multiscale Methods Applied to Materials Science**
W.A. GODDARD, III, Materials and Process Simulation Center (MSC), California Institute of Technology, Pasadena, CA, USA

SYMPOSIUM FA

ADVANCED FOSSIL FUEL ENERGY TECHNOLOGIES: THE MATERIALS DEMAND

Oral Presentations

Session FA-1
Fossil Fuel Combustion

FA-1.1 Improved or New Materials

FA-1.1:IL01 **Materials Issues in Oxy-fuel Technology for Carbon Capture and Storage**
T. WALL, Chemical Engineering, University of Newcastle, Callaghan, NSW, Australia

FA-1.1:IL02 **New Metallic Materials for Advanced Fossil Fuel Power Generation**
W.J. QUADAKKERS, Forschungszentrum Jülich, IEF2, Jülich, Germany

FA-1.1:IL03 **Materials Design of Ni Base Superalloy for 700 °C-class Steam Turbine**
S. IMANO, J. SATO, Material Research Laboratory, Hitachi, Ltd, Hitachi-shi, Japan

FA-1.1:IL04 **Control of Microstructure and Defects in Cast TiAl**
R. YANG, Y.Y. CUI, Q. JIA, R.H. LIU, Institute of Metal Research, Chinese Academy of Sciences, Shenyang, China

FA-1.1:IL05 **Directional Solidification by Liquid Metal Cooling Process**
J. SHEN, **J. ZHANG**, L.H. HONG, Institute of Metal Research, Chinese Academy of Sciences, Shenyang, China

FA-1.1:IL06 **Long-term Stabilization of Creep-resistant Ferritic Steels forHighly Efficient Ultra-supercritical Power Plants**
FUJIO ABE, National Institute for Materials Science (NIMS), Tsukuba, Japan

FA-1.1:IL07 **Simplified Processing of Oxide Dispersion Strengthened (ODS) Ferritic Alloys using Gas Atomized Precursor Powders**
I.E. ANDERSON[1,2], J.R. RIEKEN[2], M.J. KRAMER[1], D. SHECHTMAN[2], M.F. BESSER[1]; [1]Division of Matls Sci. and Eng., Ames Lab. (USDOE), Ames, Iowa, USA; [2]Material Sci. and Eng. Dept., Iowa State University, Ames, Iowa, USA

FA-1.1:IL08 **Recent Developments Towards the Application of Iron Aluminides in Fossil Fuel Technologies**
D.G. MORRIS, M.A. MUÑOZ-MORRIS, Dept. of Physical Metallurgy, CENIM, CSIC, Madrid, Spain

FA-1.1:IL09 **Alloy Design and Processing Challenges for Advanced Power Systems: an Alloy Producer's Perspective**
G.E. MAURER, A.D. PATEL, Carpenter Technology Corporation, Reading, PA, USA

FA-1.1:IL10 **Computational and Experimental Development of Novel High Temperature Alloys**
M.J. KRAMER, M. AKINC, P. RAY, Ames Laboratory and Dept. of Materials Science and Engineering, Iowa State University, Ames, Iowa, USA

FA-1.1:IL11 **Alloy Selection for Advanced Ultrasupercritical (A-USC) Combustion Systems**
J. SHINGLEDECKER, **D. GANDY**, R. VISWANATHAN, Electric Power Research Institute (EPRI), Charlotte, NC, USA

FA-1.1:L12 **Reaction Synthesis Mo-Si-B Alloys; Strength, Oxidation, Microstructural Engineering**
J.K. COCHRAN, M.R. MIDDLEMAS, W.L. DALOZ, P.E. MARSHALL, Georgia Tech, Atlanta, GA, USA; K.S. KUMAR, P. JAIN, Brown University, Providence, RI, USA

FA-1.1:L13 **Effect of Alloying Elements on Phase Equilibria in New Co-based Superalloy**
T. OMORI, J. SATO, K. OIKAWA, I. OHNUMA, R. KAINUMA, K. ISHIDA, Dept. of Materials Science, Tohoku University, Sendai, Japan

FA-1.2 Membranes for O_2 Separation and Adsorbents for CO_2 Capture

FA-1.2:IL01 **Oxygen Transport Membranes for Oxyfuel Combustion**
W. HAIJE, Energy Research Centre of the Netherlands, ECN, Petten, The Netherlands

FA-1.2:IL02 **Commercially Reliable Oxygen Conducting Membranes for SOFC and Oxygen Generation Applications**
V. SPRENKLE, Pacific Northwest National Laboratory (PNNL), Richland, WA, USA

FA-1.2:IL03 **Oxygen Carriers for Chemical-looping Combustion**
T. MATTISSON, A. LYNGFELT, Dept. of Energy and Environment, Chalmers University of Technology, Göteborg, Sweden

FA-1.2:L04 **Supported Oxygen Transport Membranes for Oxyfuel Power Plants**
M. BETZ, F. SCHULZE-KÜPPERS, S. BAUMANN, W.A. MEULENBERG, D. STÖVER, Forschungszentrum Jülich, Institute of Energy Research IEF-1 Materials Synthesis and Processing, Jülich, Germany

FA-1.2:IL05 **Adsorbents for CO2 Capture in Fossil Fuel Combustion Plants**
H. GEERLINGS, Delft University of Technology, Dept. of Chemical Eng. Materials for Energy Conversion and Storage, Delft, The Netherlands

FA-1.2:IL06 **Nanostructured Organic-inorganic Hybrid Aminosilicas for CO2 Capture from Dilute Gas Streams**
J.H. DRESE[1], SUNHO CHOI[1], P. BOLLINI[1], MCMAHAN L. GRAY[2], **C.W. JONES**[1], [1]School of Chemical & Biomolecular Engineering, Georgia Institute of Technology, GA, USA; [2]U.S. Dept. of Energy, National Energy Technology Laboratory, Pittsburgh, PA, USA

FA-1.2:IL07 **High-temperature CO2 Sorbents for Pre-combustion CO2 Capture**
R.W. VAN DEN BRINK, E.R. VAN SELOW, P.D. COBDEN, S. WALSPURGER, W.G. HAIJE, Energy Research Centre of the Netherlands (ECN), Petten, The Netherlands

FA-1.2:IL08 **Designing New Microporous Framework Materials for CO2 Capture**
R.G. BELL, A. TORRISI, C. MELLOT-DRAZNIEKS, Dept. of Chemistry, University College London, London, UK

FA-1.3 Thermal and Protective Coatings

FA-1.3:IL01 **Self Diagnostic EB-PVD Thermal Barrier Coatings**
J.R. NICHOLLS, R.G. WELLMAN, R.STEENBAKKER, Cranfield University, Cranfield, Bedford, UK; J.P. FEIST, STS Ltd, c/o Imperial College, London, UK

FA-1.3:IL02 **Development of Metallic and Ceramic Slurry Coatings for Materials in Severe Environments**
B.L. ARMSTRONG, K.M. COOLEY, J.J. HENRY, L.R. WALKER, B.A. PINT, Oak Ridge National Laboratory, Oak Ridge, TN, USA

FA-1.3:IL03 **Inhibition of Interdiffusion in NiCrAlY Coated g-TiAl by Introduction of a Yttria Partially Stabilized Zirconia(PYSZ) Layer**
FUHUI WANG, YUXIAN CHENG, WEN WANG, State Key Laboratory for Corrosion and Protection, Institute of Metal Research, CAS, Shenyang, China

FA-1.4 Long-term Creep and Fatigue

FA-1.4:IL01 **Long-term Mechanical Stability in USC Steam Turbine Environments**
J.A. HAWK, USDOE, NETL, Albany, OR, USA

FA-1.4:IL02 **Degradation of Ni-Base Superalloys under High Temperature Creep Conditions**
A. EPISHIN, T. LINK, Technical University of Berlin, Berlin, Germany; B. FEDELICH, H. KLINGELHÖFFER, Federal Institute for Materials Research and Testing, Berlin, Germany; M. NAZMY, M. STAUBLI, ALSTOM Ltd., Baden, Switzerland

FA-1.4:IL03 **Creep Resistent Steels for Coal Power Plant Applications**
R. VISWANATHAN, Electric Power Research Institute, Palo Alto, CA, USA

FA-1.5 Corrosion and Erosion

FA-1.5:IL01 **Materials Performance in Advanced Steam Cycle and Oxy-fuel Combustion Systems**
K. NATESAN, Z. ZENG, Argonne National Laboratory, Argonne, IL, USA

FA-1.5:IL02 **Modelling Solid Particle Erosion of Steels at Elevated Temperatures: A New Approach to CFD Modelling in 3-Dimensions**
M.M. STACK, S.M. ABDELRAHMAN, B.D JANA, Dept. of Mechanical Engineeering, University of Strathclyde, Glasgow, UK

FA-1.5:IL03 **Important Compositional and Microstructural Factors Affecting the High-Temperature Degradation of Metallic Alloys and Coatings**
B. GLEESON, University of Pittsburgh, Dept. Mechanical Engineering & Materials Science, Pittsburgh, PA, USA

FA-1.5:L04 **Electrochemical Investigation on Hot Corrosion of Inconel 740 Alloy in Simulated Coal Ash Environment**
YINGLU JIANG, **XINGBO LIU**, Mechanical & Aerospace Engineering Dept., West Virginia University Morgantown, WV, USA

FA-1.5:L05 **Pilot Scale Studies of the Fireside Corrosion Effects of Biomass Co-Firing and / or Oxyfuel Coal Firing**
C.J. DAVIS, L.W. PINDER, E.ON Engineering, Nottingham, UK

Session FA-2
Gasification and Gas Clean-up

FA-2.1 Catalysts for Water-gas Shift and for Fuel Production

FA-2.1:IL01 **New Ways of Understanding Site Structure and Function in Fuel Production Catalysts**
J.P.H. LI, I. SULEIMAN, A. STAFFORD, **M. STOCKENHUBER**, University of Newcastle, Chemical Engineering, Priority Research Centre for Energy, Callaghan, NSW, Australia

FA-2.1:IL02 **Water Gas Shift Reaction: From Conventional Catalytic Systems to Pd-based Membrane Reactors**
A. BASILE, A. IULIANELLI, ITM-CNR, c/o University of Calabria, Rende (CS), Italy

FA-2.1:IL02 **Reactors with Integrated Separation by Membranes**
O. GÖRKE, J. THORMANN, P. PIERMARTINI, P. PFEIFER, **R. DITTMEYER**, Institute for Micro Process Engineering (IMVT), Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen, Germany

FA-2.2 Membranes for H_2 Separation and CO_2-selective Membranes

FA-2.2:IL01 **Carbon Molecular Sieve Membranes for H2 - CO2 Separation**
M.-B. HÄGG, J. ARVID LIE, QIANG YU, Dep. Chem. Eng., Norwegian University of Science and Technology

FA-2.2:IL02 **Synthesis and Characterization of Zeolite and Nanophase Ceramic Membranes for High Temperature Applications**
A. JULBE, A. AYRAL, V. ROUESSAC, S. ROUALDES, Institut Européen des Membranes, Université Montpellier 2, Montpellier, France

FA-2.2:IL03 **Non-Pd Alloy Membranes for H2/CO2 Separation**
M.D. DOLAN, CSIRO Energy Technology, Brisbane, QLD, Australia

FA-2.2:L04 **First Principles Calculations of Hydrogen Diffusion in Metal Hydrides, Metal Alloys, and Amorphous Metals**
D.S. SHOLL, SHIQIANG HAO, School of Chemical & Biomolecular Engineering, Georgia Institute of Technology, Atlanta, GA, USA

FA-2.2:IL05 **Ceramic Membranes in Carbon Dioxide Capture: Applications and Potentialities**
E. DRIOLI[1,2], A. BRUNETTI[1], G. BARBIERI[1], [1]ITM-CNR, c/o The University of Calabria, Rende (CS), Italy; [2]The University of Calabria, Dept. of Chemical Engineering and Materials, Rende (CS), Italy

FA-2.2:IL06 **High Temperature Polymer-based Membranes for Hydrogen Purification and Carbon Capture**
K.A. BERCHTOLD, K.W. DUDECK, R.P. SINGH, D. ORTIZ-ACOSTA, C.F. WELCH, B.M. PATTERSON, Los Alamos National Laboratory, Los Alamos, NM, USA

FA-2.2:IL07 **PdCu Membranes for Hydrogen Separation: Stability and Application Ranges**
A. GOLDBACH, L.X. YUAN, H.Y. XU, Dalian Institute of Chemical Physics, Chinese Academy of Sciences, Dalian, P.R. China

FA-2.2:IL08 **Computational Design of Pd-based Alloys for Membranes for Hydrogen Gas Separation**
A.J. BÖTTGER, D.E. NANU, Delft University of Technology, Materials Science and Engineering, Delft, The Netherlands

FA-2.3 High Temperature Seals

FA-2.3:IL01 **High Temperature Seals for Membrane Reactor Modules**
R. DONELSON, CSIRO, Melbourne, Victoria, Australia; M. DOLAN, CSIRO Pullenvale, Queensland, Australia

FA-2.3:IL02 **Development of Friction Stir Welding Technology High-temperature Power Generation Applications**
K.S. WEIL, G.J. GRANT, Y. HOVANSKI, J.T. DARSELL, Pacific Northwest National Laboratory, Richland, WA, USA

Poster Presentations

FA:P01 **Comparison of High Temperature Mechanical Behaviour and Microstructure of the New Gamma-TiAl8Ta with Gamma-TiAl8Nb Alloy**
G. ANGELLA, V. LUPINC, M. MALDINI, **G. ONOFRIO**, CNR-IENI, Milano, Italy

FA:P02 **Elaboration and Characterization of the Properties of Refractory Cr Base Alloys**
L. ROYER, S. MATHIEU, **P. STEINMETZ**, Institut Jean Lamour, Faculté des Sciences et Techniques, Vandoeuvre Cedex, France; C. LIEBAUT, SEVA, Chalon-Sur-Saone Cedex, France

FA:P03 **Hydrogen Uptake and Hydrogen Profiles in Chromia Scales Formed in High and Low pO_2 Test Gases at 1000 °C**
L. GARCIA-FRESNILLO, S.L. TOBING, **M. HÄNSEL**, V. SHEMET, U. BREUER, L. SINGHEISER, W.J. QUADAKKERS, Forschungszentrum Jülich, IEF-2, Jülich, Germany

FA:P04 **Novel Oxygen Ion Transport LGBS Membranes**
V.V. BELOUSOV, S.V. FEDOROV, A.V. VOROBIEV, A.A. Baikov Institute of Metallurgy and Materials, Russian Academy of Sciences, Moscow, Russia

FA:P05 **Synthesis and Characterization of Ceramic Material for CO_2 Fixation - An Experimental and Theoretical Study**
F.A. VIEIRA, G.P. VOGA, I.G. CARVALHO, R. DE OLIVEIRA, G.M. DE LIMA, **J.C. BELCHIOR**, Universidade Federal de Minas Gerais, Belo Horizonte, Minas Gerais, Brazil

FA:P06 **Effects of Firing Conditions on the Coal Ash Melting Behaviour**
D. MONTINARO, G. DI SALVIA, M. MALAVASI, ITEA SpA, Gioia del Colle, Italy; G. AMANTE, A. CHIECHI, A. LICCIULLI, Università del Salento, Dipartimento Ingegneria dell'Innovazione, Lecce, Italy

FA:P07 **Viscosity Under Pressure Mixtures of Hydrocarbons: A Critical Model Reported Double Reference**
A. ETTAHIR, Lab. de l'Energétique, des Matériaux et de l'Environnement, EST Salé, Université Mohammed V Agdal, Maroc; C. BONED, B. LAGOURETTE, LFC Université de Pau, France

FA:P08 **CO Oxidation on CeO2 and CuO/CeO2 Catalysts Exposing Different Ceria Crystal Planes**
D. GAMARRA, A. MARTÍNEZ-ARIAS, J.C. CONESA, Instituto de Catálisis y Petroleoquímica, CSIC, Madrid, Spain

FA:P09 **Ionic Liquid Absorbents for CO2 Capture**
J. HUANG, H. LIU, A. ROSAMILIA, T. RUETHER, Z. ZHANG, CSIRO Energy Technology, Clayton, VIC, Australia

SYMPOSIUM FB

MATERIALS AND PROCESS INNOVATIONS IN HYDROGEN PRODUCTION AND STORAGE

Oral Presentations

Session FB-1
Hydrogen Production

FB-1.1 Thermochemical H_2 Production

FB-1.1:IL01 **State-of-the-art of Thermo-chemical Hydrogen Production**
J. KELLER, Hydrogen and Combustion Technologies, Sandia National Laboratories, Livermore, CA, USA

FB-1.1:IL02 **Hydrogen Production by the Thermochemical Cycle Based on Mixed Na-Mn Ferrites**
C. ALVANI, A. LA BARBERA, F. PADELLA, **F. VARSANO**, ENEA - C.R. Casaccia, Rome, Italy

FB-1.1:IL03 **Two-step Thermochemical Cycles for High-temperature Solar Hydrogen Production**
T. KODAMA, Dept. of Chemistry & Chem. Eng., Niigata Univ., Niigata, Japan

FB-1.1:L04 **Coupling a Biomass Gasification Plant with the NIS Thermochemical Cycle for Hydrogen Production**
P.P. PROSINI, G. CAPUTO, A. GIACONIA, S. SAU, ENEA, Rome, Italy

FB-1.2 Photoelectrochemical and Photobiological H_2 Production

FB-1.2:IL01 **Development of Photocatalysts for Water Splitting Under Visible Light**
K. DOMEN, School of Engineering, The University of Tokyo, Tokyo, Japan

FB-1.2:IL02 **Defect-related Properties of Photosensitive Oxide Semiconductors for Solar Hydrogen**
S. LI, School of Materials Science & Engineering, University of New South Wales, Sydney, NSW, Australia; J. NOWOTNY, Solar Energy Technologies, University of Western Sydney, Penrith South DC NSW, Australia

FB-1.2:IL03 **Photoelectrochemistry of Complex Metal Oxides**
R. VAN DE KROL, Dept. of DelftChemTech, Delft University of Technology, Delft, The Netherlands

FB-1.2:IL04 **Hybrid Assemblies for Solar-driven Hydrogen Production**
K. BROWN, D. SVEDRUZIC, J. BLACKBURN, S. DAYAL, G. RUMBLES, M.L. GHIRARDI, **P.W. KING**, National Renewable Energy Laboratory, Golden, CO, USA; M. HEBEN, University of Toledo, Toledo, OH, USA

FB-1.2:IL05 **Bio-inspired Approaches to Solar Hydrogen Production**
D. GUST, T.A. MOORE, A.L. MOORE, Dept. of Chemistry and Biochemistry, Arizona State University, Tempe, AZ, USA

FB-1.3 H2 Production from Biomass Reforming, Electrolysis and Water-gas Shift in Advanced Coal Gasification (Joint Session with Symposium FA)

FB-1.3:IL01 **Materials Issues in High Temperature Solid-oxide Electrolyzers for Large-scale Efficient Hydrogen Production**
J. HARTVIGSEN, S. ELANGOVAN, Ceramatec, Inc., Salt Lake City, UT, USA

FB-1.3:IL02 **High Temperature Water Electrolysis Using Metal Supported Solid Oxide Electrolyzer Cells (SOEC)**
G. SCHILLER, A. ANSAR, O. PATZ, Deutsches Zentrum für Luft- und Raumfahrt (DLR), Institut für Technische Thermodynamik, Stuttgart, Germany

FB-1.3:L03 **Design and Thermal Characterisation of a Hydrogen Reactor for Low Power PEM Fuel Cell Applications**
J. KOSTKA[1], C. LIEBOLD[2], T. SMOLINKA[1], F. MERTENS[2]; [1]Fraunhofer Institute for Solar Energy Systems ISE, Freiburg, Germany; [2]Technical University Bergakademie Freiberg, Institute for Physical Chemistry, Freiberg, Germany

FB-1.3:IL04 **Catalysts and Syngas Treatment for Water-gas Shift in Advanced Coal Gasification Cycles**
D.L. KING, LIYU LI, C. VALKENBURG, Energy and Environment Directorate, Pacific Northwest National Laboratory, Richland, WA, USA

FB-1.3:IL05 **Combined Hydrogen and Power Production from Coal**
G. SPAZZAFUMO, University of Cassino, Cassino, Italy

FB-1.3:L06 **Selection of Ceramics and Composites as Materials for a Supercritical Water Gasification (SCWG) Reactor**
T. RICHARD, J. POIRIER, CEMHTI-CNRS Orleans, France; C. AYMONIER, A. SERANI, ICMCB-CNRS Bordeaux, France

Session FB-2
Hydrogen Storage

FB-2.2 Metal Hydrides

FB-2.2:IL01 **Hydrogen Storage in Metastable Lightweight Hydrides**
K. KADIR, D. MOSER, **D. NOREUS**, Structural Chemistry, Stockholm University, Stockholm, Sweden

FB-2.2:IL02 **Developments in Magnesium-based Hydrides**
J. HUOT, Hydrogen Research Institute, Université du Quebec a Trois-Rivieres, Trois-Rivieres, Quebec, Canada

FB-2.2:IL03 **Hydrogen Storage in Destabilized Borohydride Materials**
A.J. GOUDY, A. IBIKUNLE, T. DUROJAIYE, Dept. of Chemistry, Delaware State University, Dover, DE, USA

FB-2.2:IL04 **Computational Modelling of Destabilized Hydride Systems**
J.K. JOHNSON, A, KULKARNI, University of Pittsburgh, Pittsburgh, PA, USA; KI CHUL KIM, D. SHOLL, Georgia Institute of Technology, USA

FB-2.2:IL05 **Destabilization of Mg Hydrides by Mechanical Constraint**
R. GRIESSEN, A. BALDI, Y. PIVAK, Dept. of Physics and Astronomy, Condensed Matter Physics, VU University Amsterdam, Amsterdam, The Netherlands

FB-2.2:L06 **From Lab Scale Optimization of Mg-based Composites for H2 Storage to the Realization of a Portable Prototype**
C. MILANESE, A. GIRELLA, G. BRUNI, V. BERBENNI, A. MARINI, CSGI - Dept. of Physical Chemistry, University of Pavia, Pavia, Italy; P. MATTEAZZI, MBN Nanomaterialia S.p.A., Vascon di Carbonera (TV), Italy

FB-2.2:L07 **In-situ Study of the Effect of Internal Stress on the Hydriding Kinetics of Pd-based Thin Film Systems**
R. DELMELLE, S. MICHOTTE, J. PROOST, Inst. of Mechanics, Materials and Civil Eng., Université catholique de Louvain (UCL), Louvain-la-Neuve, Belgium

FB-2.2:IL08 **Size-selected Rare Earth and Palladium Nanoparticles for Hydrogen induced Switching and Sensing Devices**
B.R. MEHTA, Department of Physics, Indian Institute of Technology Delhi, New Delhi, India

FB-2.2:L09 **Effect of Nanostructuring on the Hydrogen Storage Properties of LaNi5 Systems**
B. JOSEPH[1], **B. SCHIAVO**[2, 3], G. D'ALÌ STAITI[2, 3], N.L. SAINI[1], [1]Dipartimento di Fisica, Universita' di Roma "La Sapienza", Italy; [2]Dipartimento di Fisica e Tecnologie Relative (DIFTER), Universita' di Palermo, Italy; [3]Istituto Tecnologie Avanzate (ITA), Trapani, Italy

FB-2.2:L10 **Transmission Electron Microscopy of Materials for Hydrogen Storage**
K. WANG, **L.A. BENDERSKY**, Materials Science and Engineering Laboratory, National Institute of Standards and Technology, Gaithersburg, MD, USA

FB-2.2:L12 **On the Nucleation Step in the Mg-MgH2 Phase Transformation**
A. AURORA, M. VITTORI ANTISARI, A. MONTONE, D. MIRABILE GATTIA, F. PIERDOMINICI, ENEA, Research Centre of Casaccia, Rome, Italy

FB-2.2:L13 **Ball Milling in the Mg-Ti-H System**
D.P. WESTON, G. WALKER, D. GRANT, Dept. of M3, University of Nottingham, Nottingham, UK

FB-2.2:L14 **Pellets of MgH2-based Composites as Practical Material for Solid State Hydrogen Storage**
A. KHANDELWAL, F. AGRESTI, G. CAPURSO, A. MADDALENA, **G. PRINCIPI**, Dip. Ingegneria Meccanica, Settore Materiali, Univ. Padova, Italy; S. LO RUSSO, Dip. Fisica and CNISM, Univ. Padova, Italy; S. GIALANELLA, Dip. Ingegneria dei Materiali e Tecnologie Industriali, Univ. Trento, Mesiano, Trento, Italy

FB-2.3 Complex Hydrides

FB-2.3:IL01 **Achievements and Perspectives of the US National Program on Hydrogen Storage**
N. STETSON, C. READ, G. ORDAZ, M. GARDNER, S. DILLICH, Office of Energy Efficiency and Renewable Energy, EE-2H, U.S. Department of Energy (U.S. DOE), Washington, DC, USA

FB-2.3:IL02 **Hydrogen Sorption Characteristics of Group I & II Borohydrides and Hydride Composites**
Y.-S. LEE, J.-H. SHIM, **Y.W. CHO**, Korea Institute of Science and Technology, Cheongryang, Seoul, Korea

FB-2.3:IL03 **LiBh4 - A Versatile Hydrogen Storage Compound**
W.I.F. DAVID, ISIS Facility, Rutherford Appleton Laboratory, Chilton, UK

FB-2.3:IL04 **Microwave Absorption and Lithium Super-Ionic Conduction in Lithium Borohydride LiBH4**
M. MATSUO, S. ORIMO, Institute for Materials Research, Tohoku University, Sendai, Japan

FB-2.3:IL05 **Electrochemical Formation and Regeneration of Alane**
R. ZIDAN, B.L. GARCIA-DIAZ, C.S. FEWOX, Savannah Rivers National Laboratory, Aiken, SC, USA

FB-2.3:IL06 **Hydrogen Storage Materials - Recent Development and Future Strategy of Japan**
E. AKIBA, AIST, Tsukuba, Ibaraki, Japan

FB-2.3:IL07 **Evidence for Hydrogen Transport in Deuterated LiBH4 from Low-temperature Raman-scattering Measurements and First-principles Calculations**
A. BORGSCHULTE, Laboratory 138 Hydrogen & Energy, Empa - Materials Science & Technology, Dübendorf, Switzerland

FB-2.3:IL08 **Approaches to Modify Complex Hydrides Towards Viable Onboard Hydrogen Storage**
R. MOHTADI, P.K. SIVASUBRAMANIAN, Toyota Research Institute of North America, Ann Arbor, MI, USA; T. MATSUNAGA, Toyota Motor Corporation; J. GRAY, D. KNIGHT, R. ZIDAN, Savannah River National Laboratory, USA

FB-2.3:L09 **Synthesis and Characterisation of Ca(BH4)2 for Solid State Hydrogen Storage**
C. RONGEAT, A. BORGSCHULTE, A. ZÜTTEL, L. SCHULTZ, O. GUTFLEISCH, IFW Dresden, Institute for Metallic Materials, Dresden, Germany, and EMPA, Laboratory for Hydrogen and Energy, Duebendorf, Switzerland

FB-2.3:L10 **Thermochemical Transformations in 2Li(Na)NH2-3MgH2 Systems**
O. DOLOTKO, V.K. PECHARSKY, Ames Lab., U.S. Dept. of Energy, Iowa State University, Ames, IA, USA; N. PAULSON, Olin College, Needham, MA, USA

FB-2.3:L11 **Proton Vibrations in Lithium Imide Studied Through Incoherent Inelastic Neutron Scattering**
D. COLOGNESI, ISC-CNR, Sesto Fiorentino (FI), Italy; A. PIETROPAOLO, Univ. Milano Bicocca, Dip.to di Fisica "G. Occhialini", Milano, Italy; A.J. RAMIREZ-CUESTA, STFC, Rutherford Appleton Lab., Chilton, Didcot, UK

FB-2.3:L12 **Improved Cyclability of Titanium Catalysed Multicomponent LiBH4-LiAlH4 System for Hydrogen Storage**
M. MEGGOUH, G.S. WALKER, D.M. GRANT, Engineering Faculty, University of Nottingham, Nottingham, UK

FB-2.3:L13 **Hydrogen Storage Research Activities in ENEA**
P.P. PROSINI, **P. GISLON**, M. CONTE, ENEA, Rome, Italy

FB-2.3:L14 **Low Temperature Hydrogen Release from LiBH4-based Multicomponent Systems**
WEINA YANG[1], D.M. GRANT[1], XUEBIN YU[2], G.S. WALKER[1], [1]Div. of Fuels and Power Technology, University of Nottingham, University Park, Nottingham, UK; [2]Dept. of Materials Science, Fudan University, Shanghai, China

FB-2.3:L15 **Sorption Reactions of NaBH4-MgH2 Composite**
D. POTTMAIER, S. GARRONI, A. CASTELLERO, M.D. BARO, M. BARICCO, Università di Torino, Turin, Italy; Universidad Autonoma de Barcelona, Barcelona, Spain

FB-2.3:L16 **Ternary Phase Destabilized Complex Hydrides: LiBH4:MgH2:LiAlH4**
T.E.C. PRICE, D.M. GRANT, G.S. WALKER, University of Nottingham, Division of Fuels and Power Technology, University Park, Nottingham, UK; T.C. HANSEN, Institut Laue Langevin, Grenoble, France

FB-2.3:L17 **Decomposition of Ammoniaborane (NH3BH3) at Sub-Ambient Pressures**
R. CANTELLI, P. RISPOLI, Sapienza Università di Roma, Roma, Italy; O. PALUMBO, ISC-CNR and Sapienza Università di Roma, Roma, Italy; A. PAOLONE, Lab. Regionale SuperMAT, CNR-INFM, Salerno, and Sapienza Università di Roma, Roma, Italy; T. AUTREY, PNNL, Richland, WA, USA

FB-2.4 Chemical Hydrides

FB-2.4:IL01 **Synthesis and Properties of Nanocomposites Based on Tetrahydroborates**
M. FICHTNER, Institute of Nanotechnology, Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany

FB-2.4:IL02 **Catalyzed Dehydrogenation of Amine-borane Fuel Blends**
R.T. BAKER, Dept. of Chemistry and Centre for Catalysis Research and Innovation, University of Ottawa, Ottawa, Canada

FB-2.4:IL03 **Chemical Hydrogen Storage in NHXBHX Materials**
T. AUTREY, Fundamental Sciences Directorate, Pacific Northwest National Laboratory, Richland, WA, USA

FB-2.4:L04 **The "Boron Effect" on the Dehydrogenation of Light Metal Borohydrides**
F. PENDOLINO, A. ZÜTTEL, Empa Materials Sciences and Technology, Dübendorf, Switzerland; S. GARRONI, D. BARO, Dpto de Fisica, Universitat Autonoma de Barcelona, Bellaterra, Spain; C. MILANESE, A. GIRELLA, A. MARINI, CSGI - Dept. of Physical Chemistry, University of Pavia, Pavia, Italy

FB-2.5 Carbon Based Materials

FB-2.5:IL01 **Hydrogen Storage in Nanoporous Structures**
R. CHAHINE[1], M.-A. RICHARD[1], D. MORI[2], K. HIROSE[2], [1]Institut de Recherche sur l'Hydrogene, Universite du Quebec a Trois-Rivieres, Quebec, Canada; [2]Toyota Motor Corp., Fuel Cell System Development Div., Shizuoka, Japan

FB-2.5:IL02 **Neutron Scattering Studies of Hydrogen Storage Materials**
D.K. ROSS, D.J. BULL, D. MOSER, D. ROACH, Z. MILEEVA, I. SHABALIN, W.A. OATES, Inst. for Materials Research, Univ. of Salford, Manchester, UK

FB-2.5:IL03 **Novel Catalytic Effects of Fullerene for Complex and Metal Hydrides**
M.S. WELLONS, J. TEPROVICH, R. ZIDAN, Savannah River National Laboratory, Aiken, SC, USA

FB-2.5:IL04 **High Pressure Hydrogen Storage in Zeolite Templated Carbon**
S. ITTISANRONNNACHAI, LI-XIANG LI, H. NISHIHARA, **T. KYOTANI**, Inst. for Multidisciplinary Research for Advanced Materials, Tohoku University, Sendai, Japan; M. ITO, Nissan Research Center, Nissan Motor Co. Ltd., Japan

FB-2.5:IL05 **Metal Loaded Carbons**
T. STERIOTIS, Institute of Physical Chemistry, NCSR "Demokritos", Athens, Greece

FB-2.6 Other High Surface Area Adsorbents

FB-2.6:IL01 **Metal-Organic Frameworks for Hydrogen Adsorption**
HONG-CAI ZHOU, Dept. of Chemistry, Texas A&M University, College Station, TX, USA

FB-2.6:IL02 **Investigating Hydrogen Storage Materials by In Situ Neutron Diffraction**
G.S. WALKER, Fuels and Power Technology Research Division, University of Nottingham, Nottingham, UK

FB-2.6:IL03 **Simple and Binary Hydrogen Clathrate Hydrates: Synthesis and Microscopic Characterization Through Neutron and Raman Scattering**
M. CELLI, D. COLOGNESI, A. GIANNASI, L. ULIVI, M. ZOPPI, Istituto dei Sistemi Complessi - CNR, Sesto Fiorentino (FI), Italy

FB-2.6:IL04 **Hydrogen Storage in Metal-organic Frameworks**
M. HIRSCHER, B. PANELLA, B. SCHMITZ, I. KRKLJUS, Max Planck Institute for Metals Research, Stuttgart, Germany

FB-2.6:IL05 **Spillover Mechanism in Hydrogen Storage Materials**
A. STUBOS, Institute of Nuclear Technology & Radiation Protection, NCSR "Demokritos", Athens, Greece

FB-2.6:L06 **Effect of the Pore Structure Upon Coordinatively Unsaturated Cu Centres**
I. TELEPENI, G. WALKER, Division of Fuels and Power Technology, University of Nottingham, Nottingham, UK; X. LIN, Y. YAN, M. SCHRODER, School of Chemistry, University of Nottingham, UK

FB-2.7 Theoretical Modeling

FB-2.7:IL01 **First-Principles Studies of Phase Stability and Reaction Dynamics in Complex Metal Hydrides**
MEI-YIN CHOU, School of Physics, Georgia Institute of Technology, Atlanta, GA, USA

FB-2.7:IL02 **Computational Screening and Structural Design of Complex Hydrogen Storage Materials**
T. VEGGE[1], J.S. HUMMELSHØJ[1, 2], J.B. MARONSSON[1], J.STEINAR G. MYRDAL[1, 2], [1]Risø National Lab. for Sustainable Energy, Technical University of Denmark, Roskilde, Denmark; [2]Center for Atomic-scale Design and Dept. of Physics, Technical University of Denmark, Lyngby, Denmark

FB-2.7:IL03 **Numerical Simulation of Hydrogen Dynamics at a Mg-MgH2 Interface**
S. GIUSEPPONI, **M. CELINO**, ENEA, C.R. Casaccia, Rome, Italy

FB-2.7:IL04 **Nano-materials for Hydrogen Storage**
P. JENA, Virginia Commonwealth University, Richmond, VA, USA

FB-2.7:L05 **Thermodynamic Database for Hydrogen Storage Materials**
M. BARICCO, M. PALUMBO, E. PINATEL, M. CORNO, P. UGLIENGO, Dipartimento di Chimica IFM and NIS, Università di Torino, Torino, Italy

FB-2.7:L06 **Hydrogen Storage Using Group-IV Nanomaterials**
L.C. LEW YAN VOON, E. SANDBERG, Dept. of Physics, Wright State University, Dayton, OH, USA

FB-2.8 Storage Testing, Safety and Economic Issues

FB-2.8:IL01 **Environmental Reactivity of Solid State Hydride Materials: Modeling and Testing for Air and Water Exposure**
D.L. ANTON, D.A. TAMBURELLO, J.R. GRAY, K.S. BRINKMAN, C.W. JAMES, J.A. CORTES, Savannah River National Laboratory, Aiken, SC, USA

FB-2.8:IL02 **A New Technology for Hydrogen Storage: Theory and Applications for the Transportation and Gas Industries**
D. ELIEZER, FASM C.En Ltd, Zurich, Switzerland

FB-2.8:IL03 **Hydrogen Storage in Complex Hydride Tanks: Upscaling and Testing**
J.M. BELLOSTA VON COLBE, G. LOZANO, J. JEPSEN, M. DORNHEIM, GKSS Research Center Geesthacht GmbH, Geesthacht, Germany

Poster Presentations

FB:P01 **Preparation of Metal Ion Doped Titanate Nanotube Thin Film for Hydrogen Production**
H.J. OH[1], N.H. LEE[1], X. MA[1], J.S. HWANG[2], W.J. LEE[3], S.J. KIM[1], [1]Faculty of Nanotechnology and Advanced Materials Engineering, Sejong University, Seoul, Korea; [2]Dept. of Electrical Engineering, Jeonnam Provincial College, Jeonnam, Korea; [3]Korea Electrotechnology Research Institute, Changwon, Gyeongnam, Korea

FB:P02 **Photo-electrochemical Characterization of a Miniature PEC Cell with Non-immersion Type TiO2 Photoanodes**
EUI-CHOL SHIN, YONG KIM, HYUN-HO SEO, JONG-SOOK LEE, JONG-HO KIM, DONG-RYUN CHO, Chonnam National University, Gwangju, Korea; EUN-YOUNG JUN, KYUNG-SIK OH, TAE-JOO CHUNG, Andong National University, Andong, Korea; M. LERCH, Technical University of Berlin, Berlin, Germany

FB:P04 **The Influence of Induced Near Surface Defects on Desorption Properties of MgH2**
J.D. GRBOVIC NOVAKOVIC, LJ.LJ. MATOVIC, S.V. KURKO, N.B. NOVAKOVIC, I.N. RADISAVLJEVIC, N.B. IVANOVIC, Vinca Institute of Nuclear Sciences, Belgrade, Serbia

FB:P05 **The Rate Determinig Steps of Catalyzed Mg on Hydrogen Absorption and Desorption Reactions**
T. KIMURA[1], M. TSUBOTA[2], S. ISOBE[2], S. HINO[2], T. ICHIKAWA[1, 2], Y. KOJIMA[1, 2], [1]Graduate School of Advanced Sciences of Matter, Hiroshima University, Higashi-Hiroshima, Japan; [2]Institute for Advanced Materials Research, Hiroshima University, Higashi-Hiroshima, Japan

FB:P06 **Characterization of Mg - x wt. % FeTi Composites Prepared by High Energy Ball Milling**
C. LAL, R. DHUNNA, A. JAIN, D. VYAS, I.P. Jain Centre for Non-Conventional Energy Resources, University of Rajasthan, Jaipur, India

FB:P07 **Metal Hydride-based Composite Materials with Improved Thermal Conductivity and Dimensional Stability Properties**
M. PENTIMALLI, F. PADELLA, ENEA, Casaccia Research Centre, Santa Maria di Galeria, Rome, Italy; E. IMPERI, Labor s.r.l., Rome, Italy; A. FRENI, CNR, ITAE, Messina, Italy

FB:P08 **Effects of Ti-based Additives on Hydrogen Storage Properties in a LiBH4 / CaH2 Destabilized System**
H. YANG, A. IBIKUNLE, A. GOUDY, Dept. of Chemistry, Delaware State University, Dover, DE, USA

FB:P09 **Solid State NMR Investigation of LiAl(NH2)4 on Thermal Decomposition**
T. ONO, **K. SHIMODA**, M. TSUBOTA, T. ICHIKAWA, Y. KOJIMA, Institute for Advanced Materials Research, Hiroshima University, Higashi-Hiroshima, Japan

FB:P10 **Improvement of Decomposition Properties of LiBH4 Dispersed on Multi-walled Carbon Nanotubes**
F. AGRESTI, A. KHANDELWAL, G. CAPURSO, A. MADDALENA, G. PRINCIPI, Università di Padova, Dipartimento di Ingegneria Meccanica, Settore Materiali, Padova, Italy; S. LO RUSSO, Università di Padova, Dipartimento di Fisica and CNISM, Padova, Italy

FB:P11 **Preparation of Modified Carbon Nanostructures for Hydrogen Sorption Studies**
D. MIRABILE GATTIA, M. VITTORI ANTISARI, R. MARAZZI, A. MONTONE, E. PISCOPIELLO, C. MINGAZZINI, ENEA, C.R. Casaccia, Rome, Italy

FB:P12 **Hydrogen Storage on Beryllium-Coated Toroidal Carbon Nanostructure C_{120} modeled with Density Functional Theory**
F. DE L. CASTILLO-ALVARADO[1], J. ORTÍZ-LÓPEZ[1], J.S. ARELLANO[2], A. CRUZ-TORRES[1], [1]Escuela Superior de Física y Matemáticas, Instituto Politécnico Nacional, D.F., México; [2]Universidad Autónoma Metropolitana Azcapotzalco, Dpto de Ciencias Básicas, D.F., México

FB:P13 **Hydrocarbon Gas Storage on Activated Carbon for Vehicule Uses**
S. BEN YAHIA, A. OUEDERNI, Unité de Recherche: Réacteurs Chimiques et Commande des Procédés, Ecole Nationale d'Ingénieurs de Gabès, Université de Gabès, Gabès, Tunisie

FB:P14 **High-Surface Area Carbon-Metal Oxide Composite Materials from Polymeric Precursors**
A.C.V. DE ARAÚJO, E.H.L. FALCAO, S. ALVES JR., W.M. AZEVEDO, Laboratório de Química do Estado Sólido, Dpto de Química Fundamental, Universidade Federal de Pernambuco UFPE, Recife, PE, Brazil

FB:P15 **Possible Paths Toward MgH2 Formation: Theoretical Study**
N.B. NOVAKOVIC, I.N. RADISAVLJEVIC, N.B. IVANOVIC, LJ.LJ. MATOVIC, S.V. KURKO, J.D. GRBOVIC NOVAKOVIC, Vinca Insitute of Nuclear Sciences, Belgrade, Serbia

FB:P16 **Transport Processes Study in Sodium Alanate Hydrogen Storage System During Desorption**
M. BHOURI, J. GOYETTE, Institut de Rechercher sur l'Hydrogene, Univ. du Quebec à Trois-Rivieres, Canada; B.J. HARDY, Savannah River National Laboratory, USA

FB:P17 **Innovative Systems for Hydrogen Storage**
C. GUARDAMAGNA, A. CAVALLARI, ERSE S.p.A., Milano, Italy; S. LO RUSSO, F. AGRESTI, Università di Padova, Padova, Italy; D. ANDREASI, SGS Future, Cavalese (TN), Italy; L. MAGISTRI, M. MONTEVERDE, Università di Genova, Genova, Italy; V. MALVALDI, S. SORICETTI, ENEL Ingegneria ed Innovazione S.p.A., Pisa, Italy; A. PONTAROLLO, B. MOLINAS, Venezia Tecnologie S.p.A., Venezia, Italy

SYMPOSIUM FC

FUEL CELLS: MATERIALS AND TECHNOLOGY CHALLENGES

Oral Presentations

Session FC-1
Solid Oxide Fuel Cells (SOFCs)

FC-1:IL01 **Progress Towards Redox-stable Anode-supported Solid Oxide Fuel Cells**
F. TIETZ, Forschungszentrum Jülich GmbH, IEF-1, Jülich, Germany; QIANLI MA, A. LEONIDE, E. IVERS-TIFFÉE, Karlsruhe Institute of Technology, IWE, Karlsruhe, Germany

FC-1:IL02 **Principle of Mixed Reactant Fuel Cells and Ways to Achieve the Required Catalytic Selectivity**
I. RIESS, Physics Department, Technion-IIT, Haifa, Israel

FC-1:IL03 **Direct-fueled Solid Oxide Fuel Cells Using a Multi-layered Anode with Different Porosities**
CHUNG MIN AN[1], INYONG KANG[2], **N. SAMMES**[1], [1]Dept. of Metallurgical and Materials Eng., Colorado School of Mines, Golden, CO, USA; [2]Dept. of Chemical Eng., Colorado School of Mines, Golden, CO, USA

FC-1:IL04 **Status of SOFC Cell Materials - Possibilities for Significant Improvements During the EU 7th Framework Programme**
R. STEINBERGER-WILCKENS, Forschungszentrum Jülich GmbH, Jülich, Germany

FC-1:IL05 **Metal Supported SOFC Cells, Progress and Benefits**
N. CHRISTIANSEN, Topsoe Fuel Cell A/S, Lyngby, Denmanrk

FC-1:IL06 **Chromium Deposition and Poisoning at Solid Oxide Fuel Cell Cathodes - How Much do we Know?**
SAN PING JIANG, XINGBIN CHEN, School of Mechanical and Aerospace Engineering, Nanyang Technological University, Singapore

FC-1:IL07 **Low-temperature SOFC Development**
B. RIETVELD, F. VAN BERKEL, YE ZHANG-STEENWINKEL, ECN, Petten, The Netherlands; E. BOUYER, CEA, France; J. IRVINE, University St. Andrews, UK; M. MENON, Risoe-DTU, Denmark; L. NIEWOLAK, S. GROSS, FZJ, Germany; A. HEEL, P. HOLTAPPELS, EMPA, Switzerland; S. MODENA, HTceramix, Switzerland

FC-1:IL08 **Electrochemical Processes Around three Phase Boundary Area in SOFC Electrodes**
K. EGUCHI, Kyoto University, Kyoto, Japan

FC-1:L09 **Electrochemical Characteristics of Thin Film Electrodes of SOFC Grown by PLD**
M. OTANI, S. TSUKUI, Y. UMEZAKI, T. MUKAI, Dept. of Chemical Engineering, Osaka Prefecture University, Osaka, Japan; K. YOSHIDA, Division of General Education, Tokyo Metropolitan College of Industrial Technology, Tokyo, Japan

FC-1:L10 **Long-Term Study of MIEC Cathodes for intermediate temperature Solid Oxide Fuel Cells**
C. ENDLER, A. LEONIDE, A. WEBER, E. IVERS-TIFFÉE, Inst. für Werkstoffe der Elektrotechnik, Karlsruher Institut für Technologie (KIT), Karlsruhe, Germany; F. TIETZ, Inst. of Energy Research (IEF-1), Forschungszentrum Jülich, Germany

FC-1:L11 **High Performance and Long-term Stability of Ni/GDC Based SOFC Unit Cells Operated at Low Temperature Using CH4 Fuel**
JONG-JIN LEE, HYUN JONG CHOI, HYUN JUN KO, JAE-HA MYUNG, SANG-HOON HYUN, School of Advanced Materials Science & Engineering, Yonsei University, Seoul, Korea

FC-1:IL12 **Materials Challenges for Intermediate and Elevated Temperature Fuel Cells**
L.C. DE JONGHE, Dept. of Materials Science and Engineering, University of California at Berkeley and Materials Sciences Division, Lawrence Berkeley National Laboratory, Berkeley, CA, USA

FC-1:IL13 **Feasibility of Liquid Fuels for SOFC with Ni-base Anode**
H. KISHIMOTO, K. YAMAJI, M.E. BRITO, T. HORITA, National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan; H. YOKOKAWA, AIST and Tokyo City University, Tokyo, Japan

FC-1:L14 **Fast Parallel Modeling of Fuel Cell Stacks**
A.A. KULIKOVSKY, Institute for Energy Research - Fuel Cells (IEF-3), Research Centre Jülich, Jülich, Germany

FC-1:L15 **Electrical and Dielectric Properties of Yb2O3-ZrO2 Solid Solutions**
F. KUNDRACIK, Faculty of Mathematics, Physics and Informatics, Comenius University, Bratislava, Slovakia; M. HARTMANOVÁ, M. JERGEL, Institute of Physics, Slovak Academy of Sciences, Bratislava, Slovakia; J.P. HOLGADO, Institute of Materials Science (Univ. Sevilla - C.S.I.C.), Sevilla, Spain; E.E. LOMONOVA, General Physics Institute, RAS, Moscow, Russia

FC-1:L17 **(Y0.08Sr0.92)(Ti1-xFex)O3-d Perovskite for Solid Oxide Fuel Cell Anode**
JONG SEOL YOON, MI YOUNG YOON, HAE JIN HWANG, Division of Materials Science and Engineering, Inha University, Korea; CHAN KWAK, HEE JUNG PARK, SANG MOK LEE, Samsung Electronics Co., LTD, Korea

FC-1:L18 **The Study of Oxidation Resistance of Fe-Cr-Mn-X Alloys for Interconnector of Solid Oxide Electrolyte Fuel Cell (SOFC)**
W.S. WANG, **S.S. LIAN**, C.CHEN, Dept. of Materials Science and Engineering, National Taiwan University, Taipei, Taiwan; K.C. TSAI, W.J. SHONG, R.Y LEE, Institute of Nuclear Energy Research, the Atomic Energy Council, Taiwan

FC-1:L20 **Structure and Ionic Conductivity of Apatite Type-lanthanum Silicates**
S. GUILLOT, **S. BEAUDET-SAVIGNAT**, S. LAMBERT, CEA/Le Ripault/SRCC/LCCA, Monts, France; P. ROUSSEL, R.-N. VANNIER, UCCS, UMR CNRS 8181, Villeneuve d'Ascq, France

Session FC-2
Polymer Electrolyte Fuel Cells

FC-2:IL01 **High Temperature Polymer Electrolyte Fuel Cells: Prospects and Challenges**
G. BANDLAMUDI, P. BECKHAUS, J. BURFEIND, A. HEINZEL, Centre for Fuel Cell Technology, Germany University of Duisburg-Essen, Germany

FC-2:IL02 **Status on New Materials Development for the ORR for PEM Fuel Cell Applications**
O. SAVADOGO, Laboratory of New Materials for Electrochemistry and Energy, École Polytechnique de Montréal, Montréal, Québec, Canada

FC-2:IL03 **Hierarchically-structured Electrocatalyst and Catalysts Supports for Fuel Cells**
P. ATANASSOV, Center for Emerging Energy Technologies, University of New Mexico, Albuquerque, NM, USA

FC-2:L04 **Mesoporous Tungsten Oxide with Mixed Electron and Proton Conductivity**
G. ORSINI, V. TRICOLI, Università di Pisa, Dipartimento di Ingegneria Chimica e Scienza dei Materiali, Pisa, Italy

FC-2:IL05 **PEM Fuel Cells: Progresses and Challenges**
XIANGUO LI, Dept. of Mechanical and Mechatronics Engineering, University of Waterloo, Waterloo, ON, Canada

FC-2:IL06 **Low Humidity Proton-conducting Membranes**
J. KERR, Lawrence Berkeley National Lab., Berkeley, CA, USA

FC-2:IL07 **Synthesis of Novel Metallodendrimers and Their Applications**
K. YAMAMOTO, Dept. of Chemistry, Keio University, Yokohama, Japan

FC-2:IL08 **Novel Pd-Pt Bimetallic Catalysis for Fuel Cell Applications**
YOUNAN XIA, Dept. of Biomedical Engineering, Washington University, St. Louis, MO, USA

FC-2:L09 **Impact of Carbonaceous Cathode Catalyst Support Type on its Degradation in Proton Exchange Membrane Fuel Cells (PEMFC)**
M. OUATTARA-BRIGAUDET, S. BERTHON-FABRY, C. BEAUGER, P. ACHARD, MINES Paristech, CEP, Sophia-Antipolis, France

FC-2:L10 **Pt/TiO2/C Nanocomposites for the Oxygen Reduction Reaction in PEMFC**
B. RUIZ CAMACHO, R.G. GONZÁLEZ- HUERTA, M.A. VALENZUELA, Laboratorio de Catálisis y Materiales, ESIQIE-Instituto Politécnico Nacional, México D.F.; F. POLA, M. MIKI-YOSHIDA, Centro de Investigación en Materiales Avanzados, Chihuahua, Chih., México

FC-2:L11 **Hybrid Materials for Proton Exchange Membrane Fuel Cell**
K. VALLÉ, F. RAMBAUD, F. PEREIRA, P. BELLEVILLE, CEA, DAM, Monts, France; C. LABERTY, C. SANCHEZ, Univ Paris 06, Coll France, UPMC, UMR CNRS 7574, Paris, France

FC-2:L12 **Pt-TiO2/C as a Durable Cathode-catalyst for PEFCs**
S. VINOD SELVAGANESH, G. SELVARANI, **P. SRIDHAR**, S. PITCHUMANI, CSIR-Central Electrochemical Research Institute-Madras Unit, Chennai, India; A.K. SHUKLA, Solid State and Structural Chemistry Unit, Indian Institute of Science, Bangalore, India

Session FC-3
Solid-Polymer-Electrolyte Direct Methanol Fuel Cells (SPE-DMFCs)

FC-3:IL01 **Membraneless Fuel Cells as Microscale Power Sources and Analytical Platforms**
P.J.A. KENIS, Dept. of Chemical & Biomolecular Engineering, University of Illinois, Urbana, IL, USA

FC-3:IL02 **Combinatorial Identification of PEM Fuel Cell Electrocatalysts**
R.B. VAN DOVER (Dept. of Materials Science and Engineering); H.C. ABRUNA, F.J. DISALVO (Dept. of Chemistry); J.M. GREGOIRE (Dept. of Physics), Cornell University, Ithaca, New York, USA

FC-3:L03 **Investigation of a Passive DMFC Mini-stack at Ambient Temperature**
A.S. ARICO', V. BAGLIO, A STASSI, V. ANTONUCCI, CNR-ITAE, Messina, Italy

FC-3:L04 **Novel PVA-SSA-HPA-Bridged-Mixed-Matrix-Membrane Electrolytes for DMFCs**
S.D. BHAT[1], A.K. SAHU[1], A. JALAJAKSHI[1], S. PITCHUMANI[1], P. SRIDHAR[1]; A.K. SHUKLA[2], [1]CSIR-Central Electrochemical Research Institute-Madras Unit, Chennai, India; [2]Solid State and Structural Chemistry Unit, Indian Institute of Science, Bangalore, India

FC-3:L05 **Pt alloys on Carbon Nanostructures as Electrocatalysts for Direct Methanol Fuel Cell**
L. GIORGI, **R. GIORGI**, S. GAGLIARDI, E. SALERNITANO, TH. DIKONIMOS, N. LISI, E. SERRA, ENEA Casaccia Research Center, Rome Italy; M. ALVISI, ENEA Brindisi Research Center, Brindisi, Italy

FC-3:IL06 **Tomographic Diagnostics of Electric Current Fluctuations in Fuel Cells**
H. LUSTFELD, J. HIRSCHFELD, IFF-1, Forschungszentrum Jülich; M. REIßEL, Fachhochschule Aachen, Abteilung Jülich; B. STEFFEN, JSC, Forschungs-zentrum Jülich, Jülich, Germany

FC-3:IL07 **Advanced Electrocatalysts for Direct Methanol Fuel Cells**
A.K. SHUKLA, Solid State & Structural Chemistry Unit, Indian Institute of Science, Bangalore, India; P. SRIDHAR, S. PITCHUMANI, CECRI-Madras Unit, CSIR Complex, Chennai, India

FC-3:IL08 **Small Direct Methanol Fuel Cells with Passive Supply of Reactants**
T.S. ZHAO, Dept. of Mechanical Engineering The Hong Kong University of Science and Technology, Kowloon, Hong Kong SAR, China

Session FC-4
Molten Carbonate and Alkaline Fuel Cells

FC-4:IL01 **Status and Challenges of Molten Carbonate Fuel Cells**
S.J. McPHAIL, ENEA, Rome, Italy

FC-4:IL02 **Critical Issues on MCFC Materials**
M. CASSIR, Lab. d'Electrochimie, Chimie des Interfaces et Modélisation pour l'Energie, LECIME, UMR 7575 CNRS, Chimie ParisTech, Paris, France

FC-4:IL03 **Solutions for Material Corrosion Problems in MCFC**
S. FRANGINI, A. MORENO, ENEA CRE Casaccia, Dept. TER, S. Maria di Galeria, Rome, Italy

FC-4:L04 **Unraveling Oxygen Reduction Reaction Mechanisms on Carbon Supported Fe-Phthalocyanine and Co-Phthalocyanine Catalysts in Alkaline Media**
RONGRONG CHEN[1], HAIXIA LI[1], ANDREW HSU[1], DERYN CHU[2], GUOFENG WANG[1], [1]Richard G. Lugar Center for Renewable Energy, Indiana University Purdue University-Indianapolis, IN, USA; [2]U.S. Army Research Laboratory, Adelphi, MD, USA

Session FC-5
State-of-the-art Application Engineering and Demonstrations

FC-5:IL01 **Towards Industrial Production of SOFC Stacks**
M.J. JOERGENSEN, S. PRIMDAHL, Topsoe Fuel Cell A/S, Lyngby, Denmark

FC-5:L02 **Demonstration of Polymeric Electrolyte Fuel Cell Systems for Future Power Distribution Grids**
F. SERGI, G. BRUNACCINI, G. DISPENZA, N. BRIGUGLIO, M. FERRARO, V. ANTONUCCI; Consiglio Nazionale delle Ricerche Istituto di Tecnologie Avanzate per l'Energia "Nicola Giordano" CNR-ITAE, Messina, Italy

FC-5:L03 **Diagnostics and Effective Stabilization of Currents in a Fuel Cell Stack**
J. HIRSCHFELD, Forschungszentrum Jülich, IAS-1; H. LUSTFELD, Forschungszentrum Jülich, IFF-1; M. REIßEL, Fachhochschule Aachen; B. STEFFEN, Forschungszentrum Jülich, JSC, Jülich, Germany

FC-5:L04 **Solide Oxide Fuel Cell System for Distributed Generation**
G. BRUNACCINI, G. DISPENZA, F. SERGI, M. FERRARO, A.S. ARICO', V. ANTONUCCI; Consiglio Nazionale delle Ricerche Istituto di Tecnologie Avanzate per l'Energia "Nicola Giordano" CNR-ITAE, Messina, Italy

Poster Presentations

FC:P01 **Preparation and Characterization of Zirconia-India Ceramics**
D. ZANETTI DE FLORIO, M.M.C. EDDINE, J.F.Q. REY, UFABC, Santo André, SP, Brazil; F.C. FONSECA, IPEN, São Paulo, SP, Brazil

FC:P02 **Synthesis and Characterization of LaxSr1-xFeO3 Obtained by the Sol-gel as a Cathode of IT-SOFC**
I. CASTRO-CISNEROS, P. RAMOS-ALVAREZ, C. FLORES-MORALES, J.A. CHAVEZ-CARVAYAR, Inst. de Investigaciones en Material., UNAM, D.F., Mexico

FC:P03 **Synthesis and Structural Properties of Nano-crystalline Ce1-xRxO2-d (R=Sm,Ga) Electrolyte Synthetized by the Pechini Method**
P. RAMOS-ALVAREZ, I. CASTRO-CISNEROS, C. FLORES-MORALES, J.A. CHÁVEZ-CARVAYAR, Inst. de Investigaciones en Materiales, UNAM, D.F., Mexico

FC:P04 **Synthesis and Characterization of LSCF/CGO Composite Used as SOFC Cathode Material**
JAE LAYNG PARK, TAK-HYOUNG LIM, SEUNG-BOK LEE, SEOK-JOO PARK, **RAK-HYUN SONG**, DONG-RYUL SHIN, Fuel Cell Research Center, Korea Institute of Energy Research, Daejeon, Korea

FC:P05 **Fabrication of 1.3kW Class Anode-supported Flat Tubular SOFC Stack**
TAK-HYOUNG LIM, JAE-LAYNG PARK, SEOK-JOO PARK, SEUNG-BOK LEE, RAK-HYUN SONG, DONG-RYUL SHIN, Fuel Cell Research Center, Korea Institute of Energy Research, Daejeon, Korea

FC:P06 **Exploitation of the Conductivity Anistropy in Polycrystalline Apatite-type Solid Electrolytes Lanthanum Silicates**
YONG KIM, EUI-CHOL SHIN, JIN-SUP IM, JAEKOOK KIM, JONG-SOOK LEE, Chonnam National University, Gwangju, Korea; DONG-IK KIM, Korea Institute of Science and Technology, Seoul, Korea

FC:P07 **Degradation of Promising LSCF and LSF-based Cathodes for Anode-supported Cells**
A. ARREGUI[1, 3], L.M. RODRIGUEZ-MARTINEZ[3], S. MODENA[2], M. BERTOLDI[2], J. VAN HERLE[4], V.M. SGLAVO[1], [1]DIMTI, University of Trento, Trento, Italy; [2]SOFCPOWER S.r.l., Pergine Vals (TN), Italy; [3]IKERLAN S.Coop, Mondragón, Spain; [4]Swiss Federal Institute of Technology Lausanne, EPFL, STI-ISE-LENI, Lausanne, Switzerland

FC:P08 **SrCo0.8Fe0.2O3-delta and Ba0.5Sr0.5Co0.8Fe0.2O3-delta Cathodes for LSGM Based SOFCs**
Y. EKINCI, N. SOLAK, Istanbul Technical University, Turkey; O. KARAKOC, R. DEMIRYUREK, C. ONCEL, M.A. GULGUN, Sabanci University, Turkey

FC:P09 **Synthesis of Nanosized Perovskite-structure La0.75Sr0.25Cr0.5Mn0.5O3-d (LSCM) Powders as an Electrode Material for IT-SOFC**
V.S. REDDY CHANNU, E.H. WALKER Jr., S.A. WICKER Sr, Dept. of Chemistry, Southern University and A&M College, Baton Rouge, LA, USA; Q.L. WILLIAMS, R.R. KALLURU, Dept. of Physics, Atmospheric Sciences and Geoscience, Jackson State University, Jackson, MS, USA

FC:P10 **High Temperature-FTIR Characterization of Gadolinia Doped Ceria**
A. ARABACI, Istanbul University, Dept. of Metallurgical and Materials Engineering, Avcilar, Istanbul, Turkey; N. SOLAK, Istanbul Technical University, Dept. of Metallurgical and Materials Engineering, Istanbul, Turkey

FC:P11 **Electrically Conductive CNT/PTFE Composite Film for Corrosion Resistant Coating on Bipolar Plate of Polymer Exchange Membrane Fuel Cells**
Y. SHOW, Tokai University, Hiratsuka, Kanagawa, Japan

FC:P12 **Low Pt Content Catalyst for PEM Fuel Cells Based on Water Insoluble Salts of Heteropolyacids**
S. DSOKE, P. MERINO, R. MARASSI, Dept. of Chemistry, University of Camerino, Camerino (MC), Italy; B. SCROSATI, Dept. of Chemistry, University of Rome "La Sapienza", Rome, Italy; P.J. KULESZA, A. KOLARY, A. ZUROWSKI, Dept. of Chemistry, University of Warsaw, Warsaw, Poland

FC:P13 **Sulfonation of Polyaniline to be Used in Proton Exchange Membrane Fuel Cells**
A.P. SANTIAGO DE FALCO, M.S. PINHO, Brazilian Navy Research Institute (IPqM), Ilha do Governador, Rio de Janeiro, RJ, Brazil; L.C. MENDES, Macromolecules Institute Prof. Eloisa Mano, Federal University of Rio de Janeiro (IMA/UFRJ), RJ, Brazil

FC:P14 **Facile Preparation of Carbon Supported Co-Pd Alloy and Core-Shell Nanoparticles by Ultrasound and Their Enhanced Electrocatalytic ORR Activity**
JI-HOON JANG, YOUNG-UK KWON, Dept. of Chemistry, BK-21 School of Chemical Materials Science, Sungkyunkwan University, Suwon, Rep. of Korea

FC:P15 **Electrochemical Degradation of Gas Diffusion Layers in PEM Fuel Cells**
M.J. RENNESON, J. PROOST, Université Catholique de Louvain, Division of Materials and Process Engineering, Louvain-la-Neuve, Belgium; W. FREDRIKSSON, M. ODGAARD, K. EDSTRÖM, Uppsala University, Dept. of Materials Chemistry, Uppsala, Sweden

FC:P16 **Synthesis of Pt-Mo-N Films and Their Catalytic Activity**
A. MIURA, J.M. GREGOIRE, M.E. TAGUE, R. BRUCE VAN DOVER, H.D. ABRUNA, F.J. DiSALVO, Cornell University, Ithaca, NY, USA

FC:P17 **Computational Phase Studies in the (La,Sr)(Ga,Mg)O3-d System for IT-SOFC Systems**
N. SOLAK, Istanbul Technical University, Dept. of Metallurgical & Materials Eng., Maslak, Istanbul, Turkey

FC:P18 **3D Reconstruction and Modelling of Porous Electrodes for Solid Oxide Fuel Cells (SOFC)**
J. JOOS, B. RÜGER, A. WEBER, E. IVERS-TIFFÉE, Institut für Werkstoffe der Elektrotechnik, Karlsruher Institut für Technologie (KIT), Karlsruhe, Germany; T. CARRARO, Institute of Applied Mathematics, University of Heidelberg, Heidelberg, Germany

SYMPOSIUM FD

ELECTROCHEMICAL ENERGY STORAGE SYSTEMS: THE NEXT EVOLUTION

Oral Presentations

Session FD-1
Chemical Storage

FD-1:IL01 **Advances in Lithium Lithium-Air and Lithium-Water Batteries**
S.J. VISCO, E. NIMON, L. DE JONGHE, PolyPlus Battery Company, Berkeley, CA, USA

FD-1:IL02 **Spinel Cathodes for Li-ion Cells**
JAEPHIL CHO, Ulsan National Inst. of Science & Technology, Ulsan, Korea

FD-1:IL03 **Materials for Lithium Batteries**
P.G. BRUCE, University of St Andrews, St Andrews, Scotland

FD-1:IL04 **Interfacial Phenomena in Solid-State Lithium Batteries with Sulfide Solid Electrolytes**
K. TAKADA, National Institute for Materials Science, Tsukuba, Ibaraki, Japan

FD-1:IL05 **Multinuclear Solid State NMR Studies of Li Battery Electrode Materials**
S.G. GREENBAUM, Dept. of Physics & Astronomy, Hunter College of CUNY and CUNY Graduate Center, New York, NY, USA

FD-1:IL06 **Printable Batteries for Smart Objects**
R.R. BAUMANN, Chemnitz University of Technology, Institute for Print and Media Technology, Chemnitz, Germany

FD-1:IL07 **An Approach to 12 V Lead-free Batteries Consisting of Lithium Insertion Materials for Automobile and Stationary Applications**
T. OHZUKU, Graduate School of Engineering, Osaka City University (OCU), Osaka, Japan

FD-1:IL08 **Lithium Nitrides as New Anode Materials for Lithium-ion Batteries**
D.H. GREGORY, WestCHEM, Dept. of Chemistry, University of Glasgow, Glasgow, UK

FD-1:L09 **A Safe, High-rate and High-energy Polymer Lithium-ion Battery Based on Gelled Membrane Prepared by Electrospinning**
F. CROCE[1], M.L. FOCARETE[2], J. HASSOUN[3], I. MESCHINI[1], B. SCROSATI[3], [1]Dip. di Scienze del Farmaco, Università "G.D'annunzio", Chieti, Italy; [2]Dip. di Chimica "G. Ciamician", Università di Bologna, Bologna, Italy; [3]Dip. di Chimica, Università "La Sapienza", Rome, Italy

FD-1:L10 **Study of Carbon Nanotubes for Lithium-ion Batteries Applications**
A. VARZI, C. TÄUBERT, M. WOHLFAHRT-MEHRENS, ZSW-Center for Solar Energy and Hydrogen Research, Ulm, Germany; M. KREIS, W. SCHÜTZ, FutureCarbon GmbH, Bayreuth, Germany

FD-1:IL11 **On the Road Towards 3D-integrated All-solid-state Batteries**
P.H.L. NOTTEN, Eindhoven University of Technology and Philips Research Laboratories, Eindhoven, The Netherlands

FD-1:IL12 **Materials for Aqueous Rocking-chair Batteries**
Q.T. QU[1], Y. SHI[1], S. TIAN[1], **YUPING WU**[1], R. HOLZE[2], [1]NEML, Dept. of Chemistry and Shanghai Key Lab. of Molecular Catalysis & Innovative Materials, Fudan University, Shanghai, China; [2]Technische Universität Chemnitz, Institut für Chemie, Chemnitz, Germany

FD-1:L13 **Solid State and Aqueous Li-ion Batteries with Polyanionic Electrode Active Materials**
SHIGETO OKADA, SUN IL PARK, EIJI KOBAYASHI, JUN-ICHI YAMAKI, Inst. for Materials Chemistry and Engineering, Kyushu University, Fukuoka, Japan

FD-1:L14 **Activation of Phosphate Olivines LiMPO4 (M = Fe, Mn) by Functionalized Carbon Nanotubes: Application for Cathode Materials of Li-Ion Battery**
L. KAVAN, J. Heyrovský Institute of Physical Chemistry, v.v.i., Academy of Sciences of the Czech Republic, Prague, Czech Republic

FD-1:L15 **Sago Based Gel Polymer Electrolyte for Zinc-Air Battery**
M.N. MASRI, **A.A. MOHAMAD**, School of Materials and Mineral Resources Engineering, Universiti Sains Malaysia, Nibong Tebal, Penang, Malaysia

FD-1:IL16 **Modified Graphite Anodes for Lithium-ion Batteries Optimized for Low Temperature**
R. MARASSI, F. NOBILI, S. DSOKE, M. MANCINI, M. MARINARO, S. GIULI, R. TOSSICI, Dept. of Chemistry, University of Camerino, Camerino (MC), Italy

FD-1:IL17 **Gel-polymer Composite Electrolyte for Perspective Li-metal Secondary Battery Systems**
TETSUYA OSAKA, Waseda University, Tokyo, Japan

FD-1:L18 **Ionic Liquid Electrolyte Mixtures for Low Temperature Applications**
G.B. APPETECCHI, M. MONTANINO, M. CAREWSKA, F. ALESSANDRINI, S. PASSERINI*, ENEA, IDROCOMB, Rome, Italy; *present address: Westfälische Wilhelm Universität, Institut fur Physikalische Chimie, Münster, Germany

FD-1:L19 **New Synthesis Method for Conversion Materials with High Cyclic Stability**
M. FICHTNER, W. LOHSTROH, C. WALL, **R. PRAKASH**, Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany

Session FD-2
Capacitive Storage

FD-2:IL01 **Emerging New Materials for Electrochemical Capacitors**
S.R.S. PRABAHARAN[1], T. NATHAN[1], M. CLOKE[1], P. SIMON[2], [1]Faculty of Engineering, University of Nottingham Malaysia Campus, Jalan Broga, Semenyih, Malaysia; [2]Institut Universitaire de France, Université Paul Sabatier, Toulouse III, CIRIMAT, UMR 5085, Toulouse, France

FD-2:IL02 **Graphene Supercapacitors**
W. SUGIMOTO, J. SATO, K. FUKUDA, Y. TAKASU, Shinshu University, Ueda, Nagano, Japan

FD-2:L03 **Self-assembled Synthesis of Graphene Nanosheets for Supercapacitors**
YING-FENG LEE, KUO-HSIN CHANG,CHI-CHANG HU, National Tsing-Hua University, Hsin-Chu, Taiwan

FD-2:L04 **Flexible Supercapacitors Consisting of Polyaniline and RuO2/Graphene Nanocomposite**
KUO-HSIN CHANG, Y.F. LEE, C.C. HU, P.J. HUNG, National Tsing Hua University, Hsin-Chu, Taiwan

FD-2:IL05 **3D-integrated All-solid-state Capacitors**
F. ROOZEBOOM, E. LANGEREIS, N. LEICK, M.C.M. VAN DE SANDEN, W.M.M. KESSELS, Eindhoven University of Technology, Eindhoven, The Netherlands; J. KLOOTWIJK, W. DEKKERS, Philips Research, Eindhoven, The Netherlands; E. TOIS, M. TUOMINEN, ASM Microchemistry Ltd, Helsinki, Finland; Y. LAMY, K. JINESH, W. BESLING, A. ROEST, NXP Semiconductors, Eindhoven, The Netherlands; C. BUNEL, IPDIA, Caen, France

FD-2:IL06 **Design of Nanostructured Oxides for Advanced Electrochemical Supercapacitors**
CHI-CHANG HU, KUO-HSIN CHANG, CHAO-MING HUANG, HSIN-YI GUO, JING-MEI LI, Dept. of Chemical Engineering, National Tsing Hua University, Hsin-Chu, Taiwan

FD-2:L07 **Printed Supercapacitor as Hybrid Device with Enzymatic Power Source**
J. KESKINEN, E. SIVONEN, VTT Technical Research Centre of Finland, Tampere, Finland; M. BERGELIN, J.-E. ERIKSSON, P. SJÖBERG-EEROLA, Abo Akademi, PCC/Inorganic Chemistry, Turku, Finland; M. VALKIAINEN, M. SMOLANDER, A. KOIVULA, H. BOER, VTT Technical Research Centre of Finland, VTT, Finland

FD-2:L08 **Electrochemical Deposition of Vanadium Oxides for Supercapacitors: The Key Factor of Determining the V^{5+}/V^{4+} Ratio**
JING-MEI LI, K.H. CHANG, C.C. HU, National Tsing Hua University, Hsin-Chu, Taiwan

FD-2:IL09 **Mesostructured Materials for Electrochemical Capacitors**
B. DUNN, Dept. of Materials Science and Engineering, University of California, Los Angeles, CA, USA

FD-2:IL10 **Electrode Materials for Hybrid Supercapacitors**
D. CERICOLA, **R. KÖTZ**, P. NOVAK, A. WOKAUN, General Energy Research Dept., Paul Scherrer Institut, Villigen PSI, Switzerland

FD-2:IL11 **Tailoring of Mesoporous Carbons for Advanced Electric Double Layer Capacitors**
D. JURCAKOVA, T.E. RUFFORD, Z.H. ZHU, G.Q.M. LU, University of Queensland, ARC Centre of Excellence for Functional Nanomaterials, AIBN and School of Engineering, Brisbane, QLD, Australia

FD-2:IL12 **Recent Advances in Understanding the Capacitive Storage in Microporous Carbons**
P. SIMON, Université de Toulouse, CIRIMAT UMR CNRS 5085, Toulouse, France; Y. GOGOTSI, Drexel University, Dept. of Materials Science and Engineering, Philadelphia, USA

FD-2:IL13 **Nanohybrid Capacitor: A New Hybrid Capacitor System, Triply Enhanced Energy Density by Use of nc-Li4Ti5O12/CNF**
K. NAOI, Institute of Symbiotic Science & Technology, Tokyo University of Agriculture & Technology, Tokyo, Japan

Session FD-3
Application Engineering

FD-3:IL01 **Electrochemical Storage for Multi-source Hybrid Renewable Energy Systems**
V. ANTONUCCI, M. FERRARO, G. NAPOLI, N. BRIGUGLIO, G. BRUNACCINI, F. SERGI, CNR, Istituto di Tecnologie Avanzate per l'Energia "Nicola Giordano", Messina, Italy; G. GRADITI, ENEA - Centro Ricerche Portici, Napoli, Italy

FD-3:IL02 **Energy Conservation and Management Strategies for Commercial Li-ion Batteries in Telecommunication Applications**
T. TSUJIKAWA, K. YABUTA, T. MATSUSHITA, NTT Facilities, Inc., Tokyo, Japan; M. ARAKAWA, NTT Facilities Research Institute Inc., Tokyo, Japan; K. HAYASHI, Shin-Kobe Electric Machinery Co., Ltd., Saitama, Japan

FD-3:IL03 **Real-Time Impedance Monitoring of Electrode/Electrolyte Interfaces**
SU-MOON PARK, JUNG-SUK YOO, BYOUNG-YONG CHANG, School of Energy Engineering, Ulsan National Institute of Science and Technology, Ulsan, Korea

Poster Presentations

FD:P01 **Nanostructured Anode and Cathode Materials for Li-ion Batteries**
G. FERRARA, C. ARBIZZANI, L. DAMEN, **R. INGUANTA**, S. PIAZZA, C. SUNSERI, M. MASTRAGOSTINO, Dip. di Ingegneria Chimica dei Processi e dei Materiali, Università di Palermo, Italy; Dip. di Scienza dei Metalli, Elettrochimica e Tecniche Chimiche, Università di Bologna, Bologna, Italy

FD:P02 **Validity of MgFe2O4 Normal Spinel as a Cathode Material for Rechargeable Battery**
S. MARUYAMA, Y. MIYAZAKI, T. KAJITANI, Dept. of Applied Physics, Graduate of Engineering, Tohoku University, Sendai, Japan

FD:P03 **A Molecular Dynamics Study on Pressure Dependence of Ag Diffusion in Ag3SI**
M. YARIMITSU, **M. ANIYA**, Dept. of Physics, Kumamoto University, Kumamoto, Japan

FD:P04 **A Chemical Bonding Approach to Ionic Conduction and Thermal Expansion in Oxide Ion Conductors**
S. TANIGUCHI, M. ANIYA, Dept. of Physics, Kumamoto University, Kumamoto, Japan

FD:P05 **Characterization of Silica-filled Functionalized Epoxidized Natural Rubber Based Polymer Electrolyte Systems by UV Irradiation**
R. IDRIS, A. TASNIM, Z. GHAZALI, K. MOHAMED, M.R. HAKIM, M. HARIS, Advanced Materials Centre, SIRIM BERHAD, Kulim, Kedah Darul Aman, Malaysia

FD:P06 **Synthesis of Vanadium Oxide Nanomaterias Using Polyblend as a Reducing Agent for Electrochemical Applications**
V.S. REDDY CHANNU, Dept. of Chemistry, Southern University and A&M College, Baton Rouge, LA, USA; **RAMBABU BOBBA**, Solid State Ionics Lab., Dept. of Physics, Southern University and A&M College, Baton Rouge, LA, USA; CHEN WEN, Inst. of Materials Science & Engineering, Wuhan University of Technology, Wuhan, China

FD:P07 **Synthesis of Li2Ni8O10 for Lithium Ion Rechargeable Battery Electrodes**
JINGLAN DENG, School of Science, Wuhan University of Technology, Wuhan, P.R. China; V.S. REDDY CHANNU, Dept. of Chemistry, Southern University and A&M College, Baton Rouge, LA, USA; RAMBABU BOBBA, Solid State Ionics Lab., Dept of Physics, Southern University and A&M College, Baton Rouge, LA, USA

FD:P08 **Mesoporous Carbon Nitride - Synthesis and Characterisation**
J. KUMAR[1], R. PRASAD[2], A.M. AWASTHI[1], [1]UGC-DAE Consortium for scientific research, Indore, India; [2]School of Chemistry, DAVV, Indore, India

SYMPOSIUM FE
ADVANCES IN MATERIALS AND TECHNOLOGIES FOR EFFICIENT DIRECT THERMAL-TO-ELECTRICAL ENERGY CONVERSION

Oral Presentations

Session FE-1
Theoretical Concepts and Basic Approaches

FE-1:IL01 **Thermoionic and Thermoelectric Energy Conversion**
A. SHAKOURI, Baskin School of Engineering, University of California, Santa Cruz, CA, USA

FE-1:IL02 **Band Structure Optimization and Development of Efficient Silicide Thermoelectrics**
M.I. FEDOROV, V.K. ZAITSEV, Ioffe Physical-Technical Institute of the RAS, St. Petersburg, Russia

FE-1:IL03 **Ab Initio Studies of Impurities, Defects and Defect Complexes in PbTe Based Thermoelectric Materials**
S.D. MAHANTI, Dept. of Physics and Astronomy, Michigan State University, East Lansing, MI, USA

FE-1:IL04 **Multi-layered Thermoelectric Power Generator**
R.O. SUZUKI, Dept. of Materials Science, Hokkaido University, Sapporo, Japan

FE-1:IL05 **Nanostructured Thermoelectric Materials and Their Potential Applications**
GANG CHEN, M.S. DRESSELHAUS, Massachusetts Institute of Technology, Cambridge, MA, USA; Z.F. REN, Boston College, Chestnut Hill, MA, USA

FE-1:IL06 **Thermoelectric Energy Conversion Near Carnot Efficiency**
H. LINKE, The Nanometer Structure Consortium and Division of Solid State Physics, Lund University, Lund, Sweden

FE-1:IL07 **Theory of Nanostructured Thermoelectrics**
G.D. MAHAN, Penn State University, University Park, PA, USA

FE-1:IL08 **Large Thermopower Driven by "Pudding-mold"-type Bands**
K. KUROKI, Dept. of Applied Physics and Chemistry, The University of Electro-Communications, Tokyo, Japan

FE-1:IL09 **Zintl Chemistry for Designing High Efficiency Thermoelectric Materials**
G.J. SNYDER, California Institute of Technology, Pasadena, CA, USA

FE-1:IL10 **Strategy for Thermoelectric Application**
R. FUNAHASHI, S. URATA, Y. MATSUMURA, K. IWASAKI, A. KOSUGA, National Institute of Advanced Industrial Science and Technology, Ikeda, Osaka, Japan; T. URATA, CREST, Japan Science and Technology Agency, Chiyoda, Tokyo, Japan

FE-1:L11 **Development of Nanocrystalline Thermoelectric Films of p-type Bi2Te3 Based Compound**
S. JARBY, R. BAR, V. EZERSKY, V. KASIYAN, **Z. DASHEVSKY**, Dept. of Materials Engineering, Ben-Gurion University of the Negev, Beer-Sheva, Israel

FE-1:L12 **Thermoelectric Iron Oxides**
T. KAJITANI, T. NOZAKI, K. HAYASHI, Dept. of Applied Physics, Graduate School of Engineering, Tohoku University, Sendai, Japan

FE-1:L13 **Macro to Micro Derivation of the Thermoelectric Thermodynamics**
Y. APERTET[1], **C. GOUPIL**[2], P. LECOEUR[1], [1]Inst. d'Electronique Fondamentale Bat. 220, Université Paris Sud, Orsay, France; [2]CRISMAT CNRT, Caen, France

FE-1:L14 **Theoretical Performance Characteristics of Wearable Thermoelectric Generators**
V. LEONOV, IMEC, Leuven, Belgium

Session FE-2
New and Improved Materials and Low Dimensionality Structures

FE-2:IL01 **Materials and Devices for Thermal-to-Electric Energy Conversion**
K. KOUMOTO, Nagoya University, Graduate School of Engineering, Nagoya, Japan, CREST, Japan Science and Technology Agency, Tokyo, Japan

FE-2:IL02 **Thermoelectric Perspectives of Transition Metal Oxides**
J. HEJTMANEK, Z. JIRAK, K. KNIZEK, Institute of Physics of ASCR, v.v.i, Praha, Czech Republic; P. TOMES, A. WEIDENKAFF, Solid State Chemistry and Catalysis, Empa, Duebendorf, Switzerland; C. MARTIN, CRISMAT, ENSICAEN, CNRS-UMR6508, Caen Cedex, France

FE-2:L03 **Search for n-type Thermoelectric Oxides: the Case of the Hollandite**
A. MAIGNAN, C. MARTIN, S. HÉBERT, E. GUILMEAU, Laboratoire CRISMAT, UMR 6508 CNRS ENSICAEN, Caen, France

FE-2:L04 **Effect of Co-substitution on the Structure and Thermoelectric Properties of Chimney-ladder Solid Solution (Mn1-xCox)Siy (y~1.7)**
Y. MIYAZAKI, Y. SAITO, K. HAYASHI, K. YUBUTA, T. KAJITANI, Dept. of Applied Physics, Tohoku University, Sendai, Japan; Institute for Materials Research, Tohoku University, Katahira, Sendai, Japan

FE-2:IL05 **Recent Advances in High Temperature Thermoelectric Generating Technology**
J.-P. FLEURIAL, T. CAILLAT, E. BRANDON, J. PAK, V. RAVI, P. GOGNA, Jet Propulsion Laboratory/California Institute of Technology, Pasadena, CA, USA

FE-2:IL06 **Clathrates: A Challenge for Thermoelectricity?**
P.F. ROGL, Institute of Physical Chemistry, University of Vienna, Vienna, Austria

FE-2:L07 **Effect of Annealing on High Temperature Thermoelectric Performance of ZrNiSn Half-Heusler Compounds**
PENGFEI QIU, JIONG YANG, XIANGYANG HUANG, LIDONG CHEN, CAS Key Lab. of Materials for Energy Conversion, Shanghai Institute of Ceramics, CAS, Shanghai, P.R. China

FE-2:L08 **Non-contact Optical Method for Measuring Thin Film Lattice Temperatures**
P.J. McCANN, L. OLONA, J.D. JEFFERS, J. GREGO, ZHIHUA CAI, School of Electrical and Computer Eng., Univ. of Oklahoma, Norman, OK, USA; ZHIXI BIAN, Baskin School of Eng., Univ. of California, Santa Cruz, CA, USA

FE-2:IL09 **Thermoelectric Properties of Cobalt Oxides Improved by Spin State Control**
I. TERASAKI, Dept. of Applied Physics, Waseda University, Tokyo, Japan

FE-2:IL10 **Layered Thermoelectric Oxides**
S. HEBERT, D. PELLOQUIN, O. PÉREZ, W. KOBAYASHI, A. MAIGNAN, Laboratoire CRISMAT, Caen, France

FE-2:L11 **Epitaxial Growth of Nanostructured Bismuth Films on Si Through a Chemical Solution Route**
ZHENGLIANG SUN, SHENGCONG LIUFU, QIN YAO, LIDONG CHEN, CAS Key Lab. of Materials for Energy Conversion, Shanghai Institute of Ceramics, CAS, Shanghai, P.R. China

FE-2:L12 **Electrical and Thermal Transport Properties of ZnO Thermoelectric Oxide Doped with Al and Ga**
M. OHTAKI, K. YAMAMOTO, Interdisciplinary Graduate School of Engineering Sciences, Kyushu University, Fukuoka, Japan

FE-2:IL13 **Synthesis, Structure and Thermoelectric Properties of Complex Rare Earth Antimonides**
A. CHAMOIRE, J.C. TEDENAC, Institut Charles Gerhardt Montpellier, Equipe PMOF, UMR 5253, Univ. Montpellier II, Montpellier, France; C. ESTOURNÈS, CIRIMAT, PNF2 MHT, Univ. Paul Sabatier, Toulouse, France; T. CAILLAT, Jet Propulsion Lab., Caltech, Pasadena, CA, USA; **F. GASCOIN**, ENSICAEN CNRS, UMR 6508, Lab. CRISMAT, Caen, France

FE-2:IL14 **Functions of Key Structural Unit and Performance Optimization in Novel Thermoelectric Compounds**
L.D. CHEN, W. ZHANG, J.H. YANG, X. SHI, X.Y.SHI, J. YANG, X.H. CHEN, X.Y. HUANG, Shanghai Institute of Ceramics, CAS, Shanghai, China

FE-2:L15 **Effect of Strontium and Europium Substitutions on Thermoelectric Properties in Silicon-Based Clathrate Compounds**
H. ANNO*, T. NAKABAYASHI, M. HOKAZONO, Tokyo University of Science, Yamaguchi, Sanyo Onoda, Japan; *JST, CREST, Tokyo, Japan

FE-2:L16 **Thermal Expansion of Clathrate Compounds Ba8Mx{Si,Ge}46-x (M = Cu, Zn, Pd, Ag, Cd, Pt, Au)**
M. FALMBIGL, P.F. ROGL, Institute of Physical Chemistry, University of Vienna, Wien, Austria; M. KRIEGISCH, H. MÜLLER, E. BAUER, S. PASCHEN; Inst. of Solid State Physics, Vienna University of Technology, Wien, Austria

FE-2:IL17 **High Temperature Thermoelectric Properties of a Homologous Series of n-type Boron Icosahedra Compounds: a Possible Counterpart to p-type Boron Carbide**
TAKAO MORI, International Center for Materials Nanoarchitectonics (MANA), National Institute for Materials Science (NIMS), Tsukuba, Japan

FE-2:IL18 **Synthesis, Structural and Chemical Characterizations, and Transport Properties of $Mo_{3-x}Ru_xSb_{7-y}Te_y$**
C. CANDOLFI, B. LENOIR, J. LESZCZYNSKI, P. MASSCHELEIN, C. CHUBILLEAU, A. DAUSCHER, Institut Jean Lamour, CNRS-Nancy Université-UPVM, ENSMN, Nancy, France; E. GUILMEAU, CRISMAT-ENSICAEN, CNRS/UMR 6508, Caen, France; J. HEJTMANEK, Institute of Physics, Academy of Sciences of the Czech Republic, Praha, Czech Republic; J. TOBOLA, Faculty of Physics and Applied Computer Science, AGH University of Science and Technology, Krakow, Poland; S.J. CLARKE, Dept. of Chemistry, University of Oxford, Inorganic Chemistry Lab., Oxford, UK; R.I. SMITH, ISIS Facility, Rutherford Appleton Lab., Chilton, Didcot, Oxon, UK

FE-2:L19 **Tuning of Thermoelectric Properties in Double Doped Skutterudites from Electronic Structure Calculations**
J. TOBOLA[1], J. LESZCZYNSKI[2], K. KUTORASINSKI[1], A. DAUSCHER[2], B. LENOIR[2], [1]Faculty of Physics and Applied Computer Science, AGH University of Science and Technology, Krakow, Poland; [2]Institut Jean Lamour, UMR CNRS-Nancy Université-UPVM 7198, ENSMN, Nancy, France

FE-2:L20 **Thermoelectric Properties of the Heavy Element Doped Heusler Fe2VAl Alloy Prepared by Powder Metallurgy Technique**
M. MIKAMI, K. KOBAYASHI, National Institute of Advanced Industrial Science and Technology, Nagoya, Japan; S. TANAKA, Dept. of Environmental and Materials Engineering, Nagoya Institute of Technology, Nagoya, Japan

FE-2:IL21 **Misfit Layered Compounds - Nanocomposite Thermoelectric Materials**
D.C. JOHNSON, C. HEIDEMAN, QIYIN LIN, M. SMELLER, Dept. of Chemistry and Materials Science Institute, University of Oregon, Eugene, OR, USA

FE-2:IL22 **Recent Advances in In2O3 Based Thermoelectrics**
E. GUILMEAU, T. ZHOU, S. BHAME, A. MAIGNAN, B. RAVEAU, Laboratoire CRISMAT, UMR 6508 CNRS-ENSICAEN, Caen, France

FE-2:L23 **Thermoelectric Generating Properties of Perovskite Like Materials**
H. KOHRI, Kogakuin University, Hachioji, Tokyo, Japan; M. KATO, I.J. OHSUGI, I. SHIOTA, Salesian Polytechnic, Machida, Tokyo, Japan

FE-2:L24 **Thermoelectric Properties of Spark Plasma Sintered (SPS) Fully Dense Silicon Carbide Nanoensembles**
D.M. GRUEN, P. BRUNO, Materials Science Division, Argonne National Laboratory; J. ROUTBORT, D. SINGH, Energy System Division, Argonne National Laboratory, Argonne, IL, USA

FE-2:L25 **Enhanced Thermoelectric Performance of Carbon Nanotube/Polyaniline Composites**
QIN YAO, LIDONG CHEN, WENQING ZHANG, SHENGCONG LIUFU, XIHONG CHEN, ZHENGLIANG SUN, Shanghai Institute of Ceramics, Chinese Academy of Science, Shanghai, China

FE-2:IL26 **High Figure of Merit Superlattice Thermoelectric Materials and Devices**
R. VENKATASUBRAMANIAN, G. BULMAN, P. BARLETTA, J. STUART, T. COLPITTS, RTI International, Research Triangle Park, NC, USA.

FE-2:IL27 **Rapid Solidification Methods for Fabrication of Novel Thermoelectric Materials**
XINFENG TANG[1], HAN LI[1], WENJIE XIE[1, 3], YONGGAO YAN[1], QINGJIE ZHANG[1], C. UHER[2], T.M. TRITT[3], [1]State Key Lab. of Advanced Technology for Materials Synthesis and Processing, Wuhan University of Technology, Wuhan, P.R. China; [2]Dept. of Physics, University of Michigan, Ann Arbor, MI, USA; [3]Dept. of Physics and Astronomy, Clemson University, Clemson, SC, USA

FE-2:L28 **Thermal Expansion and Mechanical Properties of Skutterudites**
G. ROGL[1, 2, 3, 4], L. ZHANG[1, 2, 4], P. ROGL[1], A. GRYTSIV[1], D. RAJS[2], M. KRIEGISCH[2], H. MÜLLER[2], E. BAUER[2], S. PUCHEGGER[3], J. KOPPENSTEINER[3], W. SCHRANZ[3], M. ZEHETBAUER[4], [1]Institute of Physical Chemistry, University of Vienna, Wien, Austria; [2]Institute of Solid State Physics, TU-Wien, Wien, Austria; [3]Nonlinear Physics Group, University of Vienna, Wien, Austria; [4]Group Physics of Nanostructured Materials, University of Vienna, Wien, Austria

FE-2:L29 **Size Quantization in Lead Selenide 2D - Nanostructures**
E.I. ROGACHEVA, O.N. NASHCHEKINA, S.I. OL'KHOVSKAYA, A.Y. SIPATOV, A.G. FEDOROV, M.S. DRESSELHAUS, National Technical University "Kharkov Polytechnic Institute", Kharkov, Ukraine

FE-2:L30 **Low-temperature Properties of Layered g-CaxCoO2 Compound**
JINFENG LIU, **XIANGYANG HUANG**, LIDONG CHEN, Shanghai Institute of Ceramics, CAS, Shanghai, China

Session FE-3
Progress in Devices and Applications

FE-3:IL01 **Solar Thermoelectric Generation**
R.J. RAM, Reja Amatya Research Lab. of Electronics, Massachusetts Institute of Technology, Cambridge, MA, USA

FE-3:IL02 **Thermoelectric Application for Power Generation in Japan**
T. KAJIKAWA, Shonan Institute of Technology, Fujisawa, Kanagawa, Japan

FE-3:L03 **The Preparation of Thermoelectric Active Tapes and Layers from Slurries**
F. SCHEFFLER, M. SCHEFFLER, Otto-von-Guericke-University, Magdeburg, Germany

FE-3:L04 **Modular Combustor-radiator for Micro-TPV System Application**
S.K. CHOU, W.M. YANG, J.LI, Dept. of Mechanical Engineering, National University of Singapore, Singapore

FE-3:L05 **Vehicular Thermoelectric and Air Conditioner/Heater Development**
J. FAIRBANKS, US Dept. of Energy, Washington, DC, USA

FE-3:IL06 **Micro Peltier Devices for Cooling and for Power Generation**
H. BÖTTNER, Fraunhofer-Institute Physical Measurement Techniques IPM, Dept. for Thermoelectric Systems, Freiburg, Germany

FE-3:IL07 **Automotive Applications of Thermoelectricity**
JIHUI YANG, GM R&D Center, Warren, MI, USA

FE-3:L08 **Development of Thermoelectric Modules Based on Bulk Oxide Materials**
P. MELE, K. MATSUMOTO, K. MIYAZAKI, H. YASUMUNE, M. NAGATA, Dept. of Materials Science and Engineering, Kyushu Institute of Technology (KIT), Kitakyushu, Japan and Fukuoka Industry, Science and Technology Foundation (IST), System LSI Division, Fukuoka, Japan

FE-3:L09 **Design and Fabrication of Filled Skutterudite Device**
XIAOYA LI, JINGCHENG LIAO, YUNSHAN TANG, XUGUI XIA, XIANGYANG HUANG, LIDONG CHEN, Shanghai Institute of Ceramics, Chinese Academy of Science, Shanghai, China

FE-3:L10 **Recovery of Waste Heat from the Exhaust of Small Automotive Engines**
K.T. WOJCIECHOWSKI, M. SCHMIDT, R. ZYBALA, J. MERKISZ, P. FUC, P. LIJEWSKI, Dept. of Inorganic Chemistry, AGH University of Science and Technology, Cracow, Poland

Poster Presentations

FE:P01 **Theoretical Study and Design for High Thermoelectric Properties for AgxTeyTlz Compound with First Principle Band Calculation**
H. FUNASHIMA, N. HAMADA, Dept. of Physics, Tokyo University of Science, Noda, Japan

FE:P02 **Preparation of Multiphase Composites Including Sr, Ti and Nb Oxides, and Their Thermoelectric Properties**
K. FUDA, T. SHOJI, Dept. of Applied Chemistry for Environments, Akita Univ., Akita, Japan; S. SUGIYAMA, Akita pref. Ind. Tech. Center, Akita, Japan

FE:P03 **Improved Thermoelectrics Based on Bismuth and Antimony Chalcogenides for Temperatures Below 240 K**
L.N. LUKYANOVA, V.A. KUTASOV, P.P. KONSTANTINOV, V.V. POPOV, Ioffe Physical-Technical Institute of the RAS, Lab. for Physics of Thermoelements, St. Petersburg, Russian Federation

FE:P04 **Characterization and Properties of Nano-crystalline Mg2Si Prepared by the Ball Milling Process**
M. IOANNOU[1], E. HATZIKRANIOTIS[2], K.M. PARASKEVOPOULOS[2], **TH. KYRATSI**[1], [1]Dept. of Mechanical and Manufacturing Eng., University of Cyprus, Nicosia, Cyprus; [2]Dept. of Physics, Aristotle University of Thessaloniki, Thessaloniki, Greece

FE:P05 **The Resonant States of Tin in Bi2Te3 - based Compounds**
M.K. ZHITINSKAYA, S.A. NEMOV, St. Petersburg State Polytech. Univ., St. Petersburg, Russia, T.E. SVECHNIKOVA, Moscow, Baikov Institute Metallurgy and Materials Sciences, RAS, Russia

FE:P06 **Heat Treatment on Ball-Milled K2Bi8Se13 Thermoelectric Materials**
M. IOANNOU[1], E. HATZIKRANIOTIS[2], K. CHRISSAFIS[2]), D.Y. CHUNG[3], K.M. PARASKEVOPOULOS[2], TH. KYRATSI[1], [1]Dept. of Mechanical and Manufacturing Engineering, University of Cyprus, Nicosia, Cyprus; [2]Dept. of Physics, Aristotle University of Thessaloniki, Thessaloniki, Greece; [3]Materials Science Division, Argonne National Laboratory, Argonne, IL, USA

FE:P07 **PbTe-Sb2Te3 Nanocomposites Prepared by Mechanical Alloying: Microstructure and Thermoelectric Properties**
CH. PAPAGEORGIOU, J. GIAPINTZAKIS, TH. KYRATSI, Dept. of Mechanical and Manufacturing Engineering, University of Cyprus, Nicosia, Cyprus

FE:P08 **Mg2Si Thin Film Preparation for Thermoelectric Applications**
M. ANGELAKERIS[1], **E. HATZIKRANIOTIS**[1], TH. KYRATSI[2], K.M. PARASKEVOPOULOS[1], [1]Dept. of Physics, Aristotle University of Thessaloniki, Thessaloniki, Greece; [2]Dept. of Mechanical and Manufacturing Engineering, University of Cyprus, Nicosia, Cyprus

FE:P09 **Raman Spectroscopy Study on Na2/3Mn1-xFexO2 Oxides**
M. SENDOVA-VASSILEVA[1], R. STOYANOVA[2, 3], D. CARLIER[3], M. YONCHEVA[2], E. ZHECHEVA[2], C. DELMAS[3]; [1]Central Lab. of Solar Energy and New Energy Sources, Bulgarian Academy of Sciences, Sofia, Bulgaria; [2]Institute of General and Inorganic Chemistry, Bulgarian Academy of Sciences, Sofia, Bulgaria; [3]Institut de Chimie de la Matiere Condensee de Bordeaux, ICMCB-CNRS and ENSCPB Universite Bordeaux I, Pessac, France

SYMPOSIUM FF
MATERIALS CHALLENGES FOR FUTURE NUCLEAR FISSION AND FUSION TECHNOLOGIES

Oral Presentations

Keynote Lecture

FF:KL **Crosscutting Materials Issues for Next-generation Fission and Fusion Energy Systems**
S.J. ZINKLE, Materials Science and Technology Division, Oak Ridge National Laboratory, Oak Ridge, TN, USA

Session FF-1
Structural Components for Fission and Fusion Applications

FF-1:IL01 **Material Development for GFR Core Components**
M. LE FLEM, L. CHAFFRON, J.L. SERAN, CEA Saclay, DEN/DMN, Gif-sur-Yvette, France

FF-1:IL02 **Structural Materials Development and Characterisation for Innovative Reactor and Transmutation Systems: The EU Project GETMAT**
C. FAZIO, M. RIETH, Karlsruhe Institute of Technology, KIT, Eggenstein-Leopoldshafen, Germany; P. AALTONEN, Technical Research Centre of Finland, VTT, Finland; L.G. BRICENO, Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas, CIEMAT, Spain; A. GESSI, ENEA, Italy; J. HENRY, Commissariat a l'Énergie Atomique, CEA, France; W. HOFFELNER, Paul Scherrer Institute, PSI, Switzerland; L. MALERBA, J. VAN DEN BOSCH, Centre D'Étude de L'Énergie Nucléaire, SCK-CEN, Belgium

FF-1:IL03 **Atomic Scale Modeling of Fe Alloys**
A. CARO, Lawrence Livermore National Laboratory, Livermore, CA, USA

FF-1:IL04 **Tungsten as a Structural Divertor Material**
M. RIETH, E. MATERNA-MORRIS, M. ROHDE, Forschungszentrum Karlsruhe, Institut für Materialforschung I, Karlsruhe, Germany; A. HOFFMANN, PLANSEE Metall GmbH, Development Refractory Alloys, Reutte, Austria

FF-1:L05 **Development of Structural Materials for a High Temperature Gas Cooled Reactor in KAERI**
JI YEON PARK, DONG JIN KIM, DAE HWAN KIM, WOO GON KIM, SUNG HO KIM, CHOONG HWAN JUNG, SE HWAN CHI, Korea Atomic Energy Research Institute, Daejeon, Korea

FF-1:L06 **Thermomechanical Behavior of Silicon Carbide**
M. DENITIU, M. LE FLEM, CEA Saclay, DEN/DMN/SRMA/LA2M, Gif-sur-Yvette, France; M. BOUSSUGE, Centre des Matériaux, Ecole Nationale Superieure des Mines de Paris ParisTech, France

FF-1:L07 **Behaviors of SiC Fibers up to High Temperature**
C. COLIN, V. FALANGA, M. MAXEL, K. SHIMODA, D. GOSSET, CEA, DEN, DMN, SRMA, CEA-Saclay, Gif-sur-Yvette, France; C. CABET, CEA, DEN, DPC, SCCME, CEA-Saclay, Gif-sur-Yvette, France

Session FF-2
Low Activation Structural Materials for Nuclear Fusion Systems

FF-2:IL01 **RAFM Steel Materials for DEMO: Properties After Irradiation**
A. MÖSLANG, Karlsruhe Institute of Technology (KIT), Institute of Materials Research I (IMF1), Eggenstein-Leopoldshafen, Germany

FF-2:IL02 **Super ODS Steels R&D for Cladding Material of Next Generation Nuclear Systems**
A. KIMURA[1], R. KASADA[1], N. IWATA[1], J. ISSELIN[1], P. DOU[1], J.H. LEE[1], T. OKUDA[2], M. INOUE[3], S. UKAI[4], S. OHNUKI[4], T. FUJISAWA[5], F. ABE[6], [1]Institute of Advanced Energy, Kyoto University, Kyoto; [2]KOBELCO Research Institute, Kobe; [3]Japan Atomic Energy Agency, Oarai, Ibaraki; [4]Hokkaido University, Sapporo; [5]Nagoya University, Nagoya; [6]National Institute of Materials Science, Tsukuba, Japan

FF-2:IL03 **Development of Nanostructured Ferritic Alloys**
D. HOELZER, J. BENTLEY, M.K. MILLER, M.A. SOKOLOV, Oak Ridge National Laboratory, Oak Ridge, TN, USA; M. LI, Argonne National Laboratory, Argonne, IL, USA

FF-2:IL04 **Metallic and Ceramic Low Activation Structural Materials For In-vessel Components of Future Fusion Reactors**
M. RUBEL, Alfvén Laboratory, Royal Institute of Technology, Association Euratom - VR, Stockholm, Sweden; J. LINKE, Institute of Energy Research, Forschungszentrum Jülich, Association Euratom, Jülich, Germany; M. RIETH, Forschungszentrum Karlsruhe, Association Euratom - FZK, Karlsruhe, Germany

FF-2:IL05 **Ceramic Composites for Fission and Fusion Applications**
Y. KATOH, Materials Science and Technology Division, Oak Ridge National Laboratory, Oak Ridge, TN, USA

FF-2:IL06 **Development of Low Activation Vanadium-based Alloys for Nuclear Fusion Applications**
T. MUROGA, National Institute for Fusion Science, Oroshi, Toki, Gifu, Japan

FF-2:IL07 **SiCf/SiC Composites Irradiation Behaviour in Fusion Reactor Environment Conditions**
JI-JUNG KAI, Center for Energy and Environmental Research, Dept. of Eng. and System Science, National Tsing Hua University, Hsinchu, Taiwan, R.O.C.

FF-2:L08 **Thermo-mechanical and Electrical Behaviours of Ion-irradiated SiC Fibers for Nuclear Applications**
K. SHIMODA, C. COLIN, DEN/DANS/DMN/SRMA, CEA-Saclay, Gif-sur-Yvette, France

FF-2:L09 **Experimental Development at a Pilot Plant Scale of a Reduced Activation Ferritic/Martensitic RAFM Steel**
A. MORÁN, J. BELZUNCE, J.M. ARTÍMEZ, Fundación ITMA Parque Empresarial Principado de Asturias, Avilés, Asturias, Spain

FF-2:L10 **Corrosion Analysis of the Candidate Structural Materials for Fusion Reactor in DRAGON Series LiPb Loops and Static Capsules**
Q.Y. HUANG, Z.Q. ZHU, S. GAO, Y.P. CHEN, X.Z. LING, Y.L. CHEN, Y.C. WU, FDS Team, Institute of Plasma Physics, Chinese Academy of Science, Hefei, Anhui, China

Session FF-3
Materials for First Wall Components of Nuclear Fusion Systems

FF-3:IL01 **Plasma Facing Component Challenges in Magnetic Fusion Energy**
D.G. WHYTE, MIT Plasma Science & Fusion Center, Cambridge, MA, USA

FF-3:IL02 **Radiation Effects on First Wall Components for Fusion Power Reactors**
N. BALUC, EPFL, Centre de Recherche en Physique des Plasmas, Association Euratom-Confédération Suisse, Switzerland

FF-3:IL03 **Plasma-materials Interactions in Fusion Devices**
E. TSITRONE, CEA, IRFM, Saint-Paul-lez-Durance, France

FF-3:IL04 **Status of Silicon Carbide Composites for Fusion First Wall Applications**
L.L. SNEAD, Y. KATOH, Oak Ridge National Laboratory, Oak Ridge, TN, USA

FF-3:IL05 **Effect of Plasma-facing Materials on the Tritium Inventory in Fusion Devices**
J. ROTH, K. SCHMID, CH. LINSMEIER, Max-Planck-Institut für Plasmaphysik, EURATOM Association, Garching b. München, Germany

FF-3:IL06 **Materials Challenges for Plasma-facing Materials in Future Fusion Reactors**
H. BOLT, J.LINKE, Forschungszentrum Juelich, Juelich, Germany; Ch. LINSMEIER, Max Planck Institute for Plasma Physics, Garching, Germany

FF-3:L07 **Fabrication and Characterization of Magnetron Sputtered Tungsten/EUROFER 97 Coatings**
T. WEBER[1], M. STÜBER[2], S. ULRICH[2], J. AKTAA[1], [1]Karlsruhe Institute of Technology, Inst. for Materials Research II, Eggenstein-Leopoldshafen, Germany; [2]Karlsruhe Institute of Technology, Inst. for Materials Research I, Eggenstein-Leopoldshafen, Germany

Session FF-4
Functional Materials

FF-4:IL01 **Materials Challenges for the Next Generation Nuclear Plant Very High Temperature Reactor**
R.E. MIZIA, Idaho National Laboratory, Idaho Falls, ID, USA

FF-4:IL02 **Study of Radioluminescence on Functional Ceramics for Nuclear Fusion Application**
T. SHIKAMA, S. NAGATA, H. KATSUI, B. TSUCHIYA, Institute for Materials Research, Tohoku University, Sendai, Japan

FF-4:IL03 **Performance Assessment of Ceramic Breeder Materials and Their Testing**
J.G. VAN DER LAAN, Nuclear Research & Consultancy Group, Petten, The Netherlands

FF-4:IL04 **Utilization of Hybride Materials in Nuclear Reactors**
K. KONASHI, M. YAMAWAKI, Institute for Materials Research, Tohoku University, Ibaraki, Japan; Dept. of Energy, Tokai University, Kanagawa, Japan

Session FF-5
Nuclear Fuel Materials

FF-5:IL01 **Modelling Integral Fuel Behaviour - An Overview of Recent Developments and Future Requirements**
P. VAN UFFELEN, A. SCHUBERT, J. VAN DE LAAR, EC, JRC, Institute for Transuranium Elements, Eggenstein-Leopoldshafen, Germany

FF-5:IL02 **From High Enriched to Low Enriched Uranium Fuel in Research Reactors**
L. SANNEN, S. VAN DEN BERGHE, A. LEENAERS, SCK.CEN, NMS(LHMA), Mol, Belgium

FF-5:L03 **Preparation and Characterisation of UyAm1-yO2-x for Transmutation in Fast Neutrons Reactor**
D. PRIEUR, A. JANKOWIAK, C. LEORIER, N. HERLET, CEA/DEN/DTEC/SDTC/LEMA, Bagnols-sur-Ceze, France; L. DONNET, P. DEHAUDT, CEA/DEN/DTEC/SDTC/DIR; C. MAILLARD, CEA/DEN/DRCP/SE2A/LEHA; J-P. LAVAL, SPCTS Université de Limoges; P. BLANCHART, GEMH ENSCI, Université de Limoges, France

FF-5:L05 **Simulation and Modelling the Heterogeneous Effects of the Microstructure MOX Fuels on their Effective Properties in Nominal Pressure Water Reactor Conditions**
R. LARGENTON[1], V. BLANC[2], P. THEVENIN[1], D. BARON[1], [1]EDF R&D, MMC/CPCM, Site des Renardieres, Moret Sur Loing, France; [2]CEA Cadarache DEN/CAD/SESC/LSC, St Paul lez Durance, France

FF-5:IL06 **Fabrication of Fuel and Recycling of Minor Actinides in Fast Reactors**
J. SOMERS, JRC-ITU, Karlsruhe, Germany

FF-5:IL07 **Metallic Liners for SiCf/SiC Fuel Cladding**
F. AUDUBERT, CEA, DEN, DEC, SPUA, Cadarache, St Paul lez Durance, France; J. ROGER, CEA, LCTS, France; Y. LE PETITCORPS, Université de Bordeaux, LCTS, France

FF-5:IL08 **Advanced Measurement Techniques for Highly Radioactive Materials**
J.R. KENNEDY, M.K. FIG, J.I. COLE, D.E. JANNEY, Idaho National Laboratory, Idaho Falls, ID, USA

Session FF-6
Radiation Effects

FF-6:IL01 **Computer Simulation of Primary Radiation Damage**
K. NORDLUND, Dept. of Physics, University of Helsinki, Helsinki, Finland

FF-6:IL02 **Radiation-induced Segregation in Austenitic and Ferritic-martensitic Steels**
G.S. WAS, J.P. WHARRY, University of Michigan, Ann Arbor, MI, USA; B. WIRTH, University of California, Berkeley, CA, USA

FF-6:IL03 **Direct In-situ Electron Microscope Observations of Dynamics of Radiation Defects in Irradiated Materials**
K. ARAKAWA, H. MORI, Research Center for Ultra-High Voltage Electron Microscopy, Osaka University, Ibaraki, Osaka, Japan

FF-6:L04 **On the Origin of Large Interstitial Clusters in Displacement Cascades in Iron**
A.F. CALDER, D.J. BACON, A.V. BARASHEV, The University of Liverpool, Liverpool, UK; Yu.N. OSETSKY, Oak Ridge National Laboratory, Oak Ridge, TN, USA

FF-6:IL05 **Radiation Damage in Ferritic High-Cr Alloys for Nuclear Applications**
D. TERENTYEV, L. MALERBA, G. BONNY, N. CASTIN, Structural Materials Group, Nuclear Materials Science Inst., Centre d'études de l'Energie Nucléaire (SCK.CEN), Mol, Belgium; X. HE, China Inst. of Atomic Energy, Beijing, China

FF-6:IL06 **Evolution of Nano-structures in Pressure Vessel Steels in the Course of Irradiation**
Y. NAGAI, T. TOYAMA, M. HASEGAWA, IMR, Tohoku University, Japan; T. OHKUBO, NIMS, Japan; A. ALMAZOUZI, E. VAN WALLE, SCK/CEN, Belgium; R. GERARD, Tractebel, Belgium

FF-6:L07 **The Influence of Interaction Geometry on the Obstacle Strength of Voids and Copper Precipitates in Iron**
P. GRAMMATIKOPOULOS, D.J. BACON, University of Liverpool, Liverpool, UK; Yu.N. OSETSKY, Oak Ridge National Laboratory, Oak Ridge, TN, USA

FF-6:L08 **Residual Stress Analysis of SiC/SiC Composites Following Irradiation**
T. KOYANAGI, Graduate School of Energy Science, Kyoto University, Kyoto, Japan; S. KONDO, T. HINOKI, Institute of Advanced Enegy, Kyoto University, Kyoto, Japan

FF-6:L09 **Atomic-scale Mechanisms of Strengthening Due to Localized Obstacles in Irradiated Metals**
Y. OSETSKY, R. STOLLER, Materials Science and Technology Division, ORNL, Oak Ridge, TN, USA; D. BACON, Dept. of Engineering, University of Liverpool, Liverpool, UK

FF-6:L10 **Quantitative TEM Investigations on EUROFER 97 Irradiated up to 32 dpa**
O.J. WEIß, E. GAGANIDZE, J. AKTAA, Karlsruhe Institute of Technology, Institute for Materials Research II, Eggenstein-Leopoldshafen, Germany

FF-6:L11 **Microstructure Change of Ti3(Si,Al)C2 After Ion Irradiation**
M. LE FLEM, X.M. LIU, S. DORIOT, T. COZZIKA, J.L. BECHADE, CEA Saclay, DEN/DMN/SRMA, Gif sur Yvette, France; **I. MONNET**, Centre Interdisciplinaire de Recherches Ions Lasers - CIRIL, Caen, France

FF-6:L12 **Irradiation Behavior of Nanostructurally-stabilized Pure Cubic Zirconia**
YANWEN ZHANG, WEILIN JIANG, W.J. WEBER, Pacific Northwest National Laboratory, Richland, WA, USA; F. NAMAVAR, University of Nebraska Medical Center, Omaha, NE, USA

FF-6:IL13 **The Change of Thermo-mechanical Properties Resulting from Irradiation**
J. LINKE, G. PINTSUK, M. RÖDIG, A. SCHMIDT, Forschungszentrum Jülich, Euratom Association, Jülich, Germany

FF-6:IL14 **Irradiation-induced Nanoscale Self-organization: Simulations, Experiments, and Application to Radiation-resistance**
P. BELLON, R.S. AVERBACK, S.W. CHEE, A. DAMODARAN, N. VO, B. STUMPHY, Dept. of Materials Science and Engineering, University of Illinois at Urbana-Champaign, Urbana, IL, USA

FF-6:L15 **Electronic Structure Calculations of Stability of Point Defects and Volatile Elements in Uranium and Silicon Carbides**
M. BERTOLUS, M. FREYSS, CEA, DEN, Centre de Cadarache, Saint Paul lez Durance, France

FF-6:L16 **SANS Investigation of Phase Precipitation in HT-9 at High Neutron Irradiation Dose Levels**
J. VAN DEN BOSCH, P. HOSEMANN, T. ROMERO, R.P. HJELM, S.A. MALOY, Los Alamos National Laboratory, Los Alamos, NM, USA

FF-6:L17 **Modeling of the Radiation Damage and Recovery Based on the Interaction of Crystal Defects with Quodons**
V. DUBINKO, NSC Kharkov Inst. of Physics and Technology, Kharkov, Ukraine

FF-6:IL18 **Interaction of Twin Boundaries with Radiation Damage in hcp Metals**
A. SERRA, D.J. BACON, Dept. of Applied Mathematics III, Technical University of Catalonia, Barcelona, Spain; Dept. of Engineering, The University of Liverpool, Liverpool, UK

FF-6:IL19 **An Atomic-based Mesoscale Model of Radiation Induced Segregation**
M. NASTAR, DEN/DMN/SRMP, CEA Saclay, Gif-sur-Yvette, France

FF-6:L20 **Non-equilibrium Thermodynamics of Irradiated Alloy Fuels**
A. EL-AZAB, Dept. of Scientific Computing & Materials Science Program, Florida State University, Tallahassee, FL, USA; S. DUBEY, Dept. of Scientific Computing, Florida State University, Tallahassee, FL, USA; D. WOLF, Fuel Properties and Modeling, Idaho National Laboratory, Idaho Falls, ID, USA

FF-6:L21 **Microchemical Evolution Under Irradiation of Fe Dilute Alloys Representative of RPV Steels by Atomic Kinetic Monte Carlo**
R. NGAYAM-HAPPY[1, 2], C.S. BECQUART[2], C. DOMAIN[1], [1]EDF-R&D, Dép. MMC, Moret sur Loing, France; [2]Lab. de Métallurgie Physique et Génie des Matériaux, UMR 8517, Université de Lille 1, ENSCL, Villeneuve d'Ascq, France

FF-6:L22 **Irradiation Effect on Properties of Nanostructured Materials**
R.A. ANDRIEVSKIY, Institute of Problems of Chemical Physics, RAS, Chernogolovka, Moscow Region, Russia

FF-6:L23 **Nucleation Free Energy of Copper-vacancy Clusters in bcc-Fe: An Atomistic Study**
M. POSSELT, Forschungszentrum Dresden-Rossendorf, Institute of Ion Beam Physics and Materials Research, Dresden, Germany; A.T. AL-MOTASEM, M. TALATI, F. BERGNER, U. BIRKENHEUER, Forschungszentrum Dresden-Rossendorf, Institute of Safety Research, Germany

Session FF-7
Materials Modeling and Database

FF-7:IL01 **A Material Data Base and Properties Handbook for ITER**
V. BARABASH, M. MEROLA, K. IOKI, N. MITCHELL, G. SANNAZZARO, N. TAYLOR, ITER Organization, St Paul Lez Durance, France

FF-7:IL02 **Multiscale Modelling of Radiation Effects in Fusion Materials**
S.L. DUDAREV, UKAEA Culham Centre for Fusion Energy, Abingdon, Oxfordshire, UK

FF-7:IL03 **Atomic Scale Investigation of Y-Ti-O Nanoclusters in Nanostructured Ferritic Alloys**
B.D. WIRTH[1], M.J. ALINGER[2], H.-J. LEE[1], L. MARUS[1], G.R. ODETTE[3], B.S. WANG[1], [1]Dept. of Nuclear Eng., University of California, Berkeley, CA, USA; [2]GE Global Research and Development, USA; [3]Dept. of Mechanical and Environmental Eng., University of California, Santa Barbara, CA, USA

FF-7:L04 **Modelling Steels Used in Nuclear Energy Applications**
M. SAMARAS, HT-MAT, LMN, NES, Paul Scherrer Institute, Switzerland

FF-7:L05 **Multiscale Modelling of the Influence of Damage on Thermal Properties During Tensile Loading of Ceramic Matrix Composites**
J. EL YAGOUBI, J. LAMON, L.C.T.S, Pessac, France; J.C. BATSALE, TREFLE, Talence, France

FF-7:L06 **From Point Defect Clusters to Threshold Displacement Energies in Iron by Ab Initio Methods**
P. OLSSON, C. DOMAIN, EDF R&D, Dept. MMC, Les Renardieres, Moret sur Loing, France

FF-7:L07 **Models and Simulations of Nuclear Fuels**
M. STAN, Los Alamos National Laboratory, Los Alamos, NM, USA

FF-7:IL08 **Experiments and Modelling for Evaluation of Neutron Irradiation Embrittlement of Reactor Pressure Vessel Steels in Fission Reactors**
N. SONEDA, K. DOHI, K. NISHIDA, A. NOMOTO, Central Research Institute of Electric Power Industry, Komae, Tokyo, Japan

FF-7:IL09 **Multi-scale Modeling of Irradiation Effects on Nuclear Fuel Microstructure**
D. WOLF, Idaho National Laboratory, Idaho Falls, ID, USA

FF-7:IL10 **Demented Rabbits, or the Complexity and Stability of Materials Under Extreme Irradiation Environments**
P.M. DERLET, S.L. DUDAREV, Condensed Matter Theory Group, Paul Scherrer Institute, PSI-Villigen, Switzerland; Culham Centre for Fusion Energy, Abingdon, Oxfordshire, UK

FF-7:IL11 **Defect Clusters and Helium-vacancy Clusters in Iron and Other bcc Metals from First Principles**
F. WILLAIME, CHU CHUN FU, M.-C. MARINICA, L. VENTELON, Service de Recherches de Métallurgie Physique, CEA, Gif-sur-Yvette, France

Session FF-8
Crosscutting Materials Issues for Nuclear Fission and Fusion Systems

FF-8:IL01 **Cross-cutting Issues Related to Structural Materials in Fission and Fusion**
F. TAVASSOLI, DEN/DMN, CEA/Saclay, Gif-sur-Yvette, France

FF-8:IL02 **Assessing Fracture Toughness of Steels by the Use of Small Specimen Test Technology (SSTT)**
E. LUCON, Materials Reliability Division, National Institute of Standards and Technology (NIST), Boulder, CO, USA

FF-8:IL03 **Materials for Nuclear Applications - Bridges Between Fission and Fusion**
BALDEV RAJ, A.K. BHADURI, Indira Gandhi Centre for Atomic Research, Kalpakkam, India

FF-8:IL04 **From Model-alloys to Ferritic-Martensitic and Ferritic Oxide Dispersion Strengthened Steels: The Fusion-fission Synergies**
J.-L. BOUTARD, Materials Consultant, DEN/RB CEA/Saclay, Gif sur Yvette, France

FF-8:IL05 **An Overview of Life Limiting Irradiation Damage Degradation Phenomena in Reduced Activation 9Cr Steels**
G.R. ODETTE, T. YAMAMOTO, University of California, Santa Barbara, CA, USA

Session FF-9
System Integration and Interface Design

FF-9:IL01 **Joining SiC Ceramics and Composites for Fusion and Nuclear Applications**
M. FERRARIS, V. CASALEGNO, S. HAN, S. RIZZO, M. SALVO, A. VENTRELLA, Politecnico di Torino, Dip. di Scienza dei Materiali e Ingegneria Chimica-DISMIC, Torino, Italy

FF-9:IL02 **Design and Integration of ITER Divertor Components**
T. HIRAI, F. ESCOURBIAC, T. JOKINEN, V. KOMAROV, A. MARTIN, M. MEROLA, ITER Organization, St Paul-lez-Durance, France

Poster Presentations

FF:P01 **General Corrosion Properties of Modified PNC1520 Austenitic Stainless Steel in Supercritical Water as a Fuel Cladding Candidate Material for Supercritical Water Reactor**
Y. NAKAZONO[1], T. IWAI[1], H. ABE[2] (formerly [1]), [1]Nuclear Professional School, School of Engineering, the University of Tokyo, Tokai, Ibaraki, Japan; [2]Material Design Division, Institute for Material Research, Tohoku University, Japan

FF:P02 **High-temperature Corrosion of Inconel 625 in Supercritical Water**
JIH-HSUAN HUANG, **TSUN-PIN YEN**, TSUNG-KUANG YEH, FU-RONG CHEN, JI-JUNG KAI, Dept. of Engineering and System Science, National Tsing-Hua University, HsinChu, Taiwan

FF:P03 **Development of Fe-base and Ni-base ODS Alloys for Advanced Nuclear Fission Application**
S. UKAI, Y. SUGINO, B. LENG, Q. TANG, S. HAYASHI, Hokkaido University, Sapporo, Japan; T. KAITO, S. OHTSUKA, Japan Atomic Energy Agency, Oarai, Japan

FF:P04 **Effect of Mercury on the Fracture Toughness of Ferritic-martensitic and Austenitic Steels Loaded in Plain Strain Conditions**
R. HERNANDEZ-CALLEJAS, **L. MEDINA-ALMAZÁN**, Instituto Nacional de Investigaciones Nucleares, Ocoyoacac, Mexico; T. AUGER, MSSMat UMR-CNRS 8579, Ecole Centrale Paris, Chatenay-Malabry, France; D. GORSE-POMONTI, Lab. des Solides Irradiés, UMR CNRS 7642, Ecole Polytechnique, Palaiseau, France

FF:P05 **Preparation of SiCf/SiC Composites by Slip Infiltration and Moderate Temperature Densification**
S. NOVAK, G. DRAZI, K. KÖNIG, A. IVEKOVIC, Dept. for Nanostructured Material, Jozef Stefan Institute, Slovenia Slovenian Fusion Association (SFA) EURATOM-MHEST, Ljubljana, Slovenia

FF:P06 **The Influence of Helium and ODS on the Irradiation-induced Hardening of Eurofer97 at 300 °C**
C. HEINTZE[1], F. BERGNER[1], R. LINDAU[2], R. KOEGLER[1], [1]Forschungszentrum Dresden-Rossendorf, Dresden, Germany; [2]Forschungszentrum Karlsruhe, Karlsruhe, Germany

FF:P07 **Progressive Development for Structural Integrity Quantification of Nuclear Grade Graphite in Very High Temperature Gas Cooled Reactor Core Environments**
SHUO-CHENG TSAI, JI-JUNG KAI, FU-RONG CHEN, YI-TSANG HSIEH, Center for Electron Microscopy, Dept. of Engineering and System Science, National Tsing-Hua University, HsinChu, Taiwan, R.O.C.

Focused Session FF-10
MATERIALS TECHNOLOGY FOR NUCLEAR WASTE TREATMENT AND DISPOSAL

Oral Presentations

Session FF-10.1
Waste Form Development

FF-10.1:IL01 **Advantages Hot Isostatically Pressed Ceramic and Glass-ceramic Waste Forms Bring to the Immobilization of Challenging Intermediate- and High-level Nuclear Wastes**
E.R. VANCE, S. MORICCA, B.D. BEGG, M.W.A. STEWART, Y. ZHANG, M.L. CARTER, Australian Nuclear Science and Technology Organisation, Menai, NSW, Australia

FF-10.1:IL02 **Overview of Nuclear Waste Treatment Research Activities at Forschungszentrum Jülich**
D. BOSBACH, Institute for Energy Research (IEF-6), Forschungszentrum Jülich GmbH, Jülich, Germany

FF-10.1:L03 **"DuraLith" - A Geopolymer Radioactive Waste Form**
W.L. GONG, W. LUTZE, I.L. PEGG, The Catholic University of America, Washington, DC, USA

FF-10.1:L04 **Synthesis and Properties of Reaction-bonded SiC Ceramic with Embedded UO2 - TRISO Coated Particles**
A.A. BUKAEMSKIY, J. FACHINGER, D. BOSBACH, Forschungszentrum Jülich GmbH, IEF-6, Jülich, Germany

FF-10.1:IL05 **Actinide-REE Host Phases with Fluorite-related Structures**
S. YUDINTSEV, IGEM RAS, Moscow, Russia

FF-10.1:IL06 **Zirconia-based Waste Forms from Spent Fuel Rod Treatment**
P.E. RAISON[1], C. PAVEL[1], M. STEINBRÜCK[2], T WISS[1], D. BOTTOMLEY[1], R.J. KONINGS[1], V. RONDINELLA[1], [1]European Commission, Joint Research Centre Inst. for Transuranium Elements, Karlsruhe, Germany; [2]Karlsruhe Inst. of Technology, GmbH, Institut für Materialforschung I, Karlsruhe, Germany

FF-10.1:L07 **Phosphates with Langbeinite Type Structure. Isomorphism and Radwaste Solidification**
A.I. ORLOVA, **A.K. KORYTTSEVA**, E.E. LOGINOVA, Nizhny Novgorod State University, Nizhny Novgorod, Russia

FF-10.1:L08 **New Actinide Waste Forms with Pyrochlore and Garnet Structures**
T.S. LIVSHITS, S.V. YUDINTSEV, IGEM RAS, Moscow, Russia; S.V. STEFANOVSKY, SIA Radon, Moscow, Russia; R.C. EWING, University of Michigan, Ann Arbor, MI, USA

Session FF-10.2
Methods of Processing Challenging Waste Constituents, Such as Actinides and Noble Metals

FF-10.2:IL01 **Advanced ORIENT Cycle for Turning Radioactive Waste into Resource**
MASAKI OZAWA, Japan Atomic Energy Agency, Tokyo Institute of Technology, Tokai-mura, Ibaraki-ken, Japan

FF-10.2:IL02 **The Role of Noble Metals in HLLW Vitrification**
G. ROTH, Karlsruhe Institute of Technology, Institut für Nukleare Entsorgung, Eggenstein-Leopoldshafen, Germany

FF-10.2:IL03 **On Nanostructured Hydrogen Catalysts, Fission-product Alloy Particles Extracted from Spent Nuclear Fuel**
DAQING CUI, Studsvik AB, Nyköping, Sweden, and Stockholm University, Dept. of Material and Environmental Science, Stockholm, Sweden

FF-10.2:L04 **Co-conversion of Actinides into a Uranium Matrix**
H. DANIELS, S. NEUMEIER, A.A. BUKAEMSKIY, G. MODOLO, D. BOSBACH, Forschungszentrum Jülich GmbH, IEF-6, Jülich, Germany

FF-10.2:IL05 **Vitrification of Halide Containing Wastes**
R.J. HAND, J.M. SCHOFIELD, P.A. BINGHAM, Immobilisation Science Lab., Dept. of Engineering Materials, University of Sheffield, Sheffield, UK

FF-10.2:IL06 **Sulfur Incorporation in Borosilicate Glass - A Challenge for Vitrification Facilities Processing High Sulfur Bearing HLLW**
S. WEISENBURGER, Karlsruhe Institute of Technology (KIT), Institut für Nukleare Entsorgung (INE), Eggenstein-Leopoldshafen, Germany

FF-10.2:IL07 **An Innovative Hybrid Process Involving Plasma in a Cold Crucible Melter Devoted to the Future Intermediate Level Waste Treatment: The SHIVA Technology**
F. LEMONT, P. CHARVIN, A. RUSSELLO, K. POIZOT, CEA - French Atomic Energy Commission, Bagnols sur Cèze, France

FF-10.2:L08 **Recovery of Long-lived Minor Actinides from High Active Waste Solutions Using Innovative Partitioning Processes**
G. MODOLO, D. BOSBACH, Inst. for Energy Research, Forschungszentrum Jülich GmbH, IEF-6, Jülich, Germany; A. GEIST, Inst. für Nukleare Entsorgung, Forschungszentrum Karlsruhe GmbH, INE, Karlsruhe, Germany; R. MALMBECK, European Commission, JRC, Inst. for Transuranium Elements, Karlsruhe, Germany

Session FF-10.3
Waste Form Modeling, Performance and Characterisation

FF-10.3:IL01 **Development of New Waste Forms to Immobilize Iodine-129 Released from Spent Fuel Reprocessing Plant**
H. TANABE, T. SAKURAGI, Radioactive Waste Management Funding and Research Center, Tokyo, Japan

FF-10.3:IL02 **Measurement of Radiation Damage in Nuclear Materials with High-resolution Nuclear Magnetic Resonance**
I. FARNAN, K.M. GUNDERSON, C. BRIGDEN, University of Cambridge, Cambridge, UK; H.M. CHO, W.J. WEBER, Pacific Northwest National Laboratory, USA; E.R. VANCE, J.V. HANNA, Australian Nuclear Science and Technology Organisation, Australia

FF-10.3:L03 **Is the Aqueous Corrosion of Borosilicate Glass Really Controlled by Diffusion Processes?**
T. GEISLER, A. JANSSEN, R. DENKLER, J. BERNDT, T. STEPHAN, A. PUTNIS, Institut für Mineralogie, University of Münster, Münster, Germany; Dept. of the Geophysical Sciences, University of Chicago, Chicago, IL, USA

FF-10.3:L04 **Identification of a Secondary Crystallized Phase formed during Nuclear Glasses Leaching - Effect of the Leached Glass Composition**
B. THIEN, N. GODON, CEA Marcoule, France; A. AYRAL, IEM Montpellier, France

FF-10.3:IL05 **The GRAAL Model: a Tool for Predicting Long-term Nuclear Glass Dissolution Kinetics**
S. GIN, P. FRUGIER, Y. MINET, B. BONIN, CEA, DEN, Bagnols sur Ceze, France

FF-10.3:IL06 **Characterization and Modelling of Materials for Advanced Nuclear Systems**
G.R. LUMPKIN, K.R. WHITTLE, YINGJIE ZHANG, E.R. VANCE, Australian Nuclear Science and Technology Organisation, Menai, NSW, Australia

FF-10.3:L07 **Synthesis and Hydrothermal Stability of Ce-doped Zirconolite Ceramics**
P. PÖML[1,2], T. GEISLER[2], P. SCHMID-BEURMANN[2], U. GOLLA-SCHINDLER[2], J. HEIMINK[3], A. PUTNIS[2], [1]EC-JRC, Institut für Transurane, Karlsruhe, Germany; [2]Institut für Mineralogie, Westfälische Wilhelms-Universität, Münster, Germany; [3]Institut für Physikalische Chemie, Westfälische Wilhelms-Universität, Münster, Germany

FF-10.3:IL08 **Actuality and Future of Chinese Nuclear Fuel Cycle Management**
DAOGANG LU, School of Nuclear Science and Engineering, North China Electric Power University, Beijing, China

FF-10.3:IL09 **Modeling of Radiation Effects in Nuclear Waste Forms**
W.J. WEBER, Pacific Northwest National Laboratory, Richland, WA, USA

FF-10.3:IL10 **The Methodology of SCK.CEN to Evaluate the Long-term Performance in Geological Disposal Conditions of Immobilized High-level Radioactive Waste**
P. VAN ISEGHEM, K. LEMMENS, E. VALCKE et al, SCK.CEN, Mol, Belgium

Session FF-10.4
Design and Operation of Waste Immobilisation Facilities

FF-10.4:IL01 **Commercial-scale Immobilization of Nuclear Waste via Cold Crucible Melter**
C. VEYER, SGN, Saint Quentin en Yvelines, France

FF-10.4:IL02 **Meeting Nuclear Waste Treatment Challenges Through Proven and Newly Developed Technologies**
I. FRANSEN, Belgoprocess N.V., Dessel, Belgium

FF-10.4:IL03 **Studies on Helium Accumulation, Behaviour and Release from Nuclear Spent Fuel and Waste Forms**
T. WISS, J-P. HIERNAUT, E. MAUGERI, V.V. RONDINELLA, H. THIELE, J-Y. COLLE, R.J.M. KONINGS, European Commission, Joint Research Centre, Institute for Transuranium Elements, Karlsruhe, Germany

FF-10.4:IL04 **Using the Vitrification Test Rig for process Improvements on the Waste Vitrification Plants**
R. SHORT, N. GRIBBLE, E. TURNER, National Nuclear Laboratory, Sellafield, Seascale, Cumbria, UK; A. RILEY, Sellafield Ltd, Sellafield, Seascale, Cumbria, UK

FF-10.4:IL05 **Cold Crucible Inductive Melting Technology - Application to Vitrification and Ceramization of High Level and Actinide Wastes**
S.V. STEFANOVSKY, SIA Radon, Moscow, Russia

Session FF-10.5
Repository Design and Requirements

FF-10.5:IL01 **Likely Long-term Evolution of Deep Geological Repositories: Supporting Evidence from Natural and Archaeological Analogues**
W.R. ALEXANDER, Bedrock Geosciences, Auenstein, Switzerland

FF-10.5:IL02 **Lessons Learned from the Yucca Mountain and WIPP Projects**
E.J. BONANO, D.S. KESSEL, Sandia National Labs, Albuquerque, NM, USA

FF-10.5:IL03 **Uncertainty in Radionuclide Retention Processes for Crystalline Rock Repository Far-field**
G. BUCKAU, Karlsruhe Institute of Technology, Institute for Radioactive Waste Management, Eggenstein-Leopoldshafen, Germany

Poster Presentations

FF-10:P01 **Evaluation of Red Mud as a Raw Material in the Preparation of Glasses Used for Vitrification of Nuclear Wastes**
H. VIEIRA, J.R. MARTINELLI, Cidade Universitaria, Sao Paulo, Brazil

FF-10:P02 **Synthesis and Characterization of ZrO2 Based Pyrochlore-type Ceramics for Nuclear Waste Conditioning**
S. NEUMEIER, A.A. BUKAEMSKIY, G. MODOLO, D. BOSBACH, Forschungszentrum Jülich GmbH - IEF-6, Germany

FF-10:P03 **Conditioning of Actinides in Monazite-type Ceramics**
C. BABELOT, S. NEUMEIER, A.A. BUKAEMSKIY, G. MODOLO, D. BOSBACH, Forschungszentrum Jülich GmbH - IEF-6, Jülich, Germany

FF-10:P04 **New Silicates and Phosphates (Leucite-pollucite Crystal System) for Cs and LWR Cations Immobilizations**
A.I. ORLOVA, **E.E. LOGINOVA**, D.A. MIKHAILOV, A.N. TROSHIN, Nizhny Novgorod State University, Nizhny Novgorod, Russia

FF-10:P06 **Effect of Temperature on Glass Leach Kinetics**
ZHANG HUA, LUO SHANGGENG, China Institute of Atomic Energy, Beijing, China

SYMPOSIUM FG
PHOTOVOLTAIC SOLAR ENERGY CONVERSION: MATERIALS AND TECHNOLOGY CHALLENGES

Oral Presentations

Keynote Lecture

FG:KL **Sustainable Energy by Mesoscopic Solar Cells**
M. GRÄTZEL, Ecole Polytechnique Fédérale de Lausanne, Lausanne, Switzerland

Session FG-1
Crystalline Cells

FG-1:IL01 **Challenges for High Efficiency Amorphous/Crystalline (a-Si:H/c-Si) Silicon Heterojunction Solar Cells**
L. KORTE, T. SCHULZE, C. LEENDERTZ, R. STANGL, E. CONRAD, H. ANGERMANN, M. SCHMIDT, B. RECH, Helmholtz-Zentrum Berlin, Berlin, Germany

FG-1:IL02 **Advanced Material and Technological Concepts for Photovoltaic Solar Cells Based on Thin Silicon Wafers**
F. DROSS, I. GORDON, G. FLAMAND, J. JOHN, N. POSTHUMA, J. VAN HOEYMISSEN, E. VAN KERSCHAVER, J. POORTMANS, IMEC, Leuven, Belgium

FG-1:IL03 **Ultrapurification of Silicon for Photovoltaic Applications**
C. DEL CANIZO, A. LUQUE, Universidad Politecnica de Madrid, Madrid, Spain; A. RODRIGUEZ, G. OVEJERO, Univ. Complutense de Madrid, Spain

FG-1:L04 **Organolanthanide Down-shifters to Improve Si-based Solar Cell Efficiency**
A. LE DONNE, M. ACCIARRI, **S. BINETTI**, University of Milano-Bicocca, Dept. of Material Science, Milano, Italy

Session FG-2
Thin-film Photovoltaics

FG-2:IL01 **Materials Challenge of Polycrystalline Silicon Based Thin Film Solar Cells Prepared by High-rate Electron Beam Evaporation on ZnO Coated Glass Substrates**
B. RECH, T. SONTHEIMER, F. RUSKE, C. BECKER, M. WIMMER, B. RAU, S. GALL, Institute of Silicon Photovoltaics, Helmholtz-Zentrum Berlin für Materialien und Energie, Berlin, Germany

FG-2:IL02 **Thin Film Silicon Solar Cell with Advanced Light Trapping**
K. YAMAMOTO, M. ICHIKAWA, T. KUCHIYAMA, F. SEZAKI, K. YOSHIKAWA, T. MEGURO, Kaneka Corporation, Osaka, Japan

FG-2:L03 **Triple Silicon-carbon-nitride Alloy Films for Silicon Solar Cells**
T. STAPINSKI, B. SWATOWSKA, Dept. of Electronics, AGH University of Science and Technology, Krakow, Poland

FG-2:IL04 **Thin Film Full Spectrum Solar Cells with Low Concentration Ratios**
M. KONAGAI, Photovoltaics Research Center, Tokyo Institute of Technology, Tokyo, Japan

FG-2:IL05 **Crystalline Silicon Thin Films Solar Cells on Foreign Substrates: Potential and Challenges**
A. SLAOUI, Institut d'Electronique du Solide et des Systèmes (InESS) UMR 7163 CNRS - UdS, Strasbourg, France

FG-2:L06 **Broadband Absorption Enhancement Using Unique Nanostructures**
YALIN LU, Laser Optics Research Center, Dept. of Physics, United States Air Force Academy, Colorado Springs, CO, USA

FG-2:L07 **In-situ Internal Stress Measurements During Sputter Deposition of Metallic Oxide Thin Films for Photovoltaic Applications**
S. MICHOTTE, Q. VAN OVERMEERE, J. PROOST, Institute of Mechanics, Materials and Civil Engineering, Université Catholique de Louvain (UCL), Louvain-la-Neuve, Belgium

FG-2:IL08 **CdTe Thin Film Photovoltaics - Challenges in Materials Science**
W. JAEGERMANN, Surface Science Division, Institute of Materials Science, Darmstadt University of Technology, Darmstadt, Germany

FG-2:IL09 **Advances in Low Temperature Grown CdTe Solar Cells on Glass and Polymer Films**
S. BÜCHLER, J. PERRENOUD, B. SCHAFFNER, **A.N. TIWARI**, Lab. for Thin Films and Photovoltaics, EMPA, Dübendorf, Switzerland

FG-2:IL10 **Electrical Characterization of Thin Film CdTe Solar Cells**
Y. PROSKURYAKOV, K. DUROSE, Durham Centre for Renewable Energy, Physics Dept., University of Durham, Durham, UK

FG-2:L11 **Use of Combinatorial Methods to the Study of New Materials for Solar Cell Applications**
S. RONCALLO[1], O. KARIMI[1], J.M. GREGOIRE[2], D.W. LANE[1], K.D. ROGERS[3], [1]DASSR, Cranfield University, Swindon, Wiltshire, UK; [2]Cornell Fuel Cell Institute, Cornell University, Ithaca, New York, USA; [3]Cranfield Health, Cranfield University, Cranfield, Bedfordshire, UK

FG-2:IL12 **Material and Device Properties of High-Efficiency CIGS Solar Cells**
R. NOUFI, National Renewable Energy Laboratory, Golden, Colorado, USA

FG-2:IL13 **New Strategies for Chalcopyrites Based Solar Cells**
H.-W. SCHOCK, Helmholtz-Zentrum Berlin für Materialen und Energie, Berlin, Germany

FG-2:L14 **Thin Film Solar Cells From Nanocrystal Inks of Chalcogenide Semiconductors**
Q. GUO, G. FORD, M. KAR, H.W. HILLHOUSE, **R. AGRAWAL**, School of Chemical Engineering, Purdue University, West Lafayette, IN, USA

FG-2:L15 **Development of Hybrid Sputtering/Evaporation Process for Thin Film Cu(In,Ga)Se2 Solar Cells Grown**
S. MARCHIONNA, R. MONETA, Voltasolar s.r.l, Turate (CO), Italy; M. ACCIARRI, S. BINETTI, S. NOVAGLIA, L. MIGLIO, Material Science Dept., Milan-Bicocca University, Milan, Italy

Session FG-3
Emerging and New Generation Solar Cells

FG-3:IL01 **Applications of Metal Oxides in Organic Photovoltaics**
D.C. OLSON[1], J.M. ADAMSON[1, 2], K.X. STEIRER[1, 2], N.E. WIDJONARKO[1, 3], A. SIGDEL[1, 4], M.S. WHITE[1, 3], M.T. LLOYD[1], J.J. BERRY[1], D.S. GINLEY[1], [1]National Renewable Energy Laboratory, Golden, CO, USA; [2]Colorado School of Mines, Golden, CO, USA; [3]University of Colorado, Boulder, CO, USA; [4]University of Denver, Denver, CO, USA

FG-3:IL02 **Novel Photoactive Materials for Polymer Solar Cells**
S. LUZZATI, M. CATELLANI, E. KOZMA, D. KOTOWSKI, Istituto per lo Studio delle Macromolecole (ISMAC), CNR, Italy

FG-3:L03 **Vertical Stratification in P3HT:PCBM Organic Solar Cells**
P.C. DASTOOR, Centre for Organic Electronics, University of Newcastle, Callaghan, NSW, Australia

FG-3:L04 **The Influence of the Electron Acceptor on the Optical Constants of the Photoactive Layer of a Polymer Solar Cell**
P. MORVILLO, E. BOBEICO, S. ESPOSITO, ENEA, Portici (NA), Italy

FG-3:L05 **The Suitability of Organic Solar Cells for Different Indoor Conditions**
B. MINNAERT, P. VEELAERT, University College Ghent, Gent, Belgium

FG-3:IL06 **Development of Flexible Dye-sensitized Solar Cells**
T. MIYASAKA, Toin University of Yokohama, Graduate School of Engineering, Kanagawa, Japan

FG-3:IL07 **Mesoscopic Charge Transport in Dye-sensitized Solar Cells**
QING WANG, J.R. JENNINGS, G.W. YANG, Dept. of Materials Science and Engineering, National University of Singapore, Singapore

FG-3:IL08 **Tandem and Hybrid Structure for High Efficiency Dye-sensitized Solar Cells**
S. HAYASE, Graduate School of Life Science and Systems Eng., Kyushu Institute of Technology, Hitakyushu, Japan

FG-3:L09 **Near-IR Sensitization of Nanocrystalline TiO2 with New Ruthenium Complexes**
H. SUGIHARA, T. FUNAKI, N. ONOZAWA-KOMATSUZAKI, K. KASUGA, Y. KAWANISHI, K. SAYAMA, National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan

FG-3:L10 **DSSC Counterelectrodes Based on Nanocarbons**
S. GAGLIARDI, L. GIORGI, R. GIORGI, N. LISI, TH. DIKONIMOS MAKRIS, E. SALERNITANO, ENEA, C.R. Casaccia, Rome, Italy; E. DELL'ORTO, Material Science Dept., University Milano-Bicocca, Italy

FG-3:IL11 **Italian Road Map for Emerging and Next Generation PV**
F. ROCA, ENEA Portici Research Centre, Portici (NA), Italy

FG-3:L12 **Active Materials Based on Implanted Si for Obtaining Intermediate Band Solar Cells**
K. SANCHEZ, I. AGUILERA, P. PALACIOS, P. WAHNON, Instituto de Energia Solar & Dpt. Tecnologias Especiales Aplicadas a la Telecomunicacion, Universidad Politecnica de Madrid, Madrid, Spain

FG-3:L13 **Single-phase Intermediate Band Materials for PV Cells: Quantum Calculation Assessment and Experimental Realisation**
R. LUCENA, D. GAMARRA, **J.C. CONESA**, Inst. de Catálisis y Petroleoquímica, CSIC, Madrid, Spain; P. PALACIOS, I. AGUILERA, Y. SEMINOVSKI, P. WAHNÓN, Inst. de Energía Solar, Universidad Politécnica de Madrid, Spain

FG-3:L14 **Silicon Nano-Sponge Fabrication for 3rd Generation PV Cells**
K.-H. HEINIG, B. SCHMIDT, Research Center Dresden-Rossendorf, Dresden, Germany; K.-H. STEGEMANN, SignetSolar, Mochau, Germany

FG-3:L15 **Electrical Transport Mechanism for Silicon Quantum-dots Based Solar Cells**
M. MORGANO, A. SCACCABAROZZI, S. BINETTI, M. ACCIARRI, Dip. di Scienza dei Materiali, Università degli Studi Milano-Bicocca, Milano, Italy; ZHIZHONG YUAN, L. PAVESI, Lab. Nanoscienze, Dip. di Fisica, Università di Trento, Povo (Trento), Italy; G. PUCKER, Microtechnologies Laboratory, Fondazione Bruno Kessler, Povo (Trento), Italy

FG-3:L16 **Optimizing Quantum Dot Solar Concentrators with Thin Film Solar Cells**
W.G.J.H.M. VAN SARK, C. DE MELLO DONEGÁ, R.E.I. SCHROPP, Faculty of Science, Utrecht University, Utrecht, The Netherlands

FG-3:L17 **Cooperative Near-infrared Quantum Cutting in YVO4: Yb3+, Tm3+ Nanophosphors**
HUIJUAN ZHANG, YUHUA WANG, Dept. of Materials Science, School of Physical Science and Technology, Lanzhou University, Lanzhou, Gansu prov., China

FG-3:L18 **Thin-Film Si Solar Cells Using Back Reflector with Embedded Metal Nanoparticles**
R. LIANG, **R. SANTBERGEN**, M. ZEMAN, Delft University of Technology, Delft, The Netherlands

FG-3:L19 **GaAs-based Nanowire Arrays Grown by MOVPE on (111)Si Substrates for PV Applications**
P. PRETE, IMM-CNR, Lecce, Italy; I. MICCOLI, F. MARZO, N. LOVERGINE, Dept. of Innovation Engineering, University of Salento, Lecce, Italy

FG-3:L20 **Silicon Nanowires/P3HT Hybrid Thin Films for a New Generation of Efficient Solar Cells**
J. DAVENAS, A. RYBAK, Laboratoire des Matériaux Polymères & Biomatériaux, Université Claude Bernard - UMR CNRS 5223, Villeurbanne, France; D. CORNU, B. ARNAUD, Laboratoire des Multimatériaux & Interfaces, Université Claude Bernard - UMR CNRS 5615, Villeurbanne, France

FG-3:L21 **Metamorphic GaAsP/Si Materials for Spectrum-Optimized Si-based Multijunction Solar Cells**
S.A. RINGEL, T.J. GRASSMAN, The Ohio State University, Dept. of Electrical and Computer Engineering, Columbus, OH, USA

FG-3:IL22 **Intermediate Band Solar Cells**
A. MARTI, A. LUQUE, Instituto de Energia Solar, Universidad Politecnica de Madrid, ETSI Telecomunicacion, Madrid, Spain

FG-3:IL23 **Quantum Dot-sensitized Solar Cells and Ultrafast Carrier Dynamics Characterization**
T. TOYODA, QING SHEN, Dept. of Applied Physics and Chemistry, The University of Electro-Communications, Tokyo, Japan

FG-3:L24 **Efficient Energy Collection for High Efficiency Low-cost Solar Cells**
T. MARKVART, Solar Energy Lab., School of Engineering Sciences, University of Southampton, Southampton, UK

FG-3:L25 **Thin Film Luminescent Solar Concentrators**
S. CHANDRA[1], S.J. MCCORMACK[2], J. DORAN[1], A.J. CHATTEN[3], [1]Dublin Energy Lab., School of Physics, Dublin Institute of Technology, Dublin, Ireland; [2]School of Engineering, Trinity College Dublin, Dublin, Ireland; [3]Physics Dept., Imperial College, London, UK

FG-3:L26 **Indium Gallium Nitride on Silicon Solar Cell Grown by Plasma Assisted Molecular Beam Epitaxy**
LI-WEI TU, P.H. TSENG, W.C. YEN, Dept. of Physics and Center for Nano-science and Nanotechnology, National Sun Yat-Sen University, Kaohsiung, Taiwan, R.O.C.; S.W. FENG, Dept. of Applied Physics, National University of Kaohsiung, Kaohsiung, Taiwan, R.O.C.; C.W. LAN, C.H. CHEN, W.C. SUN, Photovoltaics Technology Center, Industrial Technology Research Inst., Hsin-Chu, Taiwan, R.O.C.

FG-3:L27 **Hybrid Structures Based on Nanostructured Inorganic and Organic Thin Films for Photovoltaic Applications**
S. ANTOHE, University of Bucharest, Faculty of Physics, Magurele, Ilfov, Romania; I. ENCULESCU, National Institute for Materials Physics, Magurele, Ilfov, Romania; L. ION, University of Bucharest, Faculty of Physics, Magurele, Ilfov, Romania

Session FG-4
PV Devices, Modules, Systems and Applications

FG-4:IL01 **Cost-reducing Technologies for Crystalline Silicon Solar Cells and Modules**
B. SOPORI, National Renewable Energy Laboratory, Golden, CO, USA

FG-4:IL02 **Recent Results of CIS-based Thin-film PV Technology Fabricated by "Sputtering and Sulfurization/Selenization"**
K. KUSHIYA, Showa Shell Sekiyu/Showa Shell Solar, Atsugi, Kanagawa, Japan

FG-4:IL03 **Fabrication and Processing of Polymer and Organic Solar Cells**
F.C. KREBS, Riso National Laboratory for Sustainable Energy, Roskilde, Denmark

FG-4:IL04 **New Design and Integration of High Efficiency Dye Sensitized Solar Cell (DSC) Module**
Y.D. ZHANG, X.M. HUANG, D.M. LI, Y.H. LUO, **Q.B. MENG**, Renewable Energy Laboratory, Institute of Physics, Chinese Academy of Sciences, Beijing, China

FG-4:IL05 **16.4% Open Aperture Module Efficiency Using Large mc-Si Metal-wrap-through Cells**
A.W. WEEBER, I.J. BENNETT, C. TJENGDRAWIRA, A.A. MEWE, M.W.P.E. LAMERS, I.G. ROMIJN, P.C. DE JONG, ECN Solar Energy, Petten, The Netherlands

FG-4:L06 **Design Analysis of a-Si/c-Si HIT Solar Cell**
M. NAWAZ, S. KARAZHANOV, A. HOLT, University Graduate Centre (UNIK) and Institute for Energy Technology, Kjeller, Norway

Poster Presentations

FG:P01 **Purification of Silicon for Terrestrial Solar Cell by Zone Melting EBM Using Metallurgical Silicon**
S.P. MOREIRA, A.D.S. CÔRTES, F.C. MARQUES, **P.R. MEI**, State University of Campinas, Campinas, SP, Brazil

FG:P02 **P and Al Diffusion Process for Thin Si Wafers Studied by SEM and EDX**
E. OCHOA-MARTINEZ, A. MERCHAN, R. ROMERO, M. GABAS, L. MARTINEZ., F. MARTIN, D. LEINEN, J.R. RAMOS-BARRADO, Lab. de Materiales y Superficie, Dpto de Fisica Aplicada, Universidad de Málaga, Spain

FG:P03 **Photovoltaic Cells Based on Chemically Deposited Tin Sulphide Thin Films**
A. AKKARI[1, 2], C. GUASCH[2], N. KAMOUN-TURKI[1], [1]Lab. de Physique de la Matière Condensée, Faculté des Sciences de Tunis El Manar, Tunis, Tunisie; [2]Institut d'Electronique du Sud, Unité Mixte de Recherche 5214 UM2-CNRS (ST2i) - Université Montpellier, Montpellier, France

FG:P04 **Surface Modification of Semiconductor Electrodes by Metalloporphyrine Ions: Enhancement of Band Edge Positions, Stability and Conversion Efficiency in PEC Processes**
H.S. HILAL, M. MASOUD, W. ATEERIH, S. SHAKHSHIR, H. SABRI, M. ATATREH, I. SAADEDDIN, A. ZYOUD, S. SALIH, M. EL-HASAN, An-Najah N. University, Nablus, Wets Bank, Palestine

FG:P05 **Quantum Size Effects in a-Si:H Films Prepared by PECVD with Different Hydrogen-diluted Silane**
L. PRUSÁKOVÁ, V. VAVRUNKOVÁ, M. NETRVALOVÁ, **P. SUTTA**, University of West Bohemia, New Technology Research Centre, Plzeò, Czech Republic; J. MULLEROVÁ, Dept. of Engineering Fundamentals, University of Zilina, Liptovský Mikulás, Slovakia

FG:P06 **Adhesion and Barrier Properties Analysis of Silica-like Thin Layer on Polyethylene Naphthalate Substrates for Thin Film Solar Cells**
M.L. ADDONIZIO, L. FUSCO, ENEA, Portici Research Center, Portici, Napoli, Italy

FG:P07 **Local Mapping of Electrical Properties and Durface Topography of CuInS2 Thin Films Seposited by Spray Pyrolysis on Conductive Layers**
N. KAMOUN ALLOUCHE[1, 2], N. JEBBARI[1], **C. GUASCH**[2], N. KAMOUN TURKI[1], M. CASTAGNE[2], [1]Lab. de Physique de la Matiere Condensee, Faculté des Sciences de Tunis El Manar, Tunisie; [2]Inst. d'Electronique du Sud, Unité Mixte de Recherche 5214 UM2-CNRS (ST2i), Univ. Montpellier 2, Montpellier, France

FG:P08 **Investigation of A2B6 Thin Films Solar Cells for Space Applications**
V. GHENESCU[1], L. ION[2], M. GHENESCU[1], M.I. RUSU[3], M. GUGIU[4], O. PORUMB[2], S. ANTOHE[2], [1]Institute of Space Sciences, Magurele-Ilfov, Romania; [2]University of Bucharest, Faculty of Physics, Magurele-Ilfov, Romania; [3]National Institute of R&D for Optoelectronics - INOE-2000, Magurele-Ilfov, Romania; [4]"Horia Hulubei" - National Inst. of Physics and Nuclear Engineering, Magurele-Ilfov, Romania

FG:P09 **Investigation of CIS Thin Films Deposited on Flexible Substrate Used for Photovoltaic Applications**
S. IFTIMIE[1], L. ION[1], , V. GHENESCU[2], M. GHENESCU[2], V. SOARE[3], M. BURADA[3], S. ANTOHE[1], [1]University of Bucharest, Faculty of Physics, Magurele-Ilfov, Romania; [2]Institute for Space Sciences, MG-23, Bucharest, Romania; [3]Institute for Nonferrous and Rare Metals, Bucharest, Romania

FG:P10 **Evaluation of Bi-layers Front Contacts in CdTe Solar Cells from Commercial Conducting Glass**
O. VIGIL-GALÁN, Escuela Superior de Física y Matemáticas, Inst. Politécnico Nacional, México D.F., México; M. BECERRIL, Dpto de Física, CINVESTAV-IPN, México D.F., México; R. MENDOZA-PÉREZ, J. FANDIÑO, Universidad Autónoma de la Ciudad de México, México D.F., México

FG:P11 **Electroless Deposition of the Single-phase CdTe Thin Film**
N. KLOCHKO, G. KHRYPUNOV, N. VOLKOVA, M. KHARCHENKO, V. KOPACH, National Technical University "Kharkiv Polytechnic Institute", Kharkiv, Ukraine

FG:P12 **Investigation of Thin Film CdS/CdTe Solar Cells with Different Back Contacts**
G. KHRYPUNOV, A. MERIUTS, N. KLOCHKO, T. SHELEST, A. KHRYPUNOVA, National Technical University "Kharkiv Polytechnic Institute", Kharkiv, Ukraine

FG:P13 **Nanofibrous TiO2: A new material with extraordinary properties**
M. ZUKALOVA, J. PROCHAZKA, L. KAVAN, J. Heyrovský Institute of Physical Chemistry, v.v.i. Academy of Sciences of the Czech Rep., Prague, Czech Rep.

FG:P14 **Band Structure in Amorphous Carbon Nitride Films and Its Application in Thin-Film Solar Cells**
M. AONO. N. TAMURA, Dept. of Materials Science and Engineering, National Defense Academy, Kanagawa, Japan; H. HABUCHI, Dept. of Electrical and Computer Engineering, Gifu National College of Technology, Gifu, Japan; N. KITAZAWA, **Y. WATANABE**, National Defense Academy, Kanagawa, Japan

FG:P15 **Electrochemical Fabrication of CIS Thin Film Solar Cell**
KYOUNGJU JANG, DAE MIN KIM, **JONG-YOUNG KIM**, HYO SIK CHANG, YOON SUK OH, Korea Inst. of Ceramic Eng. & Technology, Icheon, Korea

FG:P16 **Structural and Optical Properties of SiOxNy Containing Silicon Nanocrystals Fabricated by Plasma Enhanced Chemical Vapour Deposition Technique**
G. FERBLANTIER, M. CARRADA, F. DELACHAT, M. FICCADENTI, J.J. GROB, A. SLAOUI, InESS - CNRS, Strasbourg, France

FG:P17 **Comparing Organic Single-carrier-diodes to Bulk-hetero-junctions Using Impedance Spectroscopy**
B. ECKER, E. VON HAUFF, J. PARISI, Energy and Semiconductor Research, University of Oldenburg, Oldenburg, Germany

FG:P18 **Plasmonic Antennas for Extended Solar Energy Harvesting by Hybrid Solar Cells**
J. DAVENAS[1], A. RYBAK[1], D. CORNU[2], **F. VOCANSON**[3]; [1]Lab. des Matériaux Polymères & Biomatériaux, Université Claude Bernard Lyon 1, Villeurbanne, France; [2]Lab. des Multimatériaux & Interfaces, Université Claude Bernard - UMR CNRS 5615 ; Villeurbanne, France; [3]Lab. Hubert Curien, Université Jean Monnet - UMR CNRS 5516, Saint Etienne, France

FG:P19 **Relation Between FTO Film Properties and ZnO Nanowires Nucleation for Dye Sensitized Solar Cells**
G. REY, N. KARST, M. LABEAU, **D. BELLET**, Lab. des Matériaux et Génie Physique (LMGP) 3, Grenoble, France; C. TERNON, Lab. des Technologies de la Microélectronique (LTM), Grenoble, France

FG:P20 **Photovoltaic Cells Based on P3HT: PCBM (1:1) Polymer Blends**
C. BESLEAGA[1], S. IFTIMIE[1], A. MAJKIC[2], N. DINA[1], L. ION[1], M. RADU[1], A. TANASE[1], D. CRISAN[1], G. BRATINA[2], S. ANTOHE[1], [1]University of Bucharest, Faculty of Physics, Magurele-Ilfov, Romania; [2]University of Nova Gorica, Nova Gorica, Slovenia

FG:P21 **Hybrid Inorganic/Organic Photovoltaic Cells Based on CdTe Wire Arrays and ZnPc**
C. FLORICA[1], AL. NEMNES[1], L. ION[1], I. ENCULESCU[2], V. A. ANTOHE[1], A. RADU[1], G. CHISULESCU[1], S. ANTOHE[1], [1]Faculty of Physics, University of Bucharest, Magurele, Ilfov, Romania; [2]National Institute of Material Physics, Magurele, Ilfov, Romania

FG:P22 **Nanostructured ZnO Electrodes for Photovoltaic Applications**
I. ARGHIR[1], C. BESLEAGA[1], T.L. MITRAN[1], I. ENCULESCU[2], L. ION[1], S. ANTOHE[1], [1]Faculty of Physics, University of Bucharest, Magurele-Ilfov, Romania; [2]National Institute of Material Physics, Magurele, Ilfov, Romania

FG:P23 **Polymeric Additives and Surfactants Used for the Enhancement of Sprayed 3D Solar Cells Photovoltaic Respons**
I. POPOVICI, D. PERNIU, L. ISAC, A. DUTA, Transilvania University of Brasov, Brasov, Romania

FG:P24 **Optoelectronic Properties of Intermediate Band Derivatives of Clathrates for High Efficiency Solar Cells**
I. AGUILERA[1], P. PALACIOS[1], J.C. CONESA[2], P. WAHNON[1], [1]Instituto de Energia Solar & Dpto. Tecnologias Especiales Aplicadas a la Telecomunicacion, ETSI de Telecomunicacion, Universidad Politecnica de Madrid, Madrid, Spain; [2]Instituto de Catalisis y Petroleoquimica, CSIC, Cantoblanco, Madrid, Spain

FG:P25 **Surface Photovoltage Spectroscopy - A Powerful Tool for Evaluation of Electrodes Used in Dye-Sensitized Solar Cells**
TAO HE, National Center for Nanoscience and Technology, Beijing, China; J.Y. ZHAO, Y.A. CAO, College of Physics, and TEDA Applied Physics School, Nankai University, Tianjin, China

FG:P26 **Charge Transport and Recombination Studies of Multilayered Hybrid Photovoltaic Cells Based on Poly(3-octylthiophene) and Chemically Deposited CdS and Bi2S3**
H. CORTINA, E. PINEDA, J. CAMPOS, **HAILIN HU**, Centro de Investigación en Energía, UNAM, Temixco, Morelos, México; Ma.E. NICHO, Centro de Investigación en Ingeniería y Ciencias Aplicadas, UAEM, Cuernavaca, Morelos, México

FG:P27 **Silicon Nanowire-based Radial p-n Junction Solar Cells**
T. STELZNER, F. VOIGT, A. BERGER, D. LEROSE, V. SIVAKOV, B. HOFFMANN, S.H. CHRISTIANSEN, Institute of Photonic Technology, Jena, Germany

FG:P28 **Influence of the Al-BSF in the Efficiency of a Commercial Cz-Si Solar Cell**
C. VAZQUEZ[1], J. ALONSO[1], M.A. VAZQUEZ[1], L.A. CABALLERO[1], **J.R. RAMOS-BARRADO**[2], [1]Isofoton S.A., Málaga, Spain; [2]Lab. de Materiales y Superficie, Dpta. Fisica Aplicada I, Universidad de Malaga, Malaga, Spain

SYMPOSIUM FH

CONCENTRATING SOLAR TECHNOLOGIES: MATERIALS AND TECHNOLOGY SOLUTIONS FOR CPV AND CSP COMPETITIVENESS

Oral Presentations

Session FH-1

New Developments in Materials, and CPV Optics and Thermal Management

FH-1:IL01 **III-V Multijuncion Solar Cells for Ultra High Concentrations**
C. ALGORA, Instituto de Energía Solar-Universidad Politécnica de Madrid ETSI Telecomunicación, Madrid, Spain

FH-1:IL02 **Improved Concentration Capabilities of Flat-plate Fresnel Lenses**
M.Z. SHVARTS, Ioffe Physical Technical Institute, St. Petersburg, Russia; A.A. SOLUYANOV, Technoexan LTD, St. Petersburg, Russia

FH-1:L04 **Optical Methods for Indoor Characterization of Small Size Solar Concentrators**
A. PARRETTA, ENEA, Centro Ricerche "E. Clementel", Bologna (BO), Italy; A. ANTONINI, M.A. BUTTURI, P. DI BENEDETTO, D. UDERZO, P. ZURRU, CPower SRL, Ferrara (FE), Italy

FH-1:L05 **Assessment of a Phase Change Material System for Moderating Temperature Rise of Solar Cells Under Concentrated Sunlight**
E. CASENOVE, L. PUJOL, A. VOSSIER, A. PERONA, V. GOETZ, **A. DOLLET**, CNRS, PROMES Laboratory, Perpignan and Odeillo, France

Session FH-2

CPV Cell Components, Module Assembly and Testing

FH-2:IL01 **CPV Modules Based on Lens Panels**
V.D. RUMYANTSEV, Ioffe Physical-Technical Institute, St. Petersburg, Russia

FH-2:IL02 **Characterization of III-V Multi-junction Concentrator Cells and Systems**
G. SIEFER, G. PEHARZ F. DIMROTH A.W. BETT, Fraunhofer Institute for Solar Energy Systems, Freiburg, Germany

FH-2:IL03 **Modelling, Characterising and Optimising CPV Modules**
D. BUIE, R. HOFFMAN, Emcore Corporation, Albuquerque, NM, USA

FH-2:IL04 **Towards Accurate Reliability Tests for CPV Modules**
A.R. LAGUNAS, I. PETRINA, J. DIAZ, CENER, Sarriguren (Navarra), Spain

FH-2:IL05 **CPV Cell Assemblies and Module Qualification and Reliability Testing at Arima EcoEnergy**
CHIN-WEI HSU[1,2], A.Y.C. TZENG[1], **M.C.Y. HUANG**[1], C.C. LEE[2], [1]Arima EcoEnergy Technologies Corp., Taipei County, Taiwan; [2]Dept. of Optics and Photonics, National Central University, Taoyuan County, Taiwan

FH-2:L06 **Effects of High Concentration of Sunlight on Tunneling in Multi-Junction Solar Cells**
E.A. KATZ, A. BRAUN, B. HIRSCH, J.M. GORDON, Dept. of Solar Energy and Environmental Physics, Ben-Gurion University of the Negev, Sede Boqer, Israel; J. BLAUSTEIN, Institutes for Desert Research, Ben-Gurion University of the Negev, Sede Boqer, Israel; W. GUTER, A.W. BETT, Fraunhofer Institut für Solare Energiesysteme, Freiburg, Germany

FH-2:L07 **Solar Divergence Collimators for Collector Tests**
E. SANI, P. SANSONI, D. FONTANI, F. FRANCINI, L. MERCATELLI, D. JAFRANCESCO, CNR-INOA Istituto Nazionale di Ottica Applicata, Firenze, Italy

FH-2:IL08 **ENEA's Activities on C-PV Technology: Perspectives in Research, Development and Demonstration**
A. SARNO, G. GRADITI, C. CANCRO, R. FUCCI, F. ROCA, C. PRIVATO, ENEA, Portici (NA), Italy

FH-2:IL09 **Automatic Testing of CPV Cells**
E. RODRIGUEZ-MESSMER, Isofoton S.A., Malaga, Spain

FH-2:L10 **Improvements in the PhoCUS Technology: Realization of a Photovoltaic Concentrator Module Equipped with Multi-junction Solar Cells**
R. FUCCI, C. CANCRO, G. FLAMINIO, G. LEANZA, A. MEROLA, C. PRIVATO, A. SARNO, ENEA Research Center, Loc. Granatello, Portici (Naples), Italy

Session FH-3
CSP Concentrators and Heat Collection Elements

FH-3:IL01 **Materials and Design Requirements for Advanced Concentrators**
R. PITZ-PAAL, DLR, Institute of Technical Thermodynamics, Cologne, Germany

FH-3:IL02 **Solar Concentrators for Power Generation: Indian Experience**
N.D. KAUSHIKA, Bharati Vidyapeeth's College of Engineering, New Delhi, India

FH-3:IL03 **Advances in Reflector and Solar Selective Materials for Application to Concentrating Solar Power Systems**
C.E. KENNEDY, National Renewable Energy Laboratory, Golden, CO, USA

FH-3:L04 **Test Facility for Absorber Specimen of Solar Tower Power Plants**
B. HOFFSCHMIDT, K. GEIMER, J. GÖTTSCHE M. SCHMITZ, **M. SAUERBORN**, Solar-Institut Jülich, Jülich, Germany

FH-3:IL05 **New Materials in Solar Concentrators and Receivers**
W.J. PLATZER, A. HEIMSATH, C. HILDEBRANDT, Fraunhofer Institute for Solar Energy Systems, Freiburg, Germany

FH-3:IL06 **Advanced Materials and Joining Technologies for High Temperature Solar Receivers**
R. COUTURIER, P TOCHON, F. PRA, CEA-Grenoble, LITEN, Grenoble, France; M. VRINAT, A. FERRIERE, CNRS, PROMES Laboratory, Font Romeu Odeillo, France

FH-3:IL07 **High Temperature Stable Selective Absorber Coating for Receiver Tube**
K. SILMY, T. KUCKELKORN, J. SCHULTE-FISCHEDICK, SCHOTT Solar CSP GmbH, Bavaria, Germany

Session FH-4
Heat Thermal Fluids and Thermal Energy Storage

FH-4:IL01 **Molten Salt Heat Transfer Fluids and Thermal Storage Technology**
N. SIEGEL, Sandia National Laboratories, Albuquerque, NM, USA

FH-4:IL02 **PCM-Graphite Latent Heat Storage Systems for Industrial Process Heat Recovery**
R. SCHMITT, O. OETTINGER, T. GRUENBERGER, SGL CARBON GmbH, Meitingen, Germany; W.-D. STEINMANN, R. TAMME, Institute of Technical Thermodynamics, Stuttgart, Germany

FH-4:IL03 **New Methods to Characterize Phase Change Materials**
E. PALOMO DEL BARRIO, TREFLE - Site ENSAM, Talence, France

FH-4:L04 **Solar-thermal Energy Conversion and Storage: Conductive Heat Transfer Using Bulk Graphite for a Domestic System**
C.C. SORRELL, T.C. PALMER, L.J. BOWEN, A. NAKARUK, School of Materials Science and Engineering, University of New South Wales, Sydney, NSW, Australia

FH-4:L05 **Overview of PCMs for Concentrated Solar Power in the Temperature Range 200 to 350 °C**
T. BAUER, D. LAING, R. TAMME, Institute of Technical Thermodynamics, German Aerospace Center (DLR), Stuttgart, Germany

FH-4:IL06 **Thermochemical Energy Storage Systems**
A. HAUER, Bavarian Center for Applied Energy Research, ZAE Bayern, Garching, Germany

FH-4:IL07 **Thermal Energy Storage for Process Heat and Power Generation - Impact of Materials to Realise Efficient and Economic Storage Solutions**
R. TAMME, T. BAUER, C. MÜHLHAUSEN, F. SCHAUBE, D. LAING, DLR, German Aerospace Center, Institute of Technical Thermodynamics, Stuttgart, Germany

FH-4:IL08 **Overview of U.S. Thermal Energy Storage Research & Development for Concentrating Solar Power**
G.C. GLATZMAIER, National Renewable Energy Laboratory, Golden, CO, USA

FH-4:IL09 **Advanced Salts Mixtures as Heat Transfer Fluids**
F. FABRIZI, P. TARQUINI, M. VIGNOLINI, ENEA CR Casaccia, Rome, Italy

Session FH-5
Application and Commercial Experience

FH-5:IL01 **A Joule-cycle Ericsson Engine for Low Power Thermodynamic Solar Energy Conversion**
A. TOURÉ, F. LONTSI, M. ALAPHILIPPE, **P. STOUFFS**, LaTEP, IUT-GTE, Université de Pau et des Pays de l'Adour, Pau, France

FH-5:IL02 **Solar Thermochemical Production of Hydrogen and Other Fluids**
A. MEIER, Solar Technology Laboratory, Paul Scherrer Institute, Villigen PSI, Switzerland

FH-5:L03 **Optical and Thermal Characterization of Solar Receivers for Parabolic Trough Collectors**
M. SANCHEZ, E. MATEU, Solar Thermal Energy Dept., National Renewable Energy Centre (CENER), Sarriguren (Navarra), Spain; C. HERAS, R. ALONSO, Universidad Zaragoza, Dpto de Ingeniería Eléctrica y Comunicaciones, Zaragoza, Spain

FH-5:IL04 **A Review of CPV Technology and Commercial Progress**
A. SLADE, Siroc Pty. Ltd, Sydney, Australia

FH-5:IL05 **Building Integration Solutions for CPV**
D. CHEMISANA VILLEGAS, University of Lleida, Lleida, Spain

FH-5:IL06 **On-sun Performance of Flatcon® CPV Systems**
A. GOMBERT, I. HEILE, J. WÜLLNER, T. GERSTAIER, S. VAN RIESEN, E. GERSTER, M. RÖTTGER, Concentrix Solar GmbH, Freiburg, Germany

Poster Presentations

FH:P01 **Improvement of Radiation Resistance of Multijunction Solar Cells by Application of Bragg Reflectors**
V.M. LANTRATOV, V.V. EMELYANOV, N.A. KALYUZHNYY, S.A. MINTAIROV, M.Z. SHVARTS, Ioffe Physical Technical Institute of RAS,St.-Petersburg, Russia

FH:P02 **AlGaA/GaAs Photovoltaic Cells with InGaAs Quantum Dots**
S.A. BLOKHIN, **N.A. KALYUZHNYY**, A.V. SAKHAROV, A.M. NADTOCHIY, A.S. PAUYSOV, M.V. MAXIMOV, N.N. LEDENTSOV, V.M. LANTRATOV, S.A. MINTAIROV, M.Z. SHVARTS, Ioffe Physical Technical Institute RAS, St.Petersburg, Russia; A.R. KOVSH, S.S. MIKHRIN, Innolume GmbH, Dortmund, Germany

FH:P03 **Synthesis and Characterization of Transparent Luminescent ZnS:Mn/PMMA Nanocomposites for Down Converting Lenses**
A. MARTUCCI, M. DAI PRE', Università di Padova, Italy; J.A.S. BOMFIM, Centro Ricerche Plast-Optica, Amaro, Italy

FH:P04 **Crystalline Silicon PV Modules for Concentrator PV Systems**
N.I. KLYUI, A.V. MAKAROV, V.P. TEMCHENKO, Institute of Semiconductor Physics of NAS Ukraine, Kyiv, Ukraine

FH:P05 **TiSiC Nanostructured Thin Films as Solar Absorbers**
M. BRAIC, M. BALACEANU, C.N. ZOITA, V. BRAIC, National Institute for Optoelectronics, Magurele-Bucharest, Romania

SYMPOSIUM FI

RECENT DEVELOPMENS IN THE RESEARCH AND APPLICATION OF TRANSPARENT CONDUCTING AND SEMICONDUCTING OXIDES

Oral Presentations

Session FI-1
Fundamentals

FI-1:IL01 **Transparent Conductors: From Basic Principles to Controllable Properties**
J. MEDVEDEVA, Missouri S&T, Rolla, MO, USA

FI-1:IL02 **Fundamental Properties and Applications of Nb-doped Anatase TiO2 Transparent Conducting Thin Films**
T. HASEGAWA, University of Tokyo, Tokyo, Japan, Kanagawa Academy of Science and Technology (KAST), Kawasaki, Japan

FI-1:IL03 **Delafossite Mixed Oxides for p-type TCO Applications: Synthesis and Thermostructural Studies**
A. BARNABÉ, L. PRESMANES, M. LALANNE, E. MUGNIER, PH. TAILHADES, Université Paul Sabatier - CIRIMAT, Toulouse, France

FI-1:IL04 **Amorphous-In2O3 for Thin Film Transistor Applications**
D.C. PAINE, S. LEE, K. SCHWINK, H. PARK, Brown University, Providence, RI, USA

FI-1:IL05 **The Origin and Design of n-typness in ZnO and p-typness of Co,Ir and Rh Spinels Based on ZnO**
A. ZUNGER, National Renewable Energy Laboratory, Golden, CO, USA, Supported by USA DOE Basic Energy Science and in collaboration with S. Lany, H. Raebiger, T. Paudel

FI-1:IL06 **Infrared Spectroscopic Ellipsometry Characterisation of Free Carriers and Conduction Mechanisms in ZnO Thin Films**
B. ABENDROTH, G. GAERTNER, Freiberg University of Mining and Technology, Freiberg, Germany; S.H.N. LIM, M.M.M. BILEK, D.R. MCKENZIE, University of Sydney, Australia

FI-1:L07 **Heat-resistant Sb-doped SnO2 Transparent Conducting Films**
K. UEDA, Y. KISHIGAWA, Dept. of Materials Science, Kyushu Institute of Technology, Japan

FI-1:L08 **Intrinsic Defects of Transparent Conducting Oxides: A Comparative Hybrid-Functional Study of In_2O_3, SnO_2 and ZnO**
P. ÁGOSTON, A. KLEIN, K. ALBE, Institut für Materialwissenschaft, TU Darmstadt, Darmstadt, Germany; R.M. NIEMINEN, M.J. PUSKA, Dept. of Applied Physics, Helsinki University of Technology, Finland

FI-1:L09 **The Mechanism of Catalyzed Nanowire Growth**
M. KIRKHAM, ZHONG LIN WANG, **R.L. SNYDER**, MSE Georgia Institute of Technology, Atlanta, GA, USA

FI-1:IL10 **Amorphous In-Zn-O Films: Archetype for a New Class of TCO Materials?**
J.D. PERKINS, T. GENNETT, J.E. LEISCH, J.J. BERRY, D.S. GINLEY, National Renewable Energy Laboratory, Golden, CO, USA

FI-1:IL11 **Why Amorphous Oxide Semiconductors Have Superior Performances than Amorphous Silicon**
T. KAMIYA[1, 2], K. NOMURA[2], H. HOSONO[1,2], [1]Tokyo Institute of Technology, Yokohama, Japan, [2]JST, Yokohama, Japan

FI-1:IL12 **The Science and Technology Interface in Transparent Conducting Oxides**
T.J. MARKS, Dept. of Chemistry and the Materials Research Center, Northwestern University, Evanston, IL, USA

FI-1:IL13 **Raman Spectroscopy: A Tool for Understanding Bulk and Surface Properties of Nanocrystalline Oxides**
T. PAGNIER, LEPMI, Saint Martin d'Hères, France

FI-1:IL14 **Design of Shallow Acceptors in ZnO Through Early Transition Metals Co-doped with N Acceptors**
XIANGMEI DUAN, Dept. of Physics, Ningbo University, Ningbo, P.R. China

FI-1:IL15 **Doping and Transport in Zinc Oxide: New Developments**
K. ELLMER, Helmholtz-Zentrum für Materialen und Energie, Dept. Solar Fuels, Berlin, Germany

FI-1:IL16 **High Mobility Hydrogen-doped In2O3 Films for Si-based Solar Cell Application**
T. KOIDA, H. SAI, M. KONDO, Research Center for Photovoltaics, National Institute of Advanced Industrial Science and Technology, Tsukuba, Japan; K. TSUTSUMI, A. SAKAGUCHI, M. SUZUKI, J.A. Woolam Japan Corporation, Suginami, Japan; H. FUJIWARA, Center for Innovative Photovoltaic Center, Gifu University, Gifu, Japan

FI-1:L17 **Electrochemically Synthesized Titania Nanostructures: Investigation of Crystal Structure and Electronic Properties**
Q.A.S. NGUYEN, T.M. DEVINE, Dept. of Materials Science and Engineering, University of California, Berkeley, CA, USA

FI-1:L18 **DFT-based First-principle Calculation of Nb-doped anatase TiO2 and its Interactions with Oxygen Vacancies and Interstitial Oxygen**
H. KAMISAKA, T. HITOSUGI, T. SUENAGA, T. HASEGAWA, **K.YAMASHITA**, The University of Tokyo, Tokyo, Japan

Session FI-2
Materials Design and Device Development

FI-2:IL01 **Transparent Conductive Amorphous Oxides - Past, Present and Future**
E. FORTUNATO, G. GONÇALVES, P. BARQUINHA, L. PEREIRA, R. MARTINS, CENIMAT/I3N, FCT-UNL, Caparica, Portugal

FI-2:IL02 **Novel Spintronics Application of ZnO based DMS**
N. FUJIMURA, K. MASUKO, A. ASHIDA, T. YOSHIMURA, Graduate School of Engineering, Osaka Prefecture University, Sakai, Osaka, Japan

FI-2:L03 **Non-oxide Wide-bandgap p-type Semiconductors BaCuChF (Ch = S, Se, Te)**
A. ZAKUTAYEV, R. KYKYNESHI, G. SCHNEIDER, J. TATE, Dept. of Physics, Oregon State University, OR, USA; H.A.S. PLATT, D.A. KESZLER, Dept. of Chemistry, Oregon State University, OR, USA; A. KLEIN, Surface Science Division, Institute of Materials Science, Darmstadt University of Technology, Darmstadt, Germany

FI-2:L04 **Unusual Dielectric and Conductive Behavior of ZnO Bicrystalline (000-1) Interfaces**
JONG-SOOK LEE, YONG KIM, EUI-CHOL SHIN, Chonnam National University, Gwangju, Korea; J. MAIER, Max Planck Institute for Solid State Research, Stuttgart, Germany

FI-2:L05 **Mechanism of Electrical Properties Degradation of ZnO:Al Films During Growth at Elevated Temperatures**
M. VINNICHENKO, R. GAGO*, S. CORNELIUS, A. ROGOZIN, N. SHEVCHENKO, A. KOLITSCH, W. MÖLLER, Institute of Ion-Beam Physics and Materials Research, Forschungszentrum Dresden-Rossendorf, Dresden, Germany; *Instituto de Ciencia de Materiales de Madrid, Madrid, Spain

FI-2:IL06 **Aqueous Processing for Oxide Electronics**
A. TELECKY, WEI WANG, KAI JIANG, S.T. MEYERS, **D.A. KESZLER**, Dept. of Chemistry, Oregon State University, Corvallis, OR, USA

FI-2:IL07 **TCO Nanoparticles: Properties and Electronic Devices**
R. SCHMECHEL, Faculty of Engineering, University Duisburg-Essen and CeNIDE, Duisburg, Germany

FI-2:L08 **Change of Electrical Properties of a-IGZO TFT Depending on Processing Parameters**
K.C. JO[1, 2], E.J. CHONG[1], J.S. LEE[1], S.Y. LEE[1], [1]Center for Energy Materials Research, Korea Institute of Science and Technology, Seoul, Republic of Korea; [2]Dept. of Electronics and Electrical Engineering, Korea University, Seoul, Republic of Korea

FI-2:L09 **Simultaneous Monitoring of Optical and Conductance Changes during the Redox Transformation of Transparent Conducting Layers**
C. VISY, P. S. TÓTH, E. PEINTLER-KRIVÁN, University of Szeged, Dept. of Physical Chemistry & Material Science, Szeged, Hungary

FI-2:L10 **Inkjet Printing of Transparent Electronics Based on Low Temperature Process of Ternary Metal Oxides**
A. OLZIERSKY[1], A. VILA[1], J.R. MORANTE[1, 2], [1]M-2E/XaRMAE/IN2UB, Dept. of Electronics, University of Barcelona, Barcelona, Spain; [2]IREC, Catalonia Institute for Energy Research, Barcelona, Spain

FI-2:IL11 **Amorphous Oxide Semiconductors for Thin-film Transistors**
H. KUMOMI, Canon Inc., Tokyo, Japan

FI-2:IL12 **Transparent Conductors on Polymer Films**
M. FAHLAND, T. VOGT, A. SCHÖNBERGER, Fraunhofer FEP, Dresden, Germany; U. PARTSCH, Fraunhofer IKTS, Dresden, Germany

FI-2:L13 **Emerging p-type Transparent Conductive Oxides: Theoretical and Experimental Studies**
M. MODREANU[1], M. NOLAN[1], E. CHIKOIDZE[2], B. SERVET[3], G. GARRY[3], G. HUYBERECHTS[4], [1]Tyndall National Institute, Cork, Ireland; [2]University of Versailles CNRS (GEMAC), Meudon, France; [3]Thales Research & Technology France, Palaiseau cedex, France; [4]Umicore Group R&D, Olen, Belgium

FI-2:L14 **Effects of Ag Doping on the Performance of ZnO-based Thin Film Transistor**
DEUK-HEE LEE, S.Y. LEE, Center for Energy Materials Research, Korea Institute of Science and Technology, Seoul, Republic of Korea; S. KIM, Dept. of Electrical Engineering and Institute for Nanoscience, Korea University, Seoul, Republic of Korea

FI-2:L15 **Simple Control of Threshold Voltage in Ag-doped ZnO Nanowire Field Effect Transistors**
KYOUNGWON KIM, P.C. DEBUNATH, D.-H. PARK, S.Y. LEE, Center for Energy Materials Research, Korea Institute of Science and Technology, Seoul, Korea.; S. KIM, Dept. of Electrical Engineering and Institute for Nano Science, Korea University, Seoul, Korea

FI-2:IL16 **Amorphous Transparent Conductors for Photovoltaic Application**
J.J. BERRY[1], A.K. SIGDEL[2], T. GENNETT[1], D.C. OLSON[1], D.S. GINLEY[1], J.D. PERKINS[1], [1]National Renewable Energy Laboratory, Golden CO, USA; [2]Dept. of Physics and Astronomy, University of Denver, Denver, CO, USA

FI-2:IL17 **Structure Controlled TCOs for Solar Cells Using Fast Growth Rate Atmospheric Pressure Chemical Vapour Deposition**
D.W. SHEEL, H.M. YATES, P. EVANS, University of Salford, Manchester, UK; U. DAGKALDIRAN, A. GORDIJN, F. FINGER, IEF5-Photovoltaik, Forschungszentrum Julich GmbH, Julich, Germany; C.BAILIFF, S. FAY, S.NICOLAY, EPFL, IMT, Neuchatel, Switzerland

FI-2:L18 **Phosphorus Doped ZnO, p-type and n-type, a Material for Photovoltaic and Other Applications**
HAO GONG, GUANGXIA HU, Dept. Mat. Sci. Eng., National University of Singapore, Singapore

FI-2:L19 **Tuning Color of p-type Wide Band Gap Semiconductor via Their Nanostructuration**
B. CHAVILLON, C. DOUSSIER-BROCHARD, R. SRINIVASAN, L. CARIO, L. LE PLEUX, Y. PELLEGRIN, E. BLART, F. ODOBEL, S. JOBIC, Institut des Matériaux Jean Rouxel, Nantes, France

FI-2:L20 **Conductive Self-cleaning Films Deposited by Aerosol Assisted Chemical Vapour Deposition**
M.G. NOLAN, J.A. HAMILTON, I.M. POVEY, M.E. PEMBLE, Tyndall National Institute, University College Cork, Cork, Ireland

FI-2:IL21 **Chromogenics for Sustainable Energy**
C.G. GRANQVIST, Uppsala University, The Angstrom Laboratory, Uppsala, Sweden

FI-2:IL22 **Pathways Towards p-type Oxide Layers for Optoelectronic Applications**
B. SZYSZKA[1], C. POLENZKY[1], P. LOEBMANN[2], S. GOETZENDORFER[2], C. ELSAESSER[3], W. KOERNER[3], [1]Fraunhofer Institute for Surface Engineering and Thin Films IST, Braunschweig, Germany; [2]Fraunhofer Institute for Silicate Research ISC, Wuerzburg, Germany; [3]Fraunhofer Institute Fraunhofer Institute for Mechanics of Materials IWM, Freiburg, Germany

FI-2:L23 **Au-based Transparent Conductors for Window Applications: Effect of Substrate Material and Temperature**
P.C. LANSAKER, G.A. NIKLASSON, C.G. GRANQVIST, Dept. of Engineering Sciences, The Angstrom Laboratory, Uppsala University, Uppsala, Sweden

FI-2:L24 **Fabrication of (001)-oriented Anatase Ti1-xNbxO2 Films on Glass Substrate with Perfectly Aligned LaAlO3 Seed Layer**
Y. HIROSE, K. KIMURA, K. TAIRA, S. NAKAO, T. HASEGAWA, Univ. of Tokyo, KAST, Tokyo, Japan

FI-2:L25 **The Relationship of Electrical and Structural Properties of Synthetic Melanin Embedded in Matrix of Thin Films Zinc Oxide, for Their Use as Electrodes in Bio-generators**
D.C. ALTAMIRANO-JUAREZ, J.J. HERNANDEZ-BARRIGA, Universidad de la Sierra Sur, Miahuatlán, Oaxaca, México; C. GARCÍA-PACHECO, Instituto Tecnológico de Chetumal, Chetumal, Quintana Roo, México

FI-2:IL26 **Electronic Structures and Energy Band Lineup of Transparent Conducting Materials Studied by Photoelectron Spectroscopy**
H. YANAGI, Univ. of Yamanashi, Kofu, Japan; K. NOMURA, H. HIRAMATSU, JST ERATO-SORST in Tokyo Tech, Yokohama, Japan; Y. TODA, T. KAMIYA, H. HOSONO, Tokyo Tech, Yokohama, Japan

FI-2:IL27 **Thermophysical Properties of Various TCO Films; ITO, IZO, AZO and TTO Films**
Y. SHIGESATO, N. OKA, T. YAGI, N. TAKETOSHI, T. BABA, Graduate School of Science and Eng., Aoyama Gakuin University, Sagamihara, Kanagawa, Japan National Institute of Advanced Industrial Science and Technology (AIST), Japan

FI-2:L28 **Electrical Transport in Al Doped ZnO Grown by Reactive Pulsed Magnetron Sputtering**
S. CORNELIUS, M. VINNICHENKO, A. KOLITSCH, W. MÖLLER, Institute of Ion Beam Physics and Materials Research, Forschungszentrum Dresden-Rossendorf, Dresden, Germany

FI-2:L29 **Morphological Control and Photochemical Properties of Nitrogen-doped Titania Nanoparticles by Microwave-assisted Solvothermal Process**
BIN LIU, YUHUA WANG, School of Physical Science and Technology, Lanzhou University, China; SHU YIN, TSUGIO SATO, IMRAM, Tohoku University, Japan

FI-2:L30 **Development of New Oxide Semiconductors for Thin-film Transistors Using Doping Methods**
WOO-SEOK CHEONG[1], JUN-YONG BAK[1, 2], HONG SEUNG KIM[2], SUNG MOOK CHUNG[1], CHI-SUN HWANG[1], [1]Transparent Display Team, ETRI, Daejeon, Korea; [2]Nanosemiconductor, Korea Maritime University, Korea

FI-2:IL31 **Chemical Modification of SnO2 as an Approach to Selectivity Enhancement for Gas Sensor Materials**
M. RUMYANTSEVA, Chemistry Dept., Moscow State University; A. GASKOV, Chemistry Dept., Moscow State University, Moscow, Russia

FI-2:L32 **Self-diffusion in TCO Materials: A Theoretical Approach**
P. ÁGOSTON, Inst. für Materialwissenschaft, TU Darmstadt, Darmstadt, Germany; P. ERHART, Lawrence Livermore National Lab., Livermore, CA, USA; **K. ALBE**, Inst. für Materialwissenschaft, TU Darmstadt, Darmstadt, Germany

FI-2:L33 **Opto-mechanical Properties of GZO Thin Films Deposited on Plastic Substrates at Room Temperature**
P. CARVALHO, E. SILVA, C. BATISTA, S. LANCEROS-MENDES, J. CARNEIRO, V. TEIXEIRA, Physics Dept., University of Minho, Guimaraes, Portugal

Session FI-3
Applications

FI-3:IL01 **Achieving Ultra Low Gas Sensing Utilizing Metal Oxides**
G. KIRIAKIDIS, K. MOSCHOVIS, I. KORTIDIS, Physics Dept., University of Crete and IESL/FORTH, Crete, Greece

FI-3:IL02 **High-performance and High-CRI OLEDs for Lighting and Their Fabrication Processes**
T. KOMODA, H. TSUJI, N. ITO, T. NISHIMORI, N. IDE, Panasonic Electric Works Co., Ltd., Kadoma, Osaka, Japan; T. IWAKUMA, Idemitsu Kosan Co., Ltd., Chiba, Japan; M. YAMAMOTO, Tazmo Co., Ltd., Okayama, Japan

FI-3:L03 **Controlled Threshold Voltage Shift of ZnO Nanowire Field Effect Transistors Depending on the Diameter of Nanowire**
D.-H. PARK, K. KIM, P.C. DEBNATH, S.Y. LEE, Center for Energy Materials Research, Korea Institute of Science and Technology, Seoul, Korea

FI-3:L04 **Bipolar Resistive Switching Behavior in Ti/MnO2/Pt Structure for Nonvolatile Resistive Switching**
M.K. YANG, **JEON-KOOK LEE**, Korea Institute of Science and Technology, Seoul, Korea; T.K. KO, Yonsei University, Seoul, Korea

FI-3:IL05 **Plasma Enhanced Deposition of Metal Oxide Films for Photovoltaics**
M.C.M. VAN DE SANDEN, Eindhoven University of Technology, Dept. of Applied Physics, Eindhoven, The Netherlands

FI-3:IL06 **Application of ZnO-based Transparent Electrodes to TFT-LCDs as Substitution for ITO**
T. YAMAMOTO, T. YAMADA, H. MAKINO, N. YAMAMOTO, Materials Design Center, Kochi University of Technology, Kamishi, Japan; Y. HIRASHIMA, H. IWAOKA, T. ITOH, A. UJIHARA, R&D Center, Geomatec Co., Ltd.; H. HOKARI, M. YOSHIDA, H. MORITA, Hachioji R&D Center, Casio Computer Co., Ltd., Japan

FI-3:L07 **Nanostructured Metal Oxides as Cathode Interfacial Layers for Hybrid-polymer Electronic Devices**
M. VASILOPOULOU[1], L.C. PALILIS[1], D.G. GEORGIADOU[1], P. ARGITIS[1], I. KOSTIS[2, 3], G. PAPADIMITROPOULOS[1], N.A. STATHOPOULOS[2], A. ILIADIS[3, 4], N. KONOFAOS[3], D. DAVAZOGLOU[1], [1]Institute of Microelectronics, NCSR Demokritos, Aghia Paraskevi, Greece; [2]Dept. of Electronics, Technological and Educational Institute of Pireaus, Aegaleo, Greece; [3]Dept. of Information and Communication Systems Eng., University of the Aegean, Karlovassi, Greece; [4]ECE Dept., University of Maryland, College Park, USA

FI-3:L08 **Photocatalytic Active Monoclinic WO3 Thin Films**
M. JOHANSSON, G. NIKLASSON, L. ÖSTERLUND, Dept. of Engineering Science, The Ångström Laboratory, Uppsala University, Uppsala, Sweden

FI-3:L09 **Surface Modification of ITO by Al2O3 for Electrodes in Polymer Based OLEDs**
A. WACHAU, T. BAYER, C. KÖRBER, A. KLEIN, Darmstadt University of Technology, Inst. of Materials Science, Surface Science Division, Darmstadt, Germany; K. STEGMAIER, C. MELZER, H. VON SEGGERN, Darmstadt University of Technology, Institute of Materials Science, Electronic Materials, Darmstadt, Germany; N. VILBRANDT, M. REHAN, Darmstadt University of Technology, Ernst-Berl-Institute für Technische und Makromolekulare Chemie, Darmstadt, Germany

FI-3:IL10 **3-Dimensional Nanostructured ZnO for Highly Efficient Thin Film Silicon Solar Cells**
M. VANECEK, A. PORUBA, Z. REMES, J. HOLOVSKY, A. PURKRT, O. BABCHENKO, K. HRUSKA, N. NEYKOVA, Institute of Physics, Academy of Sciences of the Czech Republic, Prague, Czech Republic; J. MEIER, U. KROLL, Oerlikon Solar-Lab SA, Neuchâtel, Switzerland

FI-3:IL11 **Low Voltage Driving Transparent Electroluminescence Devices Composed of Perovskite Oxides**
H. TAKASHIMA, NeRI, National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan

FI-3:IL12 **Recent Developments on Inorganic Electrochromic Systems**
A. ROUGIER[1], DAE HOON PARK[2], K. SAUVET[1, 3], L. SAUQUES[3], G. CAMPET[2], [1]Lab. de Réactivité et Chimie des Solides, UMR 6007, Amiens, France; [2]Inst. Chimie de la Matière Condensée de Bordeaux, UPR 9048, Pessac, France; [3]Délégation Générale de l'Armement, CEP, LOT A d'Arceuil, Arceuil, France

FI-3:IL13 **Optimisation of Thermochromic Thin Films on Glass; Design of Intelligent Windows**
R. BINIONS[1], M. SAELI[2], **I.P. PARKIN**[1], [1]University College London, Dept. of Chemistry, Christopher Ingold Labs, London, UK; [2]Università degli Studi di Palermo, Dip. di Progetto e Costruzione Edilizia (DPCE), Palermo, Italy

Poster Presentations

FI:P01 **Analysis on Resistive Switching of Resistive Random Access Memory using Visualization Technique of Data Storage Area with Secondary Electron Image**
K. KINOSHITA, T. MAKINO, A. HANADA, K. DOBASHI, T. YODA, S. KISHIDA, Tottori University, Tottori, Japan

FI:P02 **Interface Electronic Structure of Sputtering Deposited Undoped and Doped ZnO Thin Films on a Commercial Cz-Si Solar Cell Substrate**
M. GABÁS[1], P. DÍAZ[1], S. BIJANI[1], S. PALANCO[1], P. HERRERO[2], F. AGULLÓ-RUEDA[2], A.R. LANDA-CÁNOVAS[2], J.R. RAMOS-BARRADO[1], [1]Dpto. Física Aplicada I, Lab. de Materiales y Superficies, Universidad de Málaga, Málaga, Spain; [2]Inst. de Ciencia de Materiales de Madrid, CSIC, Madrid, Spain

FI:P03 **Fabrication and Properties of Highly Oriented IZO/AZO Transparent Conducting Thin Films by the PLD Process**
JIN-HYUN SHIN, DONGKYUN SHIN, HEE YOUNG LEE, **JAI-YEOUL LEE**, Dept. of Materials Engineering, Yeungnam University, Gyongsan, Korea

FI:P04 **Electrical and Optical Properties of Boron-doped Anatase-type TiO2 Thin Films**
S. KUBO, Y. HARA, K. KADOWAKI, Y. OHNISHI, K. SATO, Y. YAMADA, T. YUKIOKA, H. KITAGAWA, Shimane University, Matsue, Shimane, Japan

FI:P05 **ZnO Microstructure Using Photonic-Crystal Structure by Polystyrene Micro-bead Template**
KUO-MING HUANG[1], HENG-JUI CHANG[1], CHUNG-HUNG WU[2], SHANG-FU CHEN[1], MENG-CHYI WU[1, 2], [1]Institute of Electronics Eng., National Tsing Hua University, Hsinchu, Taiwan; [2]Institute of Photonics Technologies, National Tsing Hua University, Hsinchu, Taiwan

FI:P06 **Electronic and Optical Properties of ZnO:M (Co, Cd)**
P. PALACIOS, I. AGUILERA, P. WAHNON, Instituto de Energía Solar & Dept. Tecnologías Especiales, ETSI, Telecomunicación, Universidad Politécnica de Madrid, Madrid, Spain

FI:P07 **Study of ZnO Films Growth with Different Doping Elements: Physical Properties and Their Comparison**
L. PRUSAKOVA, V. VAVRUNKOVA, M. NETRVALOVA, P. SUTTA, University of West Bohemia, New Technology Research Centre, Plzen, Czech Republic

FI:P08 **Study on the Electrical, Optical and Durability Characteristics of IZO/Ag-alloy/IZO Transparent Conductive Multilayer System**
S.H. CHO, **WON-JONG LEE**, Dept. of Materials Science and Engineering, KAIST, Taejon, Republic of Korea

FI:P09 **Structural, Morphological, Optical and Thermally Stimulated Current Studies of Transparent Conducting Oxides (ZnO:In)**
N. KAMOUN ALLOUCHE[1, 2], N. JEBBARI[1], C. GUASCH[2], N. KAMOUN TURKI[1], M. CASTAGNÉ[2], [1]Lab. Physique de la Matière Condensée, Fac. des Sciences de Tunis El Manar, Tunisie; [2]Inst. d'Electronique du Sud, Unité Mixte de Recherche 5214 UM2-CNRS (ST2i), Univ. Montpellier 2, Montpellier, France

FI:P10 **Sol Gel Synthesis of Doped ZnO Transparent Electrodes for PV Cells**
I. WINER, G.E. SHTER, **G.S. GRADER**, Technion-Israel Institute of Technology, Haifa, Israel

FI:P11 **Control of n-channel Depletion and Enhancement-mode ZnO Nanowire Field Effect Transistors**
P.C. DEBNATH[1, 2], K. KIM[1], D.-H. PARK[1], S.Y. LEE[1], [1]Center for Energy Materials Research, Korea Institute of Science and Technology (KIST), Seoul, South Korea; [2]University of Science and Technology (UST), South Korea

FI:P12 **Role of Conductive Buried Layer for the Performance Enhancement of a-IGZO TFT**
E. CHONG, KYOUNG-CHUL JO, SANG YEOL LEE, Center for Energy Materials Research, Korea Institute of Science and Technology, Seoul, Korea

FI:P13 **Potentiostatic Deposition of Zinc Oxide on Flexible Substrate**
C.H. WONG, C.L. MAK, K.H. WONG, Hong Kong Polytechnic University, Kowloon, Hong Kong

FI:P14 **High-transmittance and Stable Indium Gallium Zinc Oxide (IGZO) Films for UV Light-emitting Diodes**
HENG-JUI CHANG, KUO-MING HUANG, SHANG-FU CHEN, JUN-CHIEH HUANG, MENG-CHYI WU, Institute of Electronics Engineering, National Tsing Hua University, Hsinchu, Taiwan; CHUNG-HNUG WU, Institute of Photonics Technologies, National Tsing Hua University, Hsinchu, Taiwan

FI:P15 **Optical Hydrogen Response of Sputtered Pt/WO3 Nanostructured Films - Comparative Studies on Different Transparent Substrates**
M.H. YAACOB, J.Z. OU, K. KALANTAR-ZADEH, W. WLODARSKI, Sensor Technology Laboratory, School of Electrical and Computer Engineering, RMIT University, Melbourne, Australia

FI:P16 **Synthesis of Bi25FeO40/TiO2 Core-shell Structured Nano-composites and Their Photocatalytic Activity**
JIANMIN LI, JUYUE SONG, DONG HONG, SHENGWEN YU, DENGREN JIN, JINRONG CHENG, School of Materials Science and Engineering, Shanghai University, Shanghai, China

FI:P17 **Effect of Oxygen in Aerosol Assisted CVD of TiO2 Using Titanium Tetra-iso-propoxide/Acetylacetone Solutions**
F. MAURY, F.D. DUMINICA, CIRIMAT, CNRS/INPT/UPS, ENSIACET, Toulouse, France

SYMPOSIUM FJ

MATERIALS AND TECHNOLOGIES FOR SOLID STATE LIGHTING

Oral Presentations

Session FJ-1
Material Growth and Processing

FJ-1:IL01 **GaN Optoelectronics on Silicon**
A. DADGAR, Otto-von-Guericke-Universität Madeburg, FNW-IEP, Magdeburg, Germany

FJ-1:IL02 **Synthesis of Electroluminescent Organic and Organometallic Materials: Tuning Emission Colour by Molecular Design**
G.M. FARINOLA, Chemistry Department, University of Bari, Bari, Italy

FJ-1:IL03 **Zinc Oxide; Bulk Growth, Hydrogen and Schottky Diodes**
B.G. SVENSSON[1], R. SCHIFANO[1], K.M. JOHANSEN[1], L. VINES[1], V. QUEMENER[1], P. NEUVONEN[1], K.E. KNUTSEN[1], H.B. NORMANN[1], H. HAUG[1], M. KVALBEIN[1], A. GALECKAS[1], A.YU. KUZNETSOV[1], E.V. MONAKHOV[1], F. TUOMISTO[2], W. MTANGI[3], F.D. AURET[3], [1]Dept. of Physics/Center for Materials Science and Nanotechnology, University of Oslo, Blindern, Oslo, Norway; [2]Lab. of Physics, Helsinki University of Technology, TKK, Finland; [3]Dept. of Physics, University of Pretoria, Pretoria, South Africa

FJ-1:L04 **Catalyst-assisted MOVPE Self-assembly and Properties of Free-standing III-V Nanowires**
P. PRETE, IMM-CNR, Lecce, Italy; **N. LOVERGINE**, Dept. Innovation Engineering, University of Salento, Lecce, Italy

FJ-1:L05 **Growth of GaN Nanostructures by Halide Vapor Phase Epitaxy**
C. HEMMINGSSON, G. POZINA, B. MONEMAR, Dept. of Physics, Chemistry and Biology (IFM), Linköping University, Linköping, Sweden

FJ-1:IL06 **InAs and GaN Quantum Dots: Similarities and Differences**
A. HOFFMANN, M. WINKELNKEMPER, C. KINDEL, S. WERNER, T. WARMING, G. HÖNIG, A. SCHLIEWA, D. BIMBERG, Technical University of Berlin, Institute of Solid State Physics, Berlin, Germany

FJ-1:IL07 **Combining GaN and ZnO in Single Heterostructures: Exploiting Their Relative Advantages**
J. ZUNIGA PEREZ, CRHEA (CNRS), Valbonne, France

FJ-1:L08 **High Ordered Thin Film of Oligothiophenes Grown by SuMBD: Optical, Electrical and Morphological Characterization**
T. TOCCOLI, M. TONEZZER, S. GOTTARDI, C. FASOLI, IFN-CNR, Povo di Trento, Italy; P. BETTOTTI, E. RIGO, L. PAVESI, Lab. Nanoscienze, Dip. di Fisica, Università di Trento, Povo di Trento, Italy; S. IANNOTTA, IMEM-CNR, Parco Area delle Scienze, Parma, Italy

FJ-1:L09 **InGaN Layers for Efficient Light Emission**
M. LESZCZYNSKI, P. PERLIN, R. CZERNECKI, P. PRYSTAWKO, G. TARGOWSKI, M. SARZYNSKI, J. PLESIEWICZ, T. SUSKI, S. POROWSKI, Institute of High Pressure Physics and TopGaN, Warsaw, Poland

FJ-1:L10 **Characterization of Polycrystalline SiC Layers Grown on n-type Si by LPCVD**
K. MAHMOOD, A. HASHMI, The Islamia University of Bahawalpur, Bahawalpur, Pakistan

FJ-1:IL11 **Heteroepitaxial Growth of *m*-plane InN on $LiAlO_2$ Substrates and Its Strong Anisotropic Optical Behaviors**
CHING-LIEN HSIAO[1], JR-TAI CHEN[1], HSU-CHENG HSU[1], KUEI-HSIEN CHEN[1,2], **LI-CHYONG CHEN**[1], [1]Center for Condensed Matter Sciences, National Taiwan University, Taipei, Taiwan; [2]Institution of Atomic and Molecular Sciences, Academia Sinica, Taipei, Taiwan

FJ-1:IL12 **(Ga,Al,In)N Growth on Silicon**
A. KROST, Otto-von-Guericke-Universität Magdeburg, FNW-IEP, Magdeburg, Germany

FJ-1:IL13 **Recent Advances in the MOVPE Epitaxy of Indium Nitride**
O. BRIOT, S. RUFFENACH, M. MORET, B. GIL GES, CNRS UMR5650 CC074, Université Montpellier 2, Montpellier, France

FJ-1:L14 **AlN Technology for UV Light Emitting Devices**
Z. SITAR[1], P. LU[2], B. MOODY[2], R. SCHLESSER[2], R. COLLAZO[1], R. DALMAU[2], J. XIE[2], [1]Dept. of Materials Science and Engineering, North Carolina State University, Raleigh, NC, USA; [2]HexaTech, Inc., Morrisville, NC, USA

FJ-1:L15 **Growth and Characterization of Deep UV-range ZnMgSrO Thin Films Lattice-matched to ZnO Substrate**
NAE-SANG YOON, JANG-HO PARK, IL-SOO KIM, **BYUNG-TEAK LEE**, Photonic and Electronic Thin Film Lab., Dept. of Materials Science and Eng., Chonnam National University, Gwangju, Republic of Korea

Session FJ-2
Electro-optical Characterisation

FJ-2:IL01 **Relating Microstructure to Transport in n-type Organic Semiconductors**
A. SALLEO[1], J. RIVNAY[1], M.F. TONEY[2], A. FACCHETTI[3,4], T.J. MARKS[4], [1]Dept. of Materials Science and Eng., Stanford University, Stanford, CA, USA; [2]Stanford Synchrotron Radiation Lightsource, Menlo Park CA, USA; [3]Polyera Corp., Skokie IL, USA; [4]Dept. of Chemistry and Materials Research Center, Northwestern University, Evanston IL, USA

FJ-2:IL02 **Zinc Oxide a Material for Optoelectronic Applications: Analysis of Fundamental Properties and Their Modification by Hydrogen**
N.H. NICKEL, Helmholtz-Zentrum Berlin für Materialien und Energie, Berlin, Germany

FJ-2:L03 **New Phosphors for White Leds, the Case of Phosphate Doped with Divalent Europium and Other Luminescent Ions**
B. GLORIEUX[1], A. ORLOVA[2], A. GARCIA[1], A. KANUNNOV[2], V. JUBERA[1], [1]Institut de Chimie de la Matiere Condensée de Bordeaux, CNRS UPR 9048, Pessac, France; [2]State University of Nizhni Novgorod, Dept. of Chemistry, Nizhni Novgorod, Russia

FJ-2:L04 **Tunable Color and Luminescent Properties of Dy3+ and Tm3+ Co-activated CaZrO3 Phosphor**
YEZHOU LI, YUHUA WANG, Dept. of Materials Science, School of Physical Science and Technology, Lanzhou University, Lanzhou, Gansu Prov., P.R. China

FJ-2:IL05 **P-type Transparent Semiconductors: Synthesis and Applications**
J. TATE, A. ZAKUTAYEV, H. PLATT, D. KESZLER, Oregon State University, Corvallis, OR, USA; C. HEIN, T. MEYER, A. KLEIN, Darmstadt University of Technology, Germany

FJ-2:IL06 **Semiconductor Microcavities: An Overview of the Studies Made During the Passed 18 Years**
A. KAVOKIN, University of Rome II Tor Vergata, Rome, Italy, and Physics and Astronomy School, Univ. of Southampton, Highfield Southampton, UK

FJ-2:L07 **Origin of the Green Light Emission in Polyfluorene Based Diodes by Trap Investigations**
O. HAAS[1], J.C. SANCHEZ[1], C. RENAUD[1], P. LE RENDU[1], S.H. YANG[2], H.M. SHIH[2], **T.P. NGUYEN**[1], [1]Institut des Matériaux Jean Rouxel, CNRS- University of Nantes, Nantes, France; [2]Dept. of Applied Chemistry, National Chiao Tung University, Hsinchu, Taiwan, Republic of China

FJ-2:L08 **Red-emitting CaSrAl2SiO7:Eu3+ Phosphor for Near - Ultraviolet Light-emitting Diodes**
YUHUA WANG, H.Y. JIAO, Dept. of Materials Science, School of Physical Science and Technology, Lanzhou University, Lanzhou, P.R. China

FJ-2:IL09 **Interfacial Modifications in Organic Optoelectronic Devices**
J.W.P. HSU, Sandia National Laboratories, Albuquerque, NM, USA

FJ-2:IL10 **Defects and the Efficiency of GaN-based LEDs**
D. ZHU, C. MCALEESE, M.J. KAPPERS, **C.J. HUMPHREYS**, Dept. of Materials Science and Metallurgy, University of Cambridge, Cambridge, UK

FJ-2:L11 **Size-dependent Recombination Dynamics in ZnO Nanowires**
J.S. REPARAZ, M.R. WAGNER, A. HOFFMANN, Institut für Festkörperphysik, Technische Universität, Berlin, Germany; **F. GÜELL**, A. CORNET, J.R. MORANTE, M2E-MIND-IN2UB, Departament d'Electronica, Universitat de Barcelona, Barcelona, Catalunya, Spain

FJ-2:L12 **Hydrogen in InN: Ubiquitous Phenomena in Molecular Beam Epitaxy Grown Material**
V. DARAKCHIEVA[1,2], K. LORENZ[1], N.P. BARRADAS[1], E. ALVES[1], M.-Y. XIE[1,2], B. MONEMAR[2], [1]Instituto Tecnológico e Nuclear, Portugal; [2]IFM, Linköping University, Sweden; M. SCUBERT, University of Nebraska-Lincoln, USA; W.J. SCHAFF, Cornell University, USA; C.L. HSIAO, L.C. CHEN, National Taiwan University, Taiwan; L.W. TU, National Sun Yat-Sen University, Taiwan; T. YAMAGUCHI, Y. NANISHI, Retsumeikan University, Japan

FJ-2:IL13 **Organic Syntheses and Characteristics of Novel Conjugated Polymers for AMOLEDs**
HONSGUK SUH, YOUNGEUP JIN, SUHEE SONG, Dept. of Chemistry & Chemistry Inst. for Functional Materials, Pusan National University, Busan, Korea; SUN HEE KIM, SUNG HEUM PARK, KWANGHEE LEE, Dept. of Material Science and Eng., Gwangju Institute of Science and Technology, Korea

FJ-2:IL14 **Real Time Optical Monitoring of Growth and Processing of Materials for LEDs**
M. LOSURDO, G. BRUNO, CNR-IMIP, Bari, Italy

FJ-2:IL15 **VUV Optical Properties of III-Nitrides in the Thin Film Limit**
C. COBET, M. RÖPPISCHER, N. ESSER, Institute for Analytical Sciences, Berlin, Germany; R. GOLDHAHN, G. ROSSBACH, C. BUCHHEIM, Institute of Physics, TU Ilmenau, Ilmenau, Germany

Session FJ-3
Device Structures and Manufacturing

FJ-3:IL01 **White OLEDs for Lighting**
H. BOERNER, Philips Research Europe Laboratories, Aachen, Germany

FJ-3:IL02 **Opto-electronic Grade Zinc Oxide for Device Applications**
D.J. ROGERS, Ferechteh Hosseini Teherani Nanovation, Orsay, France

FJ-3:IL03 **Light Sources for General Lighting**
K. STREUBEL, Osram GmbH, Munich, Germany

FJ-3:IL04 **Nanostructured (In,Ga)N LEDs for Solid-State Lighting: Opportunities and Obstacles**
T.D. SANDS[1,2,3], I.H. WILDESON[1,3], D.A. EWOLDT[2,3], R. COLBY[2,3], ZHIWEN LIANG[2], D.N. ZAKHAROV[3], R.E. GARCIA[2], E.A. STACH[2,3], [1]School of Electrical and Computer Engineering, [2]School of Materials Engineering; [3]Birck Nanotechnology Center, Purdue University, West Lafayette, IN, USA

FJ-3:IL05 **ZnO Devices Fabrication Using Pulse Laser Deposition**
F.H. TEHERANI, D.J. ROGERS, Nanovation, Orsay, France

FJ-3:IL06 **Blue and White Phosphorescent Organic Light Emitting Devices**
JIANGENG XUE, Dept. of Materials Science and Engineering, University of Florida, Gainesville, FL, USA

FJ-3:IL07 **White Light Generation Using Microcavity Blue Phosphorescent OLEDs with Down-conversion Phosphors**
F. SO, University of Florida, Dept. Matls Science and Eng., Gainesville, FL,USA

FJ-3:IL08 **Surface Polarity Effects in the Optical and Electronic Properties of ZnO**
M.W. ALLEN, S.M. DURBIN, Dept. of Electrical and Computer Engineering, University of Canterbury, Christchurch, New Zealand

FJ-3:IL09 **Organic-inorganic Hybrid Field-effect Transistors**
T. ANTHOPOULOS, Dept. of Physics, Imperial College London, Blackett Laboratory, London, UK

Poster Presentations

FJ:P01 **Synthesis and Characterization of SrAl2O4 Based Persistent Phosphors by Modified Pechini Technique**
O. ARIKAN, C. KARAKAS, N. SOLAK, **S. AYDIN**, Istanbul Technical University, Dept. of Metallurgical & Materials Eng., Maslak, Istanbul, Turkey

FJ:P02 **First-principles Study of Frenkel Pair Defect Stability in Si (100) Surface**
S. FETAH[1, 4], A. DKHISSI[1], A. ESTÈVE[1], M. DJAFARI ROUHANI[1, 2], G. LANDA[1, 2], P. POCHET[3], [1]CNRS, LAAS, Toulouse, France; [2]Université de Toulouse, UPS, INSA, INP, ISAE, LAAS, Toulouse, France; [3]SP2M/L-Sim,CEA/Grenoble, Grenoble, France; [4]Université de Sétif UFAS, Faculté des Sciences, Dép. de Physique, Sétif, Algérie

FJ:P03 **The Enhanced Red Emission of YNbO4:Eu3+ for White LEDs Applications**
EUN YOUNG LEE, **YOUNG JIN KIM**, Dept. of Materials Science and Engineering, Kyonggi University, Suwon, Korea

FJ:P04 **Tailoring Optical Properties of Blue-gap Poly(p-phenylene vinylene)s for LEDs Applications**
M.M. GIANGREGORIO, M. LOSURDO, P. CAPEZZUTO, G. BRUNO, IMIP-CNR, Bari, Italy; **A. CARDONE**, C. MARTINELLI, G.M. FARINOLA, F. BABUDRI, F. NASO, Università di Bari, Dip. di Chimica, Bari and ICCOM-CNR, Bari, Italy

FJ:P05 **Interface and Surface Modification of ZnO Induced by Hydrogen and Nitrogen and Their Impact on Light Emission Properties**
M.M. GIANGREGORIO, G.V. BIANCO, A. SACCHETTI, P. CAPEZZUTO, M. LOSURDO, G. BRUNO, IMIP-CNR, Bari, Italy

FJ:P06 **Advanced Real Time Metrology of AlGaN/GaN and InGaN/GaN Epitaxy**
TONG-HO KIM, A.S. BROWN, Dept. of Electrical and Computer Engineering, Duke University, Durham, NC, USA; M.M. GIANGREGORIO, M. LOSURDO, G. BRUNO, IMIP-CNR, Bari, Italy

FJ:P07 **Organic Synthesis and Characteristics of Novel Conjugated Polymers with Cyano Group and Carbazole Unit for AMOLEDs**
SUHEE SONG[1], YOUNGEUP JIN[1], SUN HEE KIM[2], KWANGHEE LEE[2], HONSGUK SUH[1], [1]Dept. of Chemistry & Chemistry Institute for Functional Materials, Pusan National University, Busan, Korea; [2]Dept. of Material Science and Engineering, Gwangju Institute of Science and Technology, Korea

FJ:P08 **Dynamics of Donor Bound Excitons in Freestanding GaN Doped by Silicon and Oxygen**
G. POZINA, C. HEMMINGSSON, B. MONEMAR, Dept. of Physics, Chemistry and Biology, Linköping University, Linköping, Sweden

FJ:P09 **Structural and Optical Properties of Thick, Crack Free GaN Layers on Si(111) Grown by MOVPE**
S. FRITZE, A. DEMPEWOLF, F. BERTRAM, J. BLÄSING, T. HEMPEL, J. CHRISTEN, A. KROST, Institute of Experimental Physics, Otto-von-Guericke-University Magdeburg, Magdeburg, Germany; O. SCHULZ, AZZURRO Semiconductors AG, Magdeburg, Germany

FJ:P10 **Synthesis, Optical and Electrical Properties of Oligo(phenylene-vinylene)s Substituted with Electron-Accepting Sulfonyl Groups**
S. GLANG, V. SCHMITT, **H. DETERT**, Institute for Organic Chemistry, Johannes Gutenberg-Universität Mainz, Mainz, Germany

FJ:P11 **Mechanism for Enhanced Phonon-assisted Free Exciton Emission in ZnO Tetrapod Nanostructures**
S.L. CHEN[1], S.K. LEE[1], W.M. CHEN[1], H.X. DONG[2], Z.H. CHEN[2], **I.A. BUYANOVA**[1], [1]Dept. of Physics, Chemistry and Biology, Linköping Univeristy, Linköping, Sweden; [2]Surface Physics Laboratory, Dept. of Physics, Fudan University, Shanghai, China

FJ:P12 **Surface Barrier Diffusion**
J. ARBEY RODRIGUEZ[1], **M.G. MORENO-ARMENTA**[2], N. TAKEUCHI[2], [1]GEMA - Grupo de Estudio de Materiales, Dept. of Physics, Universidad Nacional de Colombia; [2]Centro de Nanociencias y Nanotecnología, Universidad Nacional Autónoma de México, Ensenada, BC, México

SYMPOSIUM FM
ELECTROMAGNETIC METAMATERIALS

Oral Presentations

Session FM-1
Microwave and THz Metamaterials

FM-1:IL01 **Terahertz Metamaterials: Artificial Materials for the Electromagnetic Void**
W.J. PADILLA, Boston College, Chestnut Hill, MA, USA

FM-1:IL02 **Terahertz Metamaterials Under a Near-field Microscope**
A. BITZER, A. ORTNER, **M. WALTHER**, Molecular and Optical Physics, University of Freiburg, Freiburg, Germany

FM-1:IL03 **New Concepts for Spoof Surface Plasmon Metamaterials**
S.A. MAIER, Physics Dept., Imperial College London, London, UK

FM-1:IL04 **Radar Absorbing Material Based on Metamaterials**
A.N. LAGARKOV, V.N. KISEL, V.N. SEMENENKO, ITAE RAS, Moscow, Russia

FM-1:L05 **Microwave Metamaterials Containing Magnetically Soft Microwires**
L.V. PANINA, School of Comp., Comm. and Electr., Univ. of Plymouth, Plymouth, UK; M. IPATOV, V. ZHUKOVA, **A. ZHUKOV**, Dpto. de Física de Materiales, Fac. Químicas, UPV/EHU San Sebastián, Spain

Session FM-2
Photonic and Infrared Metamaterials

FM-2:IL01 **Metamaterials: Going from Microwaves to Optics**
M. KAFESAKI, R. PENCIU, FORTH-IESL, Heraklion, Greece; Th. KOSCHNY, Iowa State University, USA; E.N. ECONOMOU, FORTH-IESL and University of Crete, Greece; C.M. SOUKOULIS, FORTH-IESL, Univ. of Crete, Greece, and Iowa State University, USA

FM-2:IL02 **Light Propagation in Optical Metamaterials**
F. LEDERER, T. PAUL, C. ROCKSTUHL, C. MENZEL, University of Jena, Institute of Condensed Matter Theory and Optics, Jena, Germany

FM-2:IL03 **Optics of Active Metamaterials**
A.K. SARYCHEV, Institute for Theoretical and Applied Electrodynamics, Moscow, Russia

FM-2:IL04 **Photonic Metamaterials: Recent Progress**
M. WEGENER, Institut für Angewandte Physik, Institut für Nanotechnologie, DFG-Center for Functional Nanostructures, Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany

FM-2:IL05 **Manufacturing Metamaterials Using Synchrotron Lithography**
H.O. MOSER, L.K. JIAN, S.P. HEUSSLER, S.M.P. KALAISELVI, S. VIRASAWMY, S.M. MANIAM, Singapore Synchrotron Light Source/National University of Singapore, Singapore

FM-2:L06 **Simple Effective Parameters Retrieval Employing Wave Propagation Phenomena**
A. ANDRYIEUSKI, R. MALUREANU, **A.V. LAVRINENKO**, Technical University of Denmark, Kgs. Lyngby, Denmark

FM-2:L07 **Full Scatter Characterization of Novel Photonic and Infrared Metamaterials**
T.M. FITZGERALD, M.A. MARCINIAK, Dept. of Engineering Physics, Air Force Institute of Technology, Wright-Patterson AFB, OH, USA

FM-2:L08 **Semiconductor-metal Nanoparticle Structure as Metamaterial with Negative Permeability at Optical Frequencies**
A.B. EVLYUKHIN, **C. REINHARDT**, A.I. KUZNETSOV, B.N. CHICHKOV, Laser Zentrum Hannover e.V., Hannover, Germany

Session FM-3
Nonlinear and Active Metamaterials

FM-3:IL01 **Nonlinear and Switchable Photonic Metamaterials**
N. ZHELUDEV, Optoelectronics Research Centre, University of Southampton, Southampton, UK

FM-3:IL02 **Nonlinear Photonics at the Nanoscale**
C. SIBILIA, Dip. di Energetica, Università di Roma La Sapienza, Rome, Italy

FM-3:L03 **Frequency-domain Simulations of a Negative-index Material with Embedded Gain**
Y. Sivan[1, 2], S. Xiao[1], U.K. Chettiar[1, 3], A.V. Kildishev[1], V.M. Shalaev[1], [1]School of Electrical and Computer Eng., Purdue University, West Lafayette, IN, USA; [2]Imperial College London, Blackett Lab., London, UK; [3]Electrical and Systems Eng.g, University of Pennsylvania, Philadelphia, PA, USA

FM-3:IL04 **Nonlinear and Tunable Composite Metamaterials**
Y.S. KIVSHAR, Nonlinear Physics Centre, Research School of Physics and Eng., Australian National University, Canberra, ACT, Australia

FM-3:IL05 **Nonlinear Microwave Metasurfaces and Metamaterials**
A.G. SCHUCHINSKY, Queen's University Belfast, Belfast, UK

FM-3:L06 **Intrinsic Localization in Nonlinear Dissipative Metamaterials**
N. LAZARIDES, G.P. TSIRONIS, Dept. of Physics, University of Crete, Heraklion, Greece

Session FM-4
Antenna and Waveguide Applications

FM-4:IL01 **Fundamentals and Applications of Transmission-line Metamaterials**
G.V. ELEFTHERIADES, University of Toronto, Dept. of Electrical and Computer Engineering, Toronto, ON, Canada

FM-4:IL02 **On the Way to Improved Plasmonic Structures**
A. BOLTASSEVA[1, 2], R.B. NIELSEN[1], G. NAIK[2], P. WEST[2], N. EMANI[2], V. SHALAEV[2], [1]DTU Fotonik, Technical University of Denmark, Kgs Lyngby, Denmark; [2]Birck Nanotechnolocy Center, Purdue University, West Lafayette, IN, USA

FM-4:IL03 **Application of Low-frequency Metamaterial Lenses to Magnetic Resonance Imaging and Other Medical Applications**
R. MARQUÉS, M.J. FREIRE, L. JELINEK, Universidad de Sevilla, Fac. de Fisica, Sevilla, Spain

FM-4:L04 **Highly Directional Double-negative Plasmonic Nanoantenna for Blue Light: Gain Assistance with Surface Plasmon Resonance**
M. RAJPUT, R.K. SINHA, TIFAC-Centre of Relevance and Excellence in Fiber Optics and Optical Communication, Dept. of Applied Physics, Delhi College of Eng., University of Delhi, Delhi, India

Session FM-5
Cloaking and Transformation Optics with Metamaterials

FM-5:IL01 **New Concepts of Microwave and Optical Cloaking**
S. TRETYAKOV, Helsinki University of Technology, Espoo, Finland

FM-5:IL02 **Elastodynamic Metamaterials**
M. BRIANE, IRMAR and INSA de Rennes, France; F. GUEVARA VASQUEZ, **G.W. MILTON**, D. ONOFREI, University of Utah, Salt Lake City, UT, USA; J. WILLIS, Cambridge University, UK

FM-5:IL03 **Selected Applications of Transformation Electromagnetics**
I. GALLINA, G. CASTALDI, **V. GALDI**, University of Sannio, Benevento, Italy; A. ALU', University of Texas, Austin, TX, USA; N. ENGHETA, University of Pennsylvania, Philadelphia, PA, USA

FM-5:L04 **Applications of Metamaterial Cloaking**
F. BILOTTI, S. TRICARICO, L. VEGNI, University "Roma Tre", Dept. of Applied Electronics, Rome, Italy

FM-5:IL05 **Anisotropic Metamaterials Emulated by Tapered Waveguides**
I.I. SMOLYANINOV, BAE Systems, Columbia, MD, USA

FM-5:IL06 **Transforming Light with Metamaterials**
V.M. SHALAEV, A.V. KILDISHEV, S. XIAO, V.P. DRACHEV, A. BOLTASSEVA, School of Electrical and Computer Engineering and Birck Nanotechnology Center, Purdue University, West Lafayette, IN, USA

FM-5:IL07 **Non-Euclidean Transformation Optics**
U. LEONHARDT, University of St Andrews, St Andrews, UK

Session FM-6
Superlenses and Near-field Imaging

FM-6:IL01 **Optical Fano Resonance in Nanostructures with Broken Symmetry**
B.S. LUK'YANCHUK, T.C. CHONG, L.P. SHI, Data Storage Institute, Agency for Research, Science and Technology, Singapore

FM-6:L02 **Novel Microscopy Techniques Based on Simulated Metamaterial Anisotropy**
V.N. SMOLYANINOVA, Towson University, Towson, MD, USA; I.I. SMOLYANINOV, University of Maryland, USA; A.V. KILDISHEV, V.M. SHALAEV, Purdue University, USA

FM-6:IL03 **Metamaterials, High-frequency Magnetism and the Landau-Lifshitz Permeability Argument**
R. MERLIN, University of Michigan, Dept. of Physics, Ann Arbor, MI, USA

FM-6:IL04 **Manipulation of Near Fields by Means of Metamaterials**
P.A. BELOV[1], G. PALIKARAS[1], M.G. SILVEIRINHA[2], YAN ZHAO[1], R. DUBROVKA[1], C.R. SIMOVSKI[3], YANG HAO[1], C. PARINI[1], [1]Queen Mary University of London, London, UK; [2]University of Coimbra, Portugal; [3]Helsinki University of Technology, Finland

FM-6:IL05 **Superresolution Through Superoscillations**
E.T.F. ROGERS, T.S. KAO, University of Southampton, Southampton, UK; J. BAUMGARTL, M. MAZILU, S. KOSMEIER, K. DHOLAKIA, University of St Andrews, St Andrews, UK; N.I. ZHELUDEV, University of Southampton, Southampton, UK

Session FM-7
Novel Concepts in Metamaterials

FM-7:IL01 **Gyroelectric Nonlinear Control in Complex Metamaterial Structures**
A.D. BOARDMAN, P. EGAN, R.C. MITCHELL-THOMAS, Y.G. RAPOPORT, University of Salford, Joule Physics Laboratory, Greater Manchester, UK

FM-7:IL02 **Electromagnetic Metamaterials and Computational Electromagnetics**
TIE JUN CUI, State Key Laboratory of Millimeter Waves, School of Information Science and Eng., Southeast University, Nanjing, P.R. China

FM-7:IL03 **Magnetophotonic Crystals**
F.P. VINOGRADOV, Institute for Theoretical and Applied Electromagnetics, RAS, Moscow, Russia

FM-7:IL04 **Trapped Rainbow Storage of Light in Metamaterials**
O. HESS, Advanced Technology Institute and Dept. of Physics, FEPS, University of Surrey, Guildford, Surrey, UK

FM-7:L05 **Laser-induce Transfer - A Novel Approach for Fabrication of Nanoparticle Structures for Plamonics and Metamaterial Applications**
A.I. KUZNETSOV, C. REINHARDT, W. CHENG, A.B. EVLYUKHIN, B.N. CHICHKOV, Laser Zentrum Hannover e.V., Hannover, Germany

FM-7:L06 **Novel Ways to Observe the Handedness of Chiral Optical Metamaterials**
V.K. VALEV, T. VERBIEST, Molecular Electronics and Photonics, INPAC, K.U. Leuven, Leuven, Belgium; A.V. SILHANEK, W. GILLIJNS, V.V. MOSHCHALKOV, Superconductivity and Magnetism & Pulsed Fields Group, INPAC, K.U. Leuven, Leuven, Belgium; N. SMISDOM, B. DE CLERCQ, M. AMELOOT, University Hasselt and Transnational University Limburg, BIOMED, Diepenbeek, Belgium

Poster Presentations

FM:P01 **Electron-beam Lithographed Metamaterial Devices Operating in the Terahertz Region**
N. CHICKI[1], E. DI GENNARO[1], E. ESPOSITO[2], A. ANDREONE[1], [1]CNR-INFM Coherentia and Dept. of Physics, University of Naples Federico II, Naples, Italy; [2]CNR-IC Institute of Cibernetics, Pozzuoli (Na), Naples, Italy

FM:P02 **Design of Chiral Media by Two Dimensions Periodical Structures of Metallic Cranks**
G.J. MOLINA-CUBEROS, J. MARGINEDA, M.J. NUNEZ, E. MARTIN, University of Murcia, Murcia, Spain; A.J. GARCIA-COLLADO, Universidad Catolica S. Antonio, Murcia, Spain

FM:P03 **Second Harmonic Generation from Planar Gold Nanostructures**
V.K. VALEV, T. VERBIEST, **A.V. SILHANEK**, W. GILLIJNS, V.V. MOSHCHALKOV, N. SMISDOM, B. DE CLERCQ, M. AMELOOT, Katholieke Universiteit Leuven, Leuven, Belgium

FK - 6th International Conference
SCIENCE AND ENGINEERING OF NOVEL SUPERCONDUCTORS

Oral Presentations

Session FK-1
Materials, Structure, Physical Chemistry and General Properties

FK-1:IL01 **Insight in High-temperature Superconductivity from Cuprate Heterostructures**
I. BOZOVIC, Brookhaven National Laboratory, Upton, NY, USA

FK-1:IL02 **Electric Field Induced Superconductivity**
Y. IWASA, Institute for Materials Research, Tohoku University, Sendai, Japan

FK-1:IL03 **Structure and Electrical Properties of the Interface Between LaAlO3 and SrTiO3**
A. KALABUKHOV, R. GUNNARSSON, D. WINKLER, T. CLAESON, J. BÖRJESSON, N. LJUSTINA, E. OLSSON, Chalmers University of Technology, Göteborg, Sweden; Y. BOIKOV, I. SERENKOV, V. SAKHAROV, Ioffe Physico-Technical Institute, St Petersburg, Russian Federation; V. POPOK, University of Gothenburg, Göteborg, Sweden

FK-1:L04 **Synthesis, Structural and Physical Properties of Substituted Eu2Ru2-xIrxO7**
T.E. SUTTO, T. WONG, J. TAFT, T. DUNCAN, M. OSOFSKY, **D. GUBSER**, Naval Research Laboratory, Material Science and Eng. Division, Washington, DC, USA

FK-1:L05 **Homogeneity and Connectivity of Doped Mgb2 Bulks and Strands as Probed by Heat Capacity, SEM, and Current Transport**
M.D. SUMPTION , M.A. SUSNER , Y. YANG, E.W. COLLINGS, LASM, Dept. of Materials Science and Engineering, The Ohio State University, Columbus, OH, USA

FK-1:L06 **YBCO and YbBCO Thin Films and Multilayeres Grown by MOCVD**
A.V. MARKELOV, A.A. ZAKHAROV, S.V. SAMOYLENKOV, A.R. KAUL, Lomonosov Moscow State University, Dept. of Materials Science, Moscow, Russia

Session FK-2
Pnictides

FK-2:IL01 **Iron-based Superconducting Materials: Current Status**
H. HOSONO, Tokyo Institute of Technology, Yokohama, Japan

FK-2:IL02 **Point-contact Andreev-reflection Spectroscopy and Electron-boson Coupling in Superconducting Pnictides**
R.S. GONNELLI, D. DAGHERO, M. TORTELLO, G.A. UMMARINO, Dip. di Fisica and CNISM, Politecnico di Torino, Torino, Italy; V.A. STEPANOV, P.N. Lebedev Physical Inst., RAS, Moscow, Russia; R.K. KREMER, Max-Planck Inst. for Solid-State Research, Stuttgart, Germany; J. KARPINSKI, N.D. ZHIGADLO, Lab. for Solid-State Physics, ETH, Zurich, Switzerland; JIANYI JIANG, Appl. Superc. Center, National High Magnetic Field Lab., Tallahassee, USA

FK-2:IL03 **NMR Studies of the New Iron Pnictide Superconductors**
H.-J. GRAFE, G. LANG, F. HAMMERATH, D. PAAR, K. MANTHEY, G. BEHR, J. WERNER, B. BÜCHNER, IFW Dresden, Institute for Solid State Research, Dresden, Germany

FK-2:L04 **Iron Pnictide Thin Film Hybrid Josephson Junctions**
P. SEIDEL[1], F. SCHMIDL[1], S. DÖRING[1], M. KIDSZUN[2], S. HAINDL[2], L. SCHULTZ[2], B. HOLZAPFEL[2], [1]Friedrich-Schiller-Universität Jena, Institut für Festkörperphysik, Jena, Germany; [2]IFW Dresden, Institute for Metallic Materials, Dresden, Germany

FK-2:IL05 **Fe Based Superconductors: Superconducting Properties Relevant for Applications**
M. PUTTI, I. PALLECCHI, E. BELLINGERI, M.R. CIMBERLE, M. TROPEANO, C. FERDEGHINI, P. MANFRINETTI, M. PANI, A. PALENZONA, CNR-INFM-LAMIA and Università di Genova, Genoa, Italy; C. TARANTINI, A. YAMAMOTO, J. JIANG, J. JAROSZYNSKI, F. KAMETANI, D. ABRAIMOV, A. POLYANSKII, J.D. WEISS, E.E. HELLSTROM, A. GUREVICH, D.C. LARBALESTIER, Applied Superconductivity Center, National High Magnetic Field Lab., Florida State University, FL, USA

FK-2:IL06 **Iron Pnictide Superconductors with Perovskite-type Blocking Layers**
H. OGINO, K. KISHIO, J. SHIMOYAMA, Dept. of Applied Chemistry, The University of Tokyo, Tokyo, Japan

FK-2:IL07 **Point Contact Andreev Reflection of the Iron Based Superconductors**
K.A. YATES, K. MORRISON, ITM USMAN, J.D. MOORE, A.D. CAPLIN, L.F. COHEN, The Blackett Laboratory, Physics Dept., Imperial College London, London, UK

FK-2:L09 **On the Microscopic Magnetic Properties of Superconducting SmFeAsO0.8F0.2**
G. PRANDO, Dip. di Fisica "E. Amaldi", Università di Roma Tre, Roma, Italy and CNISM, u.d.r. di Pavia and Dip. di Fisica "A. Volta", Università di Pavia, Pavia, Italy; P. CARRETTA, A. LASCIALFARI, A. RIGAMONTI, S. SANNA, Dip. di Fisica "A. Volta", Università di Pavia, Pavia, Italy; L. ROMANO', Dip. di Fisica and Unità CNISM, Università di Parma, Parma, Italy; A. PALENZONA, M. PUTTI, M. TROPEANO, Dip. di Fisica, Università di Genova, Genova, Italy and CNR/INFM-LAMIA, Genova, Italy

FK-2:L10 **Universal Normal State Susceptibility in Iron Pnictides**
R. KLINGELER, N. LEPS, U. STOCKERT, C. HESS, V. KATAEV, H.-J. GRAFE, F. HAMMERATH, G. LANG, G. BEHR, L. HARNAGEA, S. SINGH, B. BÜCHNER, Inst. for Solid State Research, IFW Dresden, Dresden, Germany

FK-2:L11 **Fabrication of Fe-Te-S Superconducting Epitaxial Thin Films by Pulsed Laser Deposition**
P. MELE, **K. MATSUMOTO**, Y. HARUYAMA, Kyushu Institute of Technology, Kitakyushu, Japan and TRIP-JST, Tsukuba, Japan; M. MUKAIDA, T. KISS, Kyushu University, Fukuoka, Japan and TRIP-JST, Tsukuba, Japan; Y. YOSHIDA, Y. ICHINO, Nagoya University, Japan and TRIP-JST, Tuskuba, Japan

Session FK-3
Properties of Superconductors

FK-3:IL01 **New Trends in the Physics of Heavy Fermion Superconductors**
L. HOWALD, V. TAUFOUR, E. HASSINGER, D. AOKI, T. MATSUDA, G. KNEBEL, G. LAPERTOT, J. FLOUQUET, **J.P. BRISON**, CEA-INAC-SPSMS, Grenoble, France

FK-3:IL02 **Evolution of Superconductive Properties and Texture with Heat Treatment Time in Carbon-Doped In-situ Processed MgB_2 Strands**
E.W. COLLINGS, M.A. SUSNER, T.W. DANIELS, M.D. SUMPTION, The Ohio State University, Columbus, OH, USA

FK-3:IL03 **Terahertz Spectroscopy of Novel Superconductors and in Strongly Correlated Materials**
S. LUPI, P. CALVANI, O. LIMAJ, D. NICOLETTI, Dept. of Physics, University of Rome La Sapienza, Rome, Italy; M. ORTOLANI, IFN-CNR, Rome, Italy; A. PERUCCHI, ELETTRA - Sincrotrone Trieste S.C.p.A., Basovizza, Trieste, Italy

FK-3:IL04 **Superconductors-ferromagnet Nanostructures**
A. BUZDIN, Condensed Matter Theory Group, University Bordeaux I, Talence, France, also at Institut Universitaire de France, France

FK-3:IL05 **FFLO State in Heavy Fermion Superconductors**
Y. MATSUDA, Dept. of Physics, Kyoto University, Kyoto, Japan

FK-3:IL06 **Optical Spectroscopy Study on Fe-pnictides**
NAN LIN WANG, Institute of Physics, Chinese Academy of Sciences, Beijing, China

FK-3:IL07 **Neutron Scattering of Cuprate Superconductor**
K. YAMADA, M. FUJITA, H. HIRAKA, Tohoku University, Sendai, Miyagi, Japan; M. MATSUDA, S. WAKIMOTO, Japan Atomic Energy Agency, Japan

FK-3:L08 **High-pressure Oxygenation of MT-YBCO**
T.A. PRIKHNA[1], X. CHAUD[2], W. GAWALEK[3], A.P. SHAPOVALOV[1], A. JOULAIN[4], J. RABIER[4], V.E. MOSHCHIL[1], Ya.M. SAVCHUK[1], N.V. SERGIENKO[1], S.N. DUB[1], V.S. MELNIKOV[1], T. HABISREUTHER[3], D. LITZKENDORF [3], J. BIERLICH[3], [1]Inst. for Superhard Materials of the National Academy of Sciences of Ukraine, Kiev, Ukraine; [2]CNRS/CRETA, Grenoble, France; [3]Inst. für Photonische Technologien, Jena, Germany; [4]Université de Poitiers, CNRS/Lab. de Metallurgie Physique, Chasseneuil Futuroscope, France

FK-3:L09 **Bulk YBCO Superconductors with New Microstructural Design**
P. DIKO[1], V. ANTAL[1], M. SEFEIKOVÁ[1], J. KOVÁC[1], X. CHAUD[2], M. EISTERER[3], H.W. WEBER[3], [1]Inst. of Experimental Physics SAS, Kosice, Slovakia; [2]CNRS/CRETA, Grenoble, France; [3]Vienna University of Technology, Atominstitut, Vienna, Austria

FK-3:IL10 **BCS Superconducting Gap in Electron-doped Cuprates**
I. DIAMANT, **Y. DAGAN**, School of Physics and Astronomy, Tel Aviv University, Tel Aviv, Israel

FK-3:IL11 **Isotope Effects and Multi-band Superconductivity in Layered High-temperature Superconductors**
H. KELLER, Physik-Institut der Universität Zürich, Zürich, Switzerland

Session FK-4
Theory and Mechanisms

FK-4:IL01 **Energy Scale Phenomenology of Novel Superconductors**
Y.J. UEMURA, Physics Dept., Columbia University, New York, NY, USA

FK-4:IL02 **Exchange-interaction Induced Pairing in Strongly Correlated Systems**
J. SPALEK, M. SMOLUCHOWSKI, Institute of Physics, Jagiellonian University, Krakow, Poland and AGH University of Science and Technology, Krakow, Poland

FK-4:IL03 **Theory for Inhomogeneous Superconductors: Approach from the t-J Model**
M. OGATA, Dept. of Physics, University of Tokyo, Tokyo, Japan

Session FK-5
Vortex Lattice Physics

FK-5:IL01 **Summation of Strong Pinning Forces**
F.M. SAUERZOPF, Atominstitut, Vienna University of Technology, Vienna, Austria

FK-5:IL02 **Type-1.5 Superconductivity**
V.V. MOSHCHALKOV, INPAC-Institute for Nanoscale Physics and Chemistry, Katholieke Universiteit Leuven, Leuven, Belgium

FK-5:IL03 **Critical Current Densities in Ba(Fe,Co)2As2 and FeTe1-xSex**
T. TAMEGAI, Y. TSUCHIYA, T. TAEN, Y. NAKAJIMA, Dept. of Applied Physics, The University of Tokyo and JST-TRIP, Tokyo, Japan; S. OKAYASU, Advanced Sci. Res. Center, JAEA, Tokai, Ibaraki, Japan; M. SASASE, The Wakasa-wan Energy Res. Center, Nagatani, Fukui, Japan

FK-5:IL04 **Non-centrosymmetric Superconductors: Extreme Vortex Pinning in CePt3Si and Li2Pt3B**
C.F. MICLEA, Los Alamos National Laboratory, Los Alamos, NM, USA; A.C. MOTA, M. NICKLAS, F. STEGLICH, Max-Planck-Inst. for Chemical Physics of Solids, Dresden, Germany; M. SIGRIST, Inst. for Theoretical Physics, ETH Zurich, Switzerland; M.B. MAPLE, Dept. of Physics and Inst. for Pure and Applied Physical Sciences, Univ. of California-San Diego, La Jolla, CA, USA; E. BAUER, Inst. für Festkoerperphysik, Technische Univ. Wien, Wien, Austria

Session FK-6
Synthesis and Processing

FK-6:IL01 **Progress in Chemical Solution Approaches to Nanocomposite Superconducting Films**
X. OBRADORS, T. PUIG, A. POMAR, S. RICART, A. LLORDÉS, A. PALAU, R. VLAD, H. CHEN, K. ZALAMOVA, F. SANDIUMENGE, P. ABELLÁN, F. MARTÍNEZ, M. GIBERT, X. GRANADOS, Institut de Ciencia de Materials de Barcelona, CSIC Campus de la UAB, Bellaterra, Catalonia, Spain

FK-6:IL02 **Stability Conditions for Charge Density Wave and Superconducting States in Intercalated 1T-dichalcogenides**
A. GAUZZI, A. SELLAM, G. ROUSSE, M. D'ASTUTO, A. SHUKLA, M. CALANDRA, F. MAURI, IMPMC, Universite Pierre et Marie Curie and CNRS, Paris, France; E. GILIOLI, IMEM-CNR, Parma, Italy; I. MAZIN, Naval Research Laboratory, Washington, DC, USA

FK-6:L03 **Deposition of YBCO FOR 2G Conductors Using Laser Direct Write**
M. OSOFSKY, A. PIQUÉ, K. METKUS, T.E. SUTTO, Naval Research Lab., Washington, DC, USA; M. RUPICH, S. SATHYAMURTHY, American Superconductor, Inc., Devens, MA, USA

FK-6:L04 **Development of Low-loss (Bi,Pb)-2223 Tapes with Interfilamentary Resistive Barriers**
R. INADA, Y. NAKAMURA, A. OOTA, Toyohashi University of Technology, Toyohashi, Aichi, Japan; C.S. LI, P.X. ZHANG, Northwest Institute for Nonferrous Metal Research, Xi'an, Shaanxi, P.R. China

FK-6:L05 **Critical Currents of MgB2 Wires Made of Differently Treated and Mixed Precursor Powders**
P. KOVÁC, I. HUSEK, M. KULICH, T. MELISEK, Institute of Electrical Engineering, Slovak Academy of Sciences, Bratislava, Slovakia

FK-6:IL06 **Nernst Effect: In What Systems it Can Be Giant and Why?**
A.A. VARLAMOV, COHERENTIA-INFM, CNR, Rome, Italy

FK-6:IL07 **Novel Processing Techniques of Bulk HTS and the Role of Artificial Nanoparticles**
D.A. CARDWELL[1], Y. SHI[1], N. HARI BABU[1], A.D. DENNIS[1], K. IIDA[2], [1]Bulk Superconductor Group, Dept. of Engineering, University of Cambridge, Cambridge, UK; [2]IFW-Dresden, Dresden, Germany

Session FK-7
Power Applications

FK-7:IL01 **Fault Current Limiters - Materials, Applications and Prospects**
M. NOE, Karlsruhe Institute of Technology (KIT), Institute for Technical Physics (ITeP), Eggenstein-Leopoldshafen, Germany

FK-7:IL02 **High Temperature Superconducting Generators in Support of Wind Energy**
P.J. MASSON, Advanced Magnet Lab, Palm Bay, FL, USA

FK-7:IL03 **Numerical Modeling of AC Losses in FCL**
F. GRILLI, Karlsruhe Institute of Technology (KIT), Eggenstein-Leopoldshafen, Germany

FK-7:IL04 **AC Loss in Coated Conductor Tapes and Coils**
E. PARDO, M. EISTERER, H.W. WEBER, Atominstitut, Vienna University of Technology, Vienna, Austria; J. SOUC, M. VOJENCIAK, F. GOMORY, Institute of Electrical Engineering, Slovak Academy of Sciences, Bratislava, Slovakia

FK-7:L05 **AC Losses in HTSC Tapes with Ferromagnetic Part**
F. GÖMÖRY[1], M. VOJENČIAK[1], S. SAFRAN[1, 2], Ö. ÇIÇEK[1, 2], J. SOUC[1], [1]Institute of Electrical Engineering, Slovak Academy of Sciences, Bratislava, Slovakia; [2]Physics Dept., Ankara University, Tandogan, Ankara, Turkey

FK-7:IL06 **High Current Low AC Loss HTS-ROEBEL-Cables for Energy Devices**
W. GOLDACKER, S. TERZIEVA, A. DRECHSLER, A. KUDYMOW, R. HELLER, R. NAST, F. GRILLI, Karlsruhe Institute of Technology, Institute for Technical Physics, Eggenstein-Leopoldshafen, Germany

FK-7:IL07 **HTS Materials for Magnets in High-radiation Environments**
R. GUPTA, G. GREENE, W. SAMPSON, Brookhaven National Laboratory, Upton, NY, USA

FK-7:IL08 **Seawater Magnetohydrodynamics Power Generator / Hydrogen Generator**
M. TAKEDA, Kobe University, Kobe, Hyogo, Japan

FK-7:IL09 **Failure Mechanisms in YBCO Coated Conductors**
J. SCHWARTZ, Dept. of Materials Science & Eng., North Carolina State University, Raleigh, NC, USA

Session FK-8
Low Power Applications and Superconducting Electronics

FK-8:IL01 **Potential Future Superconducting Electronics**
H. ROGALLA, Low Temperature Group, Fac. of Applied Science and MESA+ Institute, University of Twente, Enschede, The Netherlands

FK-8:IL02 **Macroscopic Quantum Tunneling and Resonant Activation in Bi-2212 Intrinsic Josephson Junctions**
S. SATO, K. INOMATA, H.B. WANG, Tohoku Univ., Sendai, Miyagi, Japan; RIKEN, Wako, Saitama, Japan; NIMS, Tsukuba, Ibaraki, Japan

FK-8:IL03 **Recent Research Developments in the DC Application of MgB2 Superconductors**
G. GRASSO, S. BRISIGOTTI, S. BERTA, A. TUMINO, D. PIETRANERA, M. PALOMBO, L. ROSTILA, R. PENCO, Columbus Superconductors SpA, Genova, Italy

FK-8:IL04 **Coherent and Continuous THz Waves Generated from high Tc Superconductor Bi2Sr2CaCu2O8+d**
K. KADOWAKI, M. TSUJIMOTO, K. DEGUCHI, K. IVANOVIC, T. KASHIWAGI, H. MINAMI, R.A. KLEMM, M. TACHIKI, Graduate School of Pure and Applied Sciences, University of Tsukuba, Tsukuba, Ibaraki, Japan

FK-8:IL05 **Terahertz Radiation from Intrinsic Josephson Junctions**
U. WELP[1], A.E. KOSHELEV[1], M. TACHIKI[2], K. KADOWAKI[3], T. YAMAMOTO[3], H. MINAMI[3], H. YAMAGUCHI[3], K.E. GRAY[1], W.-K. KWOK[1], [1]Materials Science Division, Argonne National Laboratory, Argonne, IL, USA; [2]Graduate School of Frontier Sciences, University of Tokyo, Kashiwa, Japan; [3]Institute of Materials Science, University of Tsukuba, Ibaraki, Japan

FK-8:IL06 **Theory on THz Radiation of Intrinsic Josephson Junctions of Cuprate Superconductor**
SHI-ZENG LIN, **XIAO HU**, World Premier International Center for Materials Nanoarchitectonics, National Institute for Materials Science, Tsukuba, Japan

Poster Presentations

FK:P01 **Ic of Al_2O_3-doped Bi-2212 Single Crystals**
H. IMAO, Matsue National College of Engineering, Matsue, Japan; S. KISHIDA, Tottori University, Japan

FK:P02 **Measurement the Pinning Energy of Partial Melted Superconductors**
S. TAKAHASHI, H. IMAO, Matsue National College of Engineering, Matsue, Japan; S. KISHIDA, Tottori University, Japan

FK:P03 **A Multi-band Model for $LaO_{\{1-x\}}F_{\{x\}}FeAs$**
G. MURGUIA, S. OROZCO, M.A. ORTIZ, R.M. MÉNDEZ-MORENO, P. DE LA MORA, Dpto de Física, Universidad Nacional Autónoma de México, México D.F., México

FK:P04 **Grain Morphology for Ag-sheathed Bi2Sr2CaCu2O8 Tapes Heat-treated in High Magnetic Fields**
K. WATANABE, T. INOUE, S. AWAJI, Institute for Materials Research, Tohoku University, Sendai, Japan

FK:P05 **Effect of Partially Reacted Precursor Powders on the Microstructure of Bi2223/Ag Tapes**
J.-C. GRIVEL, Materials Research Division, Risoe National Lab. for Sustainable Energy, Technical University of Denmark, Roskilde, Denmark

FK:P06 **Synthesis and Precise Analysis of Bi2Sr2Can-1CunOy Superconducting Whiskers**
H. TANAKA[1], H. YOSHIKAWA[2], M. KIMURA[2], C. TSURUTA[3], S. FUKUSHIMA[2], Y. MATSUI[3], S. NAKAGAWA[4], K. KINOSHITA[4], S. KISHIDA[4], [1]Dept. of Electrical and Computer Engineering, Yonago National College of Technology, Tottori, Japan; [2]Dept. of Materials Infrastructure, National Institute for Materials Science, Hyogo, Japan; [3]Advanced Nano-Characterization Center, National Institute for Materials Science, Tsukuba, Japan; [4]Graduate School of Electrical and Electronic Eng., Tottori University, Tottori, Japan

FK:P07 **Synthesis and Structural Characterization of Hg(Re)-Pb-Ca-Ba-Cu-O Superconducting Thin Films Grown by Spray Pyrolysis**
C. MEJÍA-GARCÍA, J.L. LÓPEZ-LÓPEZ, E. DÍAZ-VALDÉS, C.V. VÁZQUEZ-VERA, Escuela Superior de Física y Matemáticas, IPN, México D.F., México

FK:P08 **Processing by Pulsed Laser Deposition and Structural, Morphological and Chemical Characterization of Bi-Pb-Sr-Ca-Cu-O and Bi-Pb-Sb-Sr-Ca-Cu-O Thin Films**
V. RÍOS, **E. DÍAZ**, J.R. AGUILAR, J.I. GUZMÁN, T. KRYSHTAB, ESFM-IPN, Delegación G.A.M., México D.F., México

FK:P09 **Investigation of the Effect of Resistive Switching on Superconducting Characteristics in YBa2Cu3Ox**
A. HANADA, K. KINOSHITA, K. MATSUBARA, K. DEGUCHI, S. KISHIDA, Tottori University, Tottori, Japan

FL - 9th International Conference
MEDICAL APPLICATIONS OF NOVEL BIOMATERIALS AND NANO-BIOTECHNOLOGY

Oral Presentations

Session FL-1
Advances in Biomaterials

FL-1:IL01 **Nanostructural Control of Bioceramics and the Merger of Devices with Biologicals**
P. DUCHEYNE, Center for Bioactive Materials and Tissue Engineering, University of Pennsylvania, Philadelphia, PA, USA

FL-1:IL02 **Essential Factors to Make Excellent Biocompatibility of Phospholipid Polymer Materials**
K. ISHIHARA, T. KONNO, Y. INOUE, Dept. of Materials Engineering, The University of Tokyo, Tokyo, Japan, and CREST, Japan Science and Technology Agency, Japan

FL-1:IL03 **Biomedical Applications of Peptide-polymer Conjugates Self-assemblies**
C. SANSON[1, 2], K.K. UPADHYAY[1, 2, 3], A. MISRA[3], C. SCHATZ[1, 2], J.-F. LE MEINS[1, 2], **S. LECOMMANDOUX**[1, 2], [1]Université de Bordeaux, UMR5629, ENSCPB, Pessac, France; [2]CNRS, Lab. de Chimie des Polymères Organiques, UMR5629, Pessac, France; [3]Pharmacy Dept., Kalabhavan, Maharaja Sayajirao University of Baroda, Vadodara, Gujarat state, India

FL-1:IL04 **Development of Cardiovascular Implants Using Nanocomposite Polymer and Stem Cell Technology: From Lab to Commercialisation**
A.M. SEIFALIAN, A. DEMEL, H. GHANBARI, M. AHMED, A. DARBYSHIRE, Centre for Nanotechnology, Biomaterials & Tissue Engineering, UCL Division of Surgery & interventional Science, University College London, UK

FL-1:IL05 **Supramolecular Surfaces Modulating Cellular Response**
N. YUI, R. KATOONO, D.H. YANG, Japan Advanced Institute of Science and Technology, Ishikawa, and JST CREST, Tokyo, Japan

FL-1:IL06 **Molecular Modelling and Experimental Investigation of Hydrolytically Degradable Polymeric Biomaterials**
D. HOFMANN, M. ENTRIALGO, A. KULKARNI, K. KRATZ, A. LENDLEIN, Centre for Biomaterial Development, GKSS Research Center, Teltow, Germany

FL-1:IL07 **Nanocomposites with Bone Inductive Properties**
J.A. JANSEN, X.F. WALBOOMERS, M. VAN DER ZANDE, Dept. of Biomaterials, Radboud University Nijmegen Medical Center, Nijmegen, The Netherlands; A.G. MIKOS, B. SITHARAMAN, Dept of Bioeng., Rice University, Houston, USA; L. WILSON, Dept of Chemistry, Rice University, Houston, USA

FL-1:IL08 **Nanocrystalline Carbonate Apatite Due to Chemical Conversion of Calcium Carbonates**
K. ISHIKAWA, Kyushu University, Fukuoka, Japan

FL-1:IL09 **Novel, Rapidly Resorbable Bioceramic Bone Grafts Produce a Major Osteogenic Effect - The Pre-clinical Evidence**
C. KNABE, Dept. of Experimental Dentistry, Charité - University Medical Center Berlin, Germany

FL-1:IL10 **A New Method to Measure Coagulability of a Patient's Blood. Use of a Moderately Thrombogenic Biomaterial and a Miniaturized Flow Reactor**
L.H. KOOLE, L.L.H. BOTH, M.L.W. KNETSCH, Dept. of Biomedical Eng./ Biomaterials Science, Faculty Health, Medicine and Life Sciences Maastricht University, Maastricht, The Netherlands

FL-1:L11 **Apatite Deposition on Inner-surfaces of Titanium Substrate Pairs; GRAPE® Technology**
A. SUGINO, K. UETSUKI, S. HAYAKAWA, Y. SHIROSAKI, K. TSURU, K. KURAMOTO, **A. OSAKA**, Graduate School of Natural Science and Technology, Okayama University, Okayama-shi, Japan

FL-1:L12 **Neuronal Printed Circuit Board: N-dimensional Aerogel-based Nerve Guidance Tool**
F. SABRI, Univ. of Memphis, Dept. of Physics, Memphis, TN, USA; J. COLE, Univ. of Memphis, Dept of Biology, USA; N. LEVENTIS, Dept of Chemistry, Rolla, Missouri, USA

FL-1:L13 **Mechanistic Study of Deposited Hydroxyapatite(HAp) on Biocompatible TiO2 Nanotubes**
YU-JEONG CHO, W.H. LEE, Materials Design & Processing Develop. Lab., Dept. of Advanced Materials Engineering, Sejong University, Seoul, Korea

FL-1:L14 **Hydroxyapatite and Chlorapatite Thin Coatings Obtained by a Novel Plasma Mini-torch Process**
I. DEMNATI, D. GROSSIN, C. DROUET, C. COMBES, C. REY, Université de Toulouse- CIRIMAT CNRS-INPT-UPS ENSIACET, Toulouse, France; M. PARCO, I. FAGOAGA, G. BARYKIN, I. BRACERAS, INASMET-Tecnalia, Donostia-San Sebastian, Spain; S. GONCALVES, TEKNIMED S.A, L'Union, France

FL-1:L15 **Molecularly Imprinted Polymer Layers for the Selective Uptake and Release of Glutamate for Application in a Neurochemical Switch**
E. VON HAUFF, K. FUCHS, J. PARISI, Inst. for Physics, Energy and Semi-conductor Research Lab., Carl von Ossietzky Univ. of Oldenburg, Oldenburg, Germany; **N. PAUL**, M. Lux-Steiner Inst. for Heterogeneous Material Systems, Helmholtz Centre Berlin for Materials und Energy, Berlin, Germany; U. KRAUSHAAR, E. GUENTHER, Cell Biologie, AG Elektrophysiology, Natural and Medical Sciences Inst. at the University of Tübingen, Reutlingen, Germany

FL-1:L16 **Functionalization of Poly(l-lactic acid) at High Concentration of Maleic Anhydride**
D. MUENPRASAT, S. SUTTIREUNGWONG, Dept. of Materials Science and Engineering, Silpakorn University, Nakorn Pathom, Thailand

FL-1:L17 **Monolithic Glass Scaffolds with Dual Hierarchical Porosity Prepared by Sol-gel**
R.M. ALMEIDA, A. TEIXEIRA, Y. VUEVA, Dept. Eng. Materiais/ICEMS, Instituto Superior Técnico/TU Lisbon, Lisboa, Portugal

FL-1:L18 **Study of BSA Adsorption on Silicon Plasma Deposit with Silver Nanoparticles by QCM and XPS**
CHUN WANG[1], S. ZANNA[1], I. FRATEUR[1], B. DESPAX[2], P. RAYNAUD[2], P. MARCUS[1], [1]Lab. de Physico-Chimie des Surfaces, CNRS-ENSCP (UMR 7045), Ecole Nationale Supérieure de Chimie de Paris, Chimie-ParisTech, Paris, France; [2]Lab. Plasma et Conversion d'Energie, UMR CNRS 5003 Université Paul Sabatier, Toulouse, France

FL-1:L19 **Preparation and Characterization of Bioglass-Ceramic/ Multiwall Carbon Nanotube Composite**
P. KIRDSIRI, P. SOOKSAEN, S. SUTTIRUENGWONG, Dept. of Materials Science and Engineering, Fac. of Eng. and Industrial Technology, Silpakorn University, Nakorn Pathom, Thailand

FL-1:L20 **Hydrothermal Synthesis of Hydroxyapatite Particles from Different Raw Materials and their Characterization**
M. KAMITAKAHARA, Y. ENARI, N. ITO, N. WATANABE, K. IOKU, Graduate School of Environmental Studies, Tohoku University, Sendai, Miyagi, Japan

FL-1:L21 **Development of Craniofacial Implants Produced by Metal Injection Molding of Titanium Alloy Using Novel Binder System Based on Palm Oil**
R. IBRAHIM, M. AZMIRRUDDIN, M. JABIR, M. RIDHUAN, M. MUHAMAD, M. RAFIQ, N.A. KASIM, S. MUHAMAD, Kulim, Malaysia

FL-1:L22 **Tunable Antibacterial Coatings that Support Mammalian Cell Growth**
K. VASILEV, Mawson Inst. and School of Advanced Manufacturing, University of South Australia, Mawson Lakes, Australia

FL-1:L23 **Development of Bone-integrating Hybrid Materials Useful for Hard Tissue Repair**
TOSHIKI MIYAZAKI, Graduate School of Life Science and Systems Engineering, Kyushu Institute of Technology, Kitakyushu, Japan

FL-1:L24 **Mineralization of Eroded Dental Enamel Seeded with Fluoride and a Tricalcium Phosphate Ternary Biomaterial**
R.L. KARLINSEY, A.C. MACKEY, E.R. WALKER, T.J. WALKER, Indiana Nanotech, Indianapolis, IN, USA; C.X. FOWLER, GlaxoSmithKline, USA

FL-1:L25 **In-situ Investigation of Temperature Influence on Calcium Phosphate Cement Hydration**
F. GOETZ-NEUNHOEFFER, J. NEUBAUER, University Erlangen, GeoZentrum Nordbayern, Mineralogy, Erlangen, Germany

FL-1:L26 **A Novel Rich-phosphate Coating on Zirconia with High Bonding Strength to Surface**
A. VALANEZHAD, K. TSURU, M. MICHITO, G. KAWACHI, S. MATSUYA, K. ISHIKAWA, Dept. of Biomaterials, Fac. of Dental Science, Kyushu University, Fukuoka, Japan; Dept. of Dental Eng., Fukuoka Dental College, Fukuoka, Japan

FL-1:L27 **Adhesion Mechanisms at the Interface Between Y-TZP and a Veneering Ceramic for Dental Application**
G. IORIZZO, P. CARDELLI, C. MONACO, R. SCOTTI, Dip. di Scienze Odonto-stomatologiche, Italy; L. ESPOSITO, A. TUCCI, Centro Ceramico Bologna, Italy

FL-1:L28 **Fabrication of Bioactive Organic Polymer-apatite Nuclei Composite**
T. YABUTSUKA, M. HIBINO, T. YAO, Graduate School of Energy Science, Kyoto University, Kyoto, Japan

FL-1:L29 **Laser Rapid Prototyping of Microstructured Medical Devices using Inorganic-organic Hybrid Materials**
R.J. NARAYAN, S.D. GITTARD, A. DORAISWAMY, Dept. of Biomedical Engineering, University of North Carolina, Chapel Hill, USA; A. OVSIANIKOV, B. CHICHKOV, Laser Zentrum Hannover, Hannover, Germany

FL-1:L30 **Nanocrystalline Apatite Coatings and Osteoinduction**
H. AUTEFAGE, C. COMBES, S. CAZALBOU, **C. REY**, University of Toulouse, CIRIMAT, UPS-INPT-CNRS, ENSIACET, Toulouse, France; F. BRIAND-MÉSANGE, INSERM U563, CPTP, Lipoproteins and Lipid Mediators Lab., CHU Purpan, Toulouse, France; A. GOMEZ-BROUCHET, Pathological Anatomy and Cytology Dept., CHU Toulouse-Rangueil, Toulouse, France; S. PALIERNE, A. AUTEFAGE, D. MATHON, Small Animal Surgery Dept., National Veterinary School of Toulouse, Toulouse, France; S. GONÇALVÈS,Teknimed, L'Union, France; P. SWIDER, University of Toulouse, Biomechanics Lab. EA3697, CHU Purpan, Toulouse, France

FL-1:L31 **Programmable Shape Shifting Polymeric Nanoparticles**
M.-P. CHIEN, M. THOMPSON, A.M. RUSH, **N.C. GIANNESCHI**, University of California San Diego, La Jolla, USA

FL-1:L32 **Microstructure and Mechanical Properties of Iron-containing Hydroxyapatite/Titanium Composites**
Q. CHANG[1, 2], **DAOLUN CHEN**[1], H.Q. RU[2], X.Y. YUE[2], L. YU[2], C.P. ZHANG[2], [1]Dept. of Mechanical and Industrial Eng., Ryerson University, Toronto, Ontario, Canada; [2]Dept. of Materials Science and Eng., School of Materials and Metallurgy, Northeastern University, Shenyang, China

FL-1:L33 **Nonequilibrium Mechanics of Liquid Crystal Elastomers**
W.S. OATES, Florida A&M & Florida State University, Dept. of Mechanical Engineering, Tallahassee, FL, USA

FL-1:L34 **Transparent Nanostructure for Observing Live Cell Proliferation and Migration**
JUNGIL CHOI, SANGWON SHIN, JONGHAN SONG, SANG-SOO KANG, TAE-HYUN NAM, **DONGWOO KHANG**, Center for Nano-morphic Biological Energy, Gyeongsang National University, Jinju, South Korea; School of Nano and Advanced Materials Science Eng., Gyeongsang National University, Jinju, South Korea; Nanoscale device analysis center, Korea Institute of Science and Technology, Seoul, South Korea; Dept. of Anatomy & Neuro-biology, School of Medicine, Gyeongsang National University, South Korea

FL-1:L35 **Nanostructured Ti-Ni Shape Memory Alloy: Possibilities of Functional Behavior Regulation**
E.P. RYKLINA, S.D. PROKOSHKIN, A.A. CHERNAVINA, National University of Science and Technology "MISIS", Moscow, Russian Federation

FL-1:L36 **Preparation of Bioactive Titania Nanotube Arrays For Enhanced Biomedical Applications**
R. HAZAN, S. SREEKANTAN, School of Materials and Mineral Resources Engineering, Universiti Sains Malaysia, Pulau Pinang, Malaysia; A.A. KHALIL, S. SALWA ZULKIFLI, I. MAT, Translational Research Network Centre, Advance Medical and Dental Institute, Universiti Sains Malaysia, Pulau Pinang, Malaysia

Session FL-2
Enabling Tools

FL-2:IL01 **Sensing of Protein Adsorption by Composites Consisting of Silver Nanoparticles and Hydroxyapatite**
C. OHTSUKI, Y. ICHIKAWA, H. SHIBATA, T. TORIMOTO, ILL YONG KIM, Graduate School of Engineering, Nagoya University, Nagoya, Japan

FL-2:IL02 **Simultaneous Deposition of Biomaterials and Cells for Regenerative Medicine**
J. MALDA[1], N.E. FEDOROVICH[1], W. SCHUURMAN[1, 2], J. ALBLAS[1], P.R. VAN WEEREN[2], W.J.A. DHERT[1, 2, 3], [1]Dept. of Orthopaedics, University Medical Center Utrecht, Utrecht, The Netherlands; [2]Dept. of Equine Sciences, Utrecht University, Utrecht, The Netherlands; [3]Dept. of Veterinary Sciences, Utrecht University, Utrecht, The Netherlands

FL-2:IL03 **Antifouling Behavior of Hydrophilic Surface Designed by Polyelectrolyte Brushes**
M. KOBAYASHI, **A. TAKAHARA**, JST/ERATO Soft Interface Project, Kyushu University, Fukuoka, Japan

FL-2:IL04 **A Window with a View: Two Photon Imaging as a Non Invasive Tool to Study Cellular Form and Function in Vivo**
M. BRONDI, S. LANDI, S. SULIS SATO, SNS; **G.M. RATTO**, NEST/SNS, Pisa, Italy

FL-2:L05 **New Block Copolymer Nanoparticles for DNA/RNA Delivery: in Vitro and in Vivo Applications**
D. VELLUTO, J.A. HUBBELL, Institute of Bioengineering and Institute of Chemical Science and Eng., Ecole Polytechnique Federale de Lausanne, Lausanne, Switzerland

FL-2:L06 **Analysis of Receptor Conformation and its Functional Relations for Biomimetic Device**
K. TORIMITSU, Y. SHINOZAKI, N. KASAI, A. SHIMADA, K. SUMITOMO, Y. FURUKAWA, NTT Basic Research Labs, NTT Corp., JST, Atsugi, Japan

Session FL-3
Medical Diagnosis Applications

FL-3:IL01 **DNA Diagnostics Using New Cationic Polymers**
A. MARUYAMA, Institute for Materials Chemistry and Eng., Kyushu University, Fukuoka, Japan

FL-3:IL02 **Sensor Technologies to Probe Cell-material Interactions**
S. MICHAELIS, **J. WEGENER**, Institute of Analytical Chemistry, Chemo- & Biosensors, University of Regensburg, Regensburg, Germany

FL-3:IL03 **Novel Biomaterials and Nano-biotechnology Approaches in Tumor Diagnosis**
A.K. DINDA, Dept. of Pathology, All India Institute of Medical Sciences, New Delhi, India

FL-3:L04 **Biomimetic Systems as Luminescent Nanoprobes for Medical Imaging**
A. AL-KATTAN, P. DUFOUR, C. DROUET, CIRIMAT Carnot Inst., University of Toulouse, CNRS/INPT/UPS, ENSIACET, Toulouse, France; J. DEXPERT-GHYS, CEMES 29, Toulouse, France; J. BERNAD, B. PIPY, Lab. des Macrophages Médiateurs de l'Inflammation et Interactions Cellulaires, Univ. Paul-Sabatier - EA 2405, Inst. National de la Santé et de la Recherche Médicale IFR 31, Hôpital Rangueil, Toulouse, France

FL-3:L05 **NMR Study of Novel Contrast Agents for MRI Based on Mn-ferrites and Co-ferrites**
M. MARIANI, C. CORTI, Dip. Fisica "A. Volta", Università degli Studi di Pavia, Unità CNISM, Pavia, Italy, and S3-CNR-INFM, Modena, Italy; A. LASCIALFARI, Dip. Fisica "A. Volta", Università degli Studi di Pavia, Unità CNISM, Pavia, Italy, and Dip. Scienze Molecolari Applicate ai Biosistemi, Università degli Studi di Milano, Milano, Italy, and S3-CNR-INFM, Modena, Italy; P. AROSIO, Dip. Scienze Molecolari Applicate ai Biosistemi, Università degli Studi di Milano, Milano, Italy, and S3-CNR-INFM, Modena, Italy; M.F. CASULA, Dip. Scienze Chimiche e INSTM, Università di Cagliari, Monserrato (CA), Italy; A. BONI, C. INNOCENTI, C. SANGREGORIO, Dip. Chimica e INSTM, Università degli Studi di Firenze, Sesto Fiorentino (FI), Italy

FL-3:L06 **Highly-sensitive pH Detectors Based on Localized Nanowire Arrays**
V.A. ANTOHE, M. MÁTÉFI-TEMPFLI, L. PIRAUX, S. MÁTÉFI-TEMPFLI, Unité de Physico-Chimie et de Physique des Matériaux, UCL, Louvain-la-Neuve, Belgique; A. RADU, Dept.of Materials and Electronic & Optoelectronic Devices, UB, Bucharest - Mãgurele, Romania

FL-3:L07 **Creation of Superelastic Functional Properties in a Ti-50.7%Ni Wire for the Stapler Suturing of Blood Vessels**
I. KHMELEVSKAYA[1], M. SOUTORINE[2], S. PROKOSKIN[1], E. RYKLINA[1], [1]National University of Science and Technology "MISIS", Moscow, Russia; [2]"Endogene Pty" Ltd, Brighton, Victoria, Australia

FL-3:L08 **Properties of Hydroxyapatite from Bovine Teeth**
A. ELKAYAR, Y. ELSHAZLY, **M. ASSAAD NADA**, Alexandria, Egypt

FL-3:L09 **Preparation and Characterization of a Chitosan-polyaniline/ Magnetite Superparamagnetic Nanocomposites**
J.B. PEREIRA Jr., A.C.V.A LAPA, W.M. AZEVEDO, Dept. of Fundamental Chemistry, Federal University of Pernambuco, Recife, PE, Brazil; F.A.O. CABRAL, Dept. of Theoretical and Experimental Physics, Federal University of Rio Grande do Norte, Natal, RN, Brazil

Session FL-4
Regenerative Medicine and Tissue Engineering

FL-4:IL01 **Is Nanotechnology Really Increasing Tissue Growth? Separating the Hype from Data**
T.J. WEBSTER, Division of Eng. and Dept. of Orthopaedics, Brown University, Providence, RI, USA

FL-4:IL02 **Calcium-deficient Hydroxyapatite for Metabolism of Subsequently Formed Bone Tissue**
K. IOKU, M. KAMITAKAHARA, Graduate School of Environmental Studies, Tohoku University, Sendai, Miyagi, Japan; T. IKEDA, Graduate School of Biomedical Sciences, Nagasaki University, Nagasaki, Japan

FL-4:L03 **Self-collapse and Sliding of Nanotubes in a Bundle**
N. PUGNO, Lab. of Bio-inspired Nanomechanics "Giuseppe Maria Pugno", Dept. of Structural Engineering and Geotechnics, Politecnico di Torino, Torino, Italy; National Inst. of Nuclear Physics (INFN), National Labs of Frascati, Frascati, Italy; National Inst. of Metrological Research (INRIM), Torino, Italy; Consorzio Nazionale Interuniversitario per le Scienze Fisiche della Materia (CNISM), Roma, Italy

FL-4:L04 **Preparation of PMGI Polymer Nanofibrous Scaffolds for Cardiac Tissue Engineering with Defined Degree of Anisotropy**
YU. ORLOVA, N. MAGOME, LI LIU, Y. CHEN, **K. AGLADZE**, Institute for Integrated Cell-Material Sciences, Kyoto University, Kyoto, Japan

FL-4:L05 **Modeling the Elastic Anisotropy of Woven Hierarchical Tissues: Experimental Comparison on Biological Materials and Design of a New Class of Scaffolds**
N.M. PUGNO, **QIANG CHEN**, Lab. of Bio-Inspired Nanomechanics "Giuseppe Maria Pugno", Dept. of Structural Engineering and Geotechnics, Politecnico di Torino, Torino, Italy

FL-4:IL06 **Biomaterial Scaffolds & Intercellular Signaling in Engineered Bone and Cartilage**
J.P. FISHER, Fischell Dept. of Bioengineering, University of Maryland, College Park, MD, USA

FL-4:IL07 **Nano-biointerface for Medical Application**
Y. NAGASAKI, Tsukuba Research Center for Interdisciplinary Materials Science (TIMS), Center for Tsukuba Advanced Research Alliance (TARA) and Master's School of Medical Sciences, University of Tsukuba, Satellite Lab. of International Center for Materials Nanoarchitechtonics, Tsukuba, Ibaraki, Japan

FL-4:L08 **Super-hydrophobic Surfaces by Direct Replication of Natural Leaves**
E. LEPORE, N. PUGNO, Lab. of Bio-Inspired Nanomechanics "Giuseppe Maria Pugno", Dept. of Structural Engineering and Geotechnics, Politecnico di Torino, Torino, Italy

FL-4:L10 **Elastic Properties of Fractal-like Scaffolds for Maximal Anisotropic Tissue Regeneration**
A. CARPINTERI, P. CORNETTI, N. PUGNO, **A. SAPORA**, Politecnico di Torino, Dipartimento di Ingegneria Strutturale e Geotecnica, Torino, Italy

FL-4:IL11 **Bone-mimetic Laminated Nano-structures for Regeneration of Skeletal Tissues**
E. JABBARI, Biomimetic Materials and Tissue Engineering Lab., Dept. of Chemical Eng., University of South Carolina, Columbia, SC, USA

FL-4:IL12 **Engineered Biomimetic Nanofibers for Regenerative Medicine**
S. RAMAKRISHNA, J. REDDY VENUGOPAL, S. LIAO, National University of Singapore, Singapore

FL-4:IL13 **In vivo MRI Tracking of Transplanted Stem Cells in Rat Hind Limb Ischemia**
T. YAMAOKA, C.A. AGUDERO, Y. TACHIBANA, H. IIDA, National Cardiovascular Center Research Institute, Suita, Japan

FL-4:IL14 **Tissue Engineering with Natural Tissue Matrices**
A. KISHIDA, S. FUNAMOTO, J. NEGISHI, Y. HASHIMOTO, K. NAM, T. KIMURA; T. FUJISATO; H. KOBAYASHI, Institute of Biomaterials and Bioengineering, Tokyo Medical and Dental University, Chiyoda-ku, Tokyo, Japan; Osaka Institute of Technology, Osaka, Japan; Biomaterial Center, National Institute of Material Science, Tsukuba, Japan

FL-4:IL15 **Biomimesis in Bone and Tendon Tissue Engineering**
V. SIKAVITSAS, J. ALVAREZ-BARRETO, R. ABOUSLEIMAN, S. VAN GORDON, R. VORONOV, W. YATES, B. LANDY, D. PAPAVASSILIOU, P. DEANGELIS, The University of Oklahoma, Norman, OK, USA

FL-4:IL16 **Tissue Engineering Technology with Biomaterials to Develop Regeneration Medicine and Stem Cell Biology**
Y. TABATA, Dept. of Biomaterials, Inst. for Frontier Medical Sciences, Kyoto University, Kyoto, Japan

FL-4:IL17 **Self Assembling and Microfabrication**
C. MIGLIARESI, E. SERVOLI, G. A. RUFFO, D. MANIGLIO, A. MOTTA, BIOtech - Dept. of Materials Science and Industrial Technologies, INSTM Research Unit, University of Trento, Trento, Italy

FL-4:L18 **A Hydroxyapatite-collagen Composite Useful to Make Bioresorbable Scaffolds for Bone Reconstruction**
G.D. GUERRA, C. CRISTALLINI, CNR Inst. for Composite and Biomedical Materials, Research Unit of Pisa, Pisa, Italy; N. BARBANI, E. ROSELLINI, Dept. of Chemical Engineering, Industrial Chemistry and Materials Science, University of Pisa, Pisa, Italy

FL-4:L19 **Growth Factor-immobilized PCL Porous Beads as a Bioactive Urethral Bulking Agent**
S.H. OH, I.G. KIM, J.H. LEE, Dept. of Advanced Materials, Hannan University, Daejeon, South Korea; J.Y. LEE, J.Y. LEE, Dept. of Urology, Catholic University, Seoul St. Mary's Hospital, Seoul, South Korea

FL-4:L20 **Catastrophic Instabilities in the Fracture of Nanotube Bundles**
N. PUGNO, **T. ABDALRAHMAN**, Dept. of Structural and Geotechnical Engineering, Lab. of Bio-Inspired Nanomechanics "Giuseppe Maria Pugno", Politecnico di Torino, Torino, Italy

Session FL-5
New Therapeutics and Intelligent Delivery Systems

FL-5:IL01 **Multi-functional Templates for Smart Targeting Delivery**
P. DUMY, O. RENAUDET, D. BOTURYN, Dept. of Molecular Chemistry, UMR-CNRS 5250, ICMG FR2607, University Grenoble I, Grenoble, France

FL-5:IL02 **Development of Ceramic Beads for Cancer Treatment**
M. KAWASHITA, Z. LI, N. MATSUI, Graduate School of Biomedical Engineering, Tohoku University, Sendai, Japan

FL-5:IL03 **Theragnostics for Molecular Imaging and Drug Delivery**
ICK CHAN KWON, Biomedical Research Center, Korea Institute of Science and Technology, Seoul, Korea

FL-5:L04 **Functionalized Amphiphilic Macromolecules for Drug Delivery and Biostabilization**
S. SPARKS, S. HEHIR, **K. UHRICH**, Rutgers University, Dept. of Chemistry, Piscataway, NJ, USA

FL-5:L05 **XPS Characterization of Iron Oxide and Gold Nanoparticles for Tumor Care**
G. SPERANZA[1], L. MINATI[1], S. TORRENGO[1, 2], C. MIGLIARESI[3], D. MANIGLIO[3], L. DALBOSCO[3], [1]FBK-IRST, Trento, Italy; [2]Physics Dept., University of Trento, Trento, Italy; [3]Material Engineering and Industrial Technologies Dept., University of Trento, Trento, Italy

FL-5:L06 **Novel Silicon Based Gene Carrier Systems**
A. SOMMERWERK, G. STRUCKMEYER, J. TILLMANN, M. UHR, J. SCHÄFER, H. RICHTER, **U. BAKOWSKY**, University of Marburg, Pharmazeutical Technology and Biopharmazeutics,Marburg, Germany

Session FL-6
Progress in Implant Prostheses

FL-6:IL01 **The Future of Implant Technology in Musculoskeletal Regeneration**
G. DUDA, Julius Wolff Inst. and Center for Musculoskeletal Surgery, Berlin-Brandenburg Center for Regenerative Therapies, Charité - Universitätsmedizin Berlin, Berlin

FL-6:IL02 **A Critical Assessment of the Clinical Efficacy and Cellular Response to Low Intensity Pulsed Ultrasound for Fracture Repair**
C.T. LAURENCIN, Y. KHAN, Dept. of Orthopaedic Surgery, University of Connecticut Health Center, Farmington, CT, USA

FL-6:IL03 **Surface Modification of Titanium-based Implants**
D. SCHARNWEBER, Max Bergmann Center of Biomaterials; B. SCHWENZER, General Biochemistry; both TU Dresden, Dresden, Germany

FL-6:IL04 **Sol-gel Derived Titania Coatings for Enhanced Bone and Soft Tissue Attachment on Titanium Implants**
T.O. NÄRHI, Dept. of Prosthetic Dentistry, Institute of Dentistry, University of Turku, Turku, Finland

FL-6:L05 **Nano-scale Evaluation of Surface Morphology Before and After Environmental Exposure in Vitro of an Advanced Alumina/ Zirconia Composite for Arthroplastic Applications**
KENGO YAMAMOTO, Dept. of Orthopedic Surgery, Tokyo Medical University, Tokyo, Japan; G. PEZZOTTI, Ceramic Physics Lab. & Research Inst. for Nanoscience, Kyoto Institute of Technology, Kyoto, Japan

FL-6:L06 **Carbon Nanotubes In Vitro and In Vivo Biological Effects**
S. BELLUCCI, INFN-Laboratori Nazionali di Frascati, Frascati, Italy

FL-6:L07 **Closure of Oroantral Communications Using Biodegradable Polyurethane Foam**
S.H. VISSCHER, B. VAN MINNEN, R.R.M. BOS, Dept. of Oral and Maxillofacial Surgery, University Medical Centre Groningen, Groningen, The Netherlands

FL-6:L08 **Role of Grain Size Fluctuations on the Environmental Resistance of Alumina-Zirconia Composite in Comparison with Commercially Available Monolithic Zirconia Femoral Heads**
N. SUGANO, Dept. of Orthopaedic Medical Eng., Osaka Univ. Grad. School of Medicine, Osaka, Japan; G. PEZZOTTI, Ceramic Physics Lab. & Research Inst. for Nano-science, Kyoto Inst. of Technology, Kyoto, Japan, The Center for Advanced Medical Eng. and Informatics, Osaka Univ., Osaka, Japan

FL-6:L09 **In Vivo Hemostatic Effect of Polyurethane Foam Compared to Collagen and Gelatin**
F.I. BROEKEMA[1], W. VAN OEVEREN[2], R.R.M. BOS[1], [1]Dept. of Oral and Maxillofacial Surgery, University Medical Center Groningen, Groningen, The Netherlands; [2]Dept. of Biomedical Engineering, University Medical Center Groningen, Groningen, The Netherlands

FL-6:L10 **Stoichiometry and Surface Stress Analyses in Advanced Alumina/Composites for Hip Arthroplastic Applications**
A.A. PORPORATI, G. PEZZOTTI, Ceramic Physics Lab., Kyoto Institute of Technology, Kyoto, Japan; K. LESSNAU, CeramTec AG, Plochingen, Germany

FL-6:L11 **Nanosized-hydroxyapatite Coating on Ti6Al4V Interference Screws Enhances the Biomechanical Properties**
B. AKSAKAL, Firat University, Technical Education Faculty, Dept. of Mech. Edu., Elazig, Turkey; M. DEMIREL, Adiyaman University, Technical Vocational School of Higher Education, Adiyaman, Turkey

Poster Presentations

FL:P01 **Shell Scaffolds for Bone Regeneration and Repair**
D. BELLUCCI, V. CANNILLO, A. SOLA, Dip. di Ingegneria dei Materiali e dell'Ambiente, Univ. degli Studi di Modena e Reggio Emilia, Modena, Italy

FL:P02 **New Nanostructured Chitosan Films for Reduced Bacterial Adhesion**
E. DAYYOUB, U. BAKOWSKY, Dept. of Pharmaceutical Technology and Biopharmaceutics, University of Marburg, Marburg, Germany

FL:P03 **Structural Parameters of New Mesoporous Silica/Hydroxyapatite Materials**
A. BORÓWKA, A. SZCZES, Faculty of Chemistry, Maria Curie-Sklodowska University, Lublin, Poland

FL:P04 **Preparation and Characterization of Biocompatible Nb-based Hard Coatings**
A. RUSSO, D. CASINO, S. PANSERI, M. MARCACCI, Istituti Ortopedici Rizzoli, Biomechanics Lab., Bologna, Italy; V. BRAIC, C.N. ZOITA, M. BALACEANU, A. VLADESCU, A. KISS, M. BRAIC, National Institute for Optoelectronics, Magurele-Bucharest, Romania

FL:P05 **XRD Studies on Transformation of Calcium-deficient Apatite to Beta and Alfa TCP in Dynamic and Technological Conditions**
B. HANDKE, A. ZIMA, Z. PASZKIEWICZ, **A. SLOSARCZYK**, AGH - University of Science and Technology, Cracow, Poland

FL:P06 **Effects of Mg Additives on Properties of Mg-doped Hydroxyapatite Ceramics**
A. ZIMA, A. SLOSARCZYK, Z. PASZKIEWICZ, M. STASZEWSKA, AGH - University of Science and Technology, Cracow, Poland; W. MRÓZ, Military University of Technology, Warsaw, Poland; A. CHROSCICKA, Medical University of Warsaw, Warsaw, Poland

FL:P07 **Influence of the Processing Method in the Water Solubility and Water Vapor Permeability in Bioplastics's Films**
F.M. FAKHOURI[1], D.L.M. COSTA[2], F. YAMASHITA[3], L.H. INNOCENTINI MEI[1], F.P. COLLARES QUEIROZ[1], [1]School of Chemical Eng., State University of Campinas, UNICAMP, Campinas-SP, Brazil; [2]Dept. of Chemistry and Environment, UNED Bela Vista, CEFET-MT, Cuiabá - MT, Brasil; [3]State University of Londrina, Dept. of Food Science and Tech., Londrina-PR, Brasil

FL:P08 **Evaluation of CaO-SiO2-P2O5-Na2O-Fe2O3 Glass-ceramics for Hyperthermia Application**
R.K. SINGH, A. SRINIVASAN, Dept. of Physics, Indian Institute of Technology, Guwahati, India

FL:P09 **Silver Ions Release from Nanocomposites Based on Styrene/ Divinylbenzene with Antimicrobial Activity**
K. SEGALA[1], R.L. DUTRA[2], **L.H. INNOCENTINI-MEI**[1], C.V. FRANCO[2], [1]State University of Campinas-UNICAMP, School of Chemical Eng., Campinas, SP, Brazil; [2]Universidade Federal de Santa Catarina, Centro de Ciências Físicas e Matemáticas, Dpto de Química, UFSC Trindade, Florianopolis, SC, Brasil

FL:P10 **New Corrosion-resistant Bactericidal Nitrogen-containing Steels with Increased Strength**
L. KAPUTKINA, **V. PROKOSHKINA**, A. SVYAZHIN, National University of Science and Technology "MISIS", Moscow, Russia

FL:P11 **Evaluation of the Apatite Coating on Silicon Nitride Based Ceramics Sintered with RE2O3 Additives (RE = Y, La, Yb)**
J. MARCHI, CCNH, Universidade Federal do ABC, Santo André, SP, Brazil; C.C. GUEDES E SILVA, CTMSP, Centro Tecnológico da Marinha em Sao Paulo, Sao Paulo, SP, Brazil; E.C.S. RIGO, DCB, Fac. de Zootecnia e Eng. de Alimentos, Universidade de Sao Paulo, Pirassununga, SP, Brazil, A.H.A. BRESSIANI, J.C. BRESSIANI, CCTM, Instituto de Pesquisas Energéticas e Nucleares, Sao Paulo, SP, Brazil.

FL:P12 **Nanostructured Hydroxyapatite Coatings Produced by Thermal Spray: Synthesis, Deposition and Characterization**
C.P. BERGMANN, R.M. TROMMER, A.S.TAKIMI, J.VICENZI, Federal University of Rio Grande do Sul, Porto Alegre, RS, Brazil

FL:P13 **Surface Parameters of Titanium Samples by Powder Metallurgy**
C. GOMEZ ÁGREDA, T.S. GOIA, J.C. BRESSIANI, A.H.A. BRESSIANI, Instituto de Pesquisas Energéticas e Nucleares, IPEN - CNEN/SP, Brasil

FL:P14 **Osseointegration and Biocompatibility Study of Macroporous Biphasic Calcium Phosphate (BCP) Ceramics Oobtained by Consolidation Using Albumin**
C. RIBEIRO, T.S. GOIA, K.B. VIOLIN, J.C. BRESSIANI, A.H.A. BRESSIANI, Instituto de Pesquisas Energéticas e Nucleares, IPEN - CNEN/SP, Brasil

FL:P15 **Properties of Porous TiNi Shape Memory Alloy Fabricated by SHS at Different Preheating Temperatures**
S. BELYAEV, N. RESNINA, V. MOZGUNOV, A. VORONKOV, A. KRIVOSHEEV, Saint-Petersburg State University, Saint-Petersburg, Russia

FL:P16 **Siloxane-TiO2-CaO Hybrid Materials: Preparation and Characterization**
L. TELLEZ, M. RODRIGUEZ REYES, Depto. Ing. en Metalurgia y Materiales, ESIQIE-Instituto Politecnico Nacional. Zacatenco, Mexico D. F., Mexico; **M.A. VALENZUELA**, Lab. Catalisis y Materiales, ESIQIE- Instituto Politecnico Nacional. Zacatenco, Mexico D.F., Mexico

FL:P17 **Disperse Materials with Adjustable Curie Temperature for Antitumor Hyperthermia**
M.N. MARKELOVA, A.E. KUSHNIR, A.R. KAUL, Lomonosov Moscow State University, Moscow, Russia; V.V. DEMIDOV, V.A. ATSARKIN, Institute of Radio Eng. and Electronics, RAS, Moscow, Russia; B.M. ODINTSOV, E.J. ROY, University of Illinois at Urbana-Champaign, USA; R.I. YAKUBOVSKAYA, N.I. MOROZOVA, A.A. PANKRATOV, Moscow Hertsen Oncological Institute, RAS, Moscow, Russia

FL:P18 **Influence of Annealing on Physical and Mechanical Properties of Porous TiNi Alloy for Implants**
N. RESNINA, S. BELYAEV, V. MOZGUNOV, A. VORONKOV, I. OSTAPOV, Saint-Petersburg State University, Saint-Petersburg, Russia

FL:P19 **Fatigue of Tetragonal Zirconia Polycrystals (Y-TZP) / Al2O3 Bioceramics**
R.C. SOUZA, C .SANTOS, L.A. BICALHO, M.J.R. BARBOZA, C.A.R.P. BAPTISTA, EEL-USP, Lorena, Sao Paulo, Brazil; **K. STRECKER**, UFSJ, Sao Joao Del-Rei, Minas Gerais, Brazil

FL:P21 **Fiber Optic Capillary Microfluidic Sensor for Biotechnological Applications**
M. BORECKI, Warsaw Univ. of Technology, Warsaw, Poland; **M.L. KORWIN-PAWLOWSKI**, Université du Québec en Outaouais, Gatineau, QC, Canada; M. BEBLOWSKA, J. SZMIDT, Warsaw Univ. of Technology, Warsaw, Poland

FL:P22 **Surface Modified Fe3O4 and Au Nanoparticles Based on Simple Diagnostic System for Tuberculosis Magnetophoretic Immunoassay**
JAEWOOK LEE[1], KWANGNAK KOH[1], DONG-WOOK HAN[1], CHEOL-MIN KIM[2], HWA-JUNG KIM[3], HYUN-CHUL SHIN[4], CHULHUN L. CHANG[2], **JAEBEOM LEE**[1], [1]Dept. of Nanomedical Eng., College of Nanoscience and Nanotechnology, Pusan National University, Miryang, Korea; [2]School of Medicine, Pusan National University, Yangsan, Korea; [3]Dept. of Microbiology and Infection Signaling Network Research Center, College of Medicine, Chungnam National University, Daejeon, Korea: [4]Dept. of Chemistry Education, Korea National University of Education, Cheongwon, Korea

FL:P23 **Differential Cellular Responses to Superparamagnetic Iron Oxide Nanoparticles in Primary Fibroblast vs. Fibroblastic Cell Line**
H.Y. KIM, S.C. HONG, J.H. LEE, J. LEE, D.-W. HAN, College of Nanoscience & Nanotechnology, Pusan National University, Busan, South Korea

FL:P24 **Molecularly Imprinted Solid-phase Extraction of Biochemical Marker**
S. SCORRANO, G. VASAPOLLO, Dept. of Engineering of Innovation, University of Salento, Lecce, Italy

FL:P25 **Investigation of Affinity Interactions with Frustrated Total Internal Reflection Method**
S.A. KRUTOVERTSEV, A.G. BORISOV, O.M. IVANOVA, M.V. CHUPRIN, JSC "Practic-NC", Zelenograd, Moscow, Russia; M.Yu. RUBTSOVA, Moscow State University, Moscow, Russia

FL:P26 **Novel Polyphthalocyanines in Medical Diagnosis: Development of H2O2 Detection**
O.M. IVANOVA, A.V. SHEVCHENKO, S.A. KRUTOVERTSEV, A.E. TARASOVA, JSC "Practic-NC", Zelenograd, Moscow, Russia; A.I. SHERLE, E.F. OLEINIK, Institute of Chemical Physics of RAS, Moscow, Russia

FL:P27 **Preparation and Characterization of Poly(Vinyl Alcohol) Hydrogel Beads as an Injectable Bulking Agent**
SOO JUNG CHOI, C.S. LIM, S.J. KIM, S.H. OH, J.H. LEE, Dept. of Advanced Materials, Hannam University, Daejeon, South Korea

FL:P28 **In Vitro Evaluation of Pore Size Effect on Chondrogenesis of Adipose-derived Stem Cells Using Pore Size Gradient Scaffold**
TAE HO KIM, S.H. OH, J.H. LEE, Dept. of Advanced Materials, Hannam University, Daejeon, South Korea

FL:P29 **Hyaluronic Acid/Alginate Mixture Gel as a Tissue Adhesion Barrier**
SEUNG YEON NA, S.H. OH, J.H. LEE, Dept. of Advanced Materials, Hannam University, Daejeon, South Korea; K.S. SONG, Dept. of Pathology, Chungnam National University, Daejeon, South Korea

FL:P30 **Effect of Starting Powder and Microstructure on the Aging Process of 3Y-TZP**
M.M. OLIVEIRA, **L.A. GENOVA**, IPEN-CNEN/SP, Sao Paulo, Brazil

FL:P31 **Preparation of Porous Scaffold from PLGA/Hydroxyapatite Composite Coated with a Biodegradable Triblock Copolymer for Bone Tissue Engineering**
M. HAGHBIN NAZARPAK, Biomaterials Research Center (BRC), University of Tehran, Tehran, Iran; F. POURASGARI, 2 Stemcells Technology, Tehran, Iran; M.N. SARBOLOUKI, Biomaterials Research Center (BRC), University of Tehran, Tehran, Iran

FL:P32 **Functional-designed Nanofiber Coated Drug Eluting Stent for Tracheal Regeneration**
DONG NYOUNG HEO, SUNG EUN KIM, **IL KEUN KWON**, Dept. of Maxilofacial Biomedical Eng., School of Dentistry, Kyung Hee University, Seoul, Korea

FL:P33 **Study on Bone Cell Adaptability of TCP/HAp Functionally Graded Porous Beads for Biomaterials Application**
S. OHTAKE,T. ASAOKA, Tokyo Denki University, Saitama, Japan; K. FURUKAWA, T. USHIDA, University of Tokyo, Japan; T. TATEISHI, NIMS, Japan

FL:P34 **Alginate Microparticles Loaded with Antineoplastic Drugs for the Treatment of Eye Cancer**
E.O. BATYRBEKOV, D.Zh. RAKHIMBAEVA, K.B. MUSABEKOV, B.A. ZHUBANOV, Institute of Chemical Sciences, Kazakh National University, Almaty, Kazakhstan

FL:P35 **Metal Nanoparticles as Bacteria Production Strains' Protective Agents in the Manufacture of Immunobiological Preparations**
M.Ye. ROMAN'KO, National Scientific Center "Institute of Experimental and Clinical Veterinary Medicine" Kharkov, Ukraine; L.S. RIEZNICHENKO, T.G. GRUZINA, Z.R. ULBERG, F.D.Ovcharenko Institute of Biocolloidal Chemistry, Kyiv, Ukraine; V.A. USHKALOV, A.N. GOLOVKO, The State Scientific Control Institute of Biotechnology and Strains of Microorganisms, Kyiv, Ukraine

FL:P36 **Modulation of Biochemical Activity by Gold Nanoparticles In-vitro and In-vivo**
L.S. RIEZNICHENKO, S.N. DYBKOVA, T.G. GRUZINA, Z.R. ULBERG, F.D. Ovcharenko Inst. of Biocolloidal Chemistry, Kyiv, Ukraine; S.I. SHPYLEVA, I.N. TODOR, V.F. CHEKHUN, R.E. Kavetsky Inst. of Experimental Pathology, Oncology and Radiobiology, Kyiv, Ukraine

FL:P37 **Study of Chitosan Addition in the PVP/PVAL Polymeric Blend - A System of Controlled Release of Drugs**
M.C. TERENCE, L.F. DE MIRANDA, **S. BRAUNSTEIN FALDINI**, P.J. DE CASTRO, Universidade Presbiteriana Mackenzie - UPM, Sao Paulo-SP, Dpto de Engenharia de Materiais, Sao Paulo, SP, Brasil

FL:P38 **Evaluation of the Effects of Sustained Delivery Demineralized Bone Matrix (DBM) and Osteogenic Protein-1 (OP-1) on Fracture Healing, Osteoclast Activation in a Rat Femur Model**
M.A. TUCCI, S.A. WINGERTER, H.A. BENGHUZZI, University of Mississippi Medical Center, Jackson, MS, USA

FL:P39 **In Vitro Study of Electrospun Nanofibrous Epigallocatechin Gallate-eluting Anti-adhesion Barrier Composed of Biodegradable Polymer**
JONG HO LEE, H.Y. KIM, D.-W. HAN, College of Nanoscience & Nanotechnology, Pusan National University, Busan, South Korea; J.-C. PARK, Yonsei University College of Medicine, Seoul, South Korea; S.-H. HYON, Institute for Frontier Medical Sciences, Kyoto University, Kyoto, Japan

FL:P40 **Development of Pseudoboehmites for Nanosystems to Release Acyclovir**
A.H. MUNHOZ JR., S. BRAUNSTEIN FALDINI, **R. RODRIGUES RIBEIRO**, C. YUGI MAEDA, L.F. MIRANDA, Universidade Presbiteriana Mackenzie - UPM, Sao Paulo-SP, Brasil

FL:P41 **Release Behaviors from Dual Drug-eluting Stents Coated with Biodegradable Polymers Using Electrospraying**
D.M. KIM[1, 2], B.S. LEE[1], K. PARK[1], J.H. KANG[1], T.I. SON[2], **DONG KEUN HAN**[1], [1]Biomaterials Research Center, Korea Inst. of Science and Technology, Seoul, Korea; [2]Dept. of Biotechnology, Chung-Ang University, Korea

FL:P42 **An Efficient Low-pH Range Sensitive Artificial Muscle for Future Active Implantable Systems**
B. TONDU, S. MATHÉ, N. BARDOU, University of Toulouse, Toulouse, France

FL:P43 **Osseointegration of Macroporous Titanium Alloy Obtained by PM with Addition of Gelatin**
T.S. GOIA, K.B. VIOLIN, M. YOSHIMOTO, J.C. BRESSIANI, A.H.A. BRESSIANI, Instituto de Pesquisas Energéticas e Nucleares, IPEN - CNEN/SP, Brasil

INFORMATION TO AUTHORS & PARTICIPANTS

LOCATION AND DATES

CIMTEC 2010 will be held in Montecatini Terme, an international renown Spa and tourist resort in the environments of Florence, the historical centre of the European Renaissance. The town is placed in a strategic position to reach the most interesting historical and tourist places in Tuscany, such as Florence, Pisa, Siena, Pistoia, Volterra, "Le Cinque Terre (Five Lands)", and several others.

The 2010 edition of CIMTEC - International Conferences Materials & Technologies will include the ***12th International Ceramics Congress (June 6-11, 2010***) and the ***5th Forum on New Materials* (*June 13-18, 2010*).**

CONFERENCE SECRETARIAT

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CONFERENCE VENUE

Palazzo dei Congressi
Via Amendola 2
I-51016 Montecatini Terme (PT) - Italy

Due to the need for a much larger number of parallel sessions than the ones formerly expected for both the Ceramics Congress and the Forum, some Symposia will be held in a satellite Congress Centre, very close to the Palazzo dei Congressi (3-4 min walking distance).

For the **Ceramics Congress** the registration desk will open at 11.00 a.m. on Sunday June 6. Technical Sessions will start Monday June 7 morning and continue until Friday June 11. The Congress will close with the *Conference Dinner* on Friday June 11 evening.

For the **Forum on New Materials** the registration desk will open at 11.00 a.m. on Sunday June 13. Technical Sessions will start Monday June 14 morning and continue until Friday June 18. The Forum will close with the *Conference Dinner* on Friday June 18, evening.

REGISTRATION DESK AND SECRETARIAT

Registration desk and secretariat will be open at the **Palazzo dei Congressi** according to the following time schedule:

International Ceramics Congress

June 6	Sunday	11.00-13.00	15.00-19.00
June 7	Monday	8.00-13.00	14.30-19.30
June 8	Tuesday	8.00-13.00	14.30-19.30
June 9	Wednesday	8.00-13.00	
June 10	Thursday	8.00-13.00	14.30-20.00
June 11	Friday	8.00-13.00	

Forum on New Materials

June 13	Sunday	11.00-13.00	15.00-19.00
June 14	Monday	8.00-13.00	14.30-19.30
June 15	Tuesday	8.00-13.00	14.30-19.30
June 16	Wednesday	8.00-13.00	
June 17	Thursday	8.00-13.00	14.30-20.00
June 18	Friday	8.00-13.00	

No credit cards are accepted at the registration desk. On site registration payments only can be made by cash or traveller cheques.

HOW TO REACH MONTECATINI TERME

Montecatini Terme is located in Central Italy in between Florence and Pisa. It can be reached:

By Plane:

To Florence - International Airport "Amerigo Vespucci". From the airport you may reach Florence Central Railway Station "Santa Maria Novella" by public services or by taxi, then continue your journey by train to Montecatini Terme.

N.B. A public bus service to Montecatini Terme is also available at the Airport exit from 8.15 (first run) to 17.15 (last run) every hour in working days and every two hours on Sunday. Travel time is about 50 min. Tickets may also be made directly on the bus.

To Pisa - International Airport Galileo Galilei. Then by train to Montecatini Terme as explained below.

N.B. A public bus service to Montecatini Terme through Lucca is also available at the Airport exit from 8.45 (first run) to 17.45 (last run) every hour in working days and every two hours on Sunday. Change of bus is required at Lucca. Overall travel time is about 90 min. Tickets may also be made directly on the bus.

By Train:

From Florence: train connections to Montecatini Terme are excellent and very frequent (from about 6.00 a.m. to about 22.30 p.m.). Travel time from Florence Central Railway Station to Montecatini Central Railway Station (Montecatini Centro) is about 50 min.

From Pisa: Take the train of line Pisa-Lucca, then, at the Lucca Railway Station, change to line Lucca-Montecatini Centro. Travelling time from Pisa to Montecatini Terme (via Lucca) is about 90 min. Last departure from Pisa Railway Station at 21.50.

NOTE - Montecatini Terme has two railway stations. The closest to the Congress Centre and to the hotels is "Montecatini Centro".

By Car:

Montecatini Terme can be reached easily by car from any direction via the network of Italian highways. The exit to Montecatini Terme is located about midway between Florence and Pisa on the Firenze-Pisa (Florence-Pisa) express-way which is connected directly with the Central Italian expressway "Autostrada del Sole" ("Sun Highway").

A complimentary bus transfer service will be arranged for CIMTEC attendees from both the *Florence* and *Pisa* Airports to Montecatini Terme on Sunday June 6 and Sunday June 13 (i.e. the arrival days for the Ceramics Congress and the Forum on New Materials, respectively) with departure at every hour from 2.00 p.m. to 11.30 p.m. CIMTEC reception hostesses will be available at the exit of arrivals terminal on June 6 and June 13 (2.00 p.m to 11.30 p.m.) to assist delegates.

REGISTRATION AND FEES

All those planning to attend CIMTEC 2010 must register and receive badges. Advanced and late registrations fees are offered as well as special student registration fees. All Registration Fees include 20% government taxes.
Registration rates are in EURO, but payments may be also effected in US$ at the exchange rate of the day in which the payment is made.

	*CERAMICS CONGRESS (June 6-11)	**FORUM ON NEW MATERIALS (June 13-18)	***WHOLE CIMTEC (CONGRESS+FORUM)
Early *(by April 20, 2010)*			
Full Member[a]	680.00 EURO	660.00 EURO	1,130.00 EURO
Student under 26[b]	370.00 EURO	360.00 EURO	700.00 EURO
Invited Lecturer[c]	340.00 EURO	330.00 EURO	790.00 EURO
Late and on site			
Full Member[a]	730.00 EURO	710.00 EURO	1,200.00 EURO
Student under 26[b]	420.00 EURO	410.00 EURO	770.00 EURO
Invited Lecturer[c]	390.00 EURO	380.00 EURO	860.00 EURO

*includes one DVD of the *Ceramics Congress* Proceedings
** includes one DVD of the *Forum on New Materials* Proceedings
*** includes one complete set of DVDs of *CIMTEC 2010 Proceedings (Congress + Forum)*
[a] authors of lectures (L), posters (P), other Participants
[b] evidence of status and xerocopy of passport or other document showing the student age must accompany the registration
[c] and/or Member of Conference Committees

Registered members to the Ceramics Congress may purchase one copy of the Proceedings of the Forum at the price of 45 EUR, including package and air-mail. Registered members to the Forum may purchase one copy of the Proceedings of the Ceramics Congress at the price of 50 EUR, including package and air-mail.

Fees include 20% VAT, general and secretariat costs, participation in the scientific sessions, coffees, printed booklet of the Final Programme, Book of Abstracts and other conference material, complimentary participation in the Social Programme and Guided Tours, and one copy of the DVD of the Proceedings.

Every attendee is requested to fill in and return the Registration Form, unless the payment is made on-line.
All registrations received by May 15 will be acknowledged. Registration received after May 15 will not be acknowledged. Registration which are not accompanied by the appropriate fees will not be filed.

PAYMENTS

All payments shall be made in EU or US$, **net of all charges**, by:
- Bank cheque made payable to: **Techna Group Srl, Faenza** (to be attached to the Registration Form)
- Bank draft made payable to:
  Techna Group Srl, Banca di Romagna SpA
  SWIFT: BARM IT 2F
  IBAN: IT02 F062 0523 705C C505 0002 852
  (copy of the bank draft to be attached to the Registration Form)

Credit cards **cannot** be charged by the Conference organization, therefore payment by credit card cannot be accepted. However **on-line payment** by credit card can be made.

ON-LINE PAYMENT

To effect on-line payment please go to:

http://www.cimtec-congress.org/2010/onlinereg.asp

a 3% commission is charged by the bank for on-line payment

Participants are encouraged to take advantage of the discounted rate, applicable only if **both** registration and **payment** are received by April 20.

LANGUAGE

English will be the official language for the Conference.

PRESENTATION FORMATS

Oral Presentations

Electronic presentation facilities will be available. The standard audio-visual package in each conference room will consist of:
- Videoprojector, screen, laser pointer and microphone.
- PC Windows XP with Office pack (including Power Point), USB plug and CD-Rom.

Allowed time for presentation:
- Invited Lectures 30 min including discussion
- Contributed Lectures 20 min including discussion

Poster Presentations

Poster board: 2.00 m (vertical) x 1.00 m (horizontal). Pins are not allowed. Tape is to be used. Authors are kindly requested to be present at their poster for discussion with attendees during the Poster Session. It is each author's responsibility to remove the poster immediately after the end of the session. The organisers do not assume any responsibility for posters left up after this time.
Guidelines for Poster preparation are available at the Conference web site. Attendance by at least one of the authors is mandatory for poster presentation and publication in CIMTEC 2010 Proceedings.

FINAL PROGRAMME

The booklet of the Final Programme including titles and detailed timetable of Lectures, Posters and "HOT POSTERS" will be given at the registration desk. It also will be hopefully available on the conference web site approx. 10 days before the beginning of the conference.

ABSTRACTS

A book of abstracts of all Oral and Poster Presentations will be given to all registered members at the registration desk. It will hopefully be made available on the conference web approx. 10 days before the beginning of the conference.

PROCEEDINGS

Official Proceedings (about 20-25 volumes) of the contributions (Oral/Posters) presented at CIMTEC 2010 will be published by Trans Tech Publications Ltd., Switzerland, in the Techna Group series "Advances in Science and Technology" as Volume 62 onwards. Attendance of the Presenting Author is requested for publication. Submission and uploading instructions are provided by Trans Tech Publications Ltd. to the **Presenting Author** of each paper. **Submission of the written text for the Proceedings is not mandatory.**

SOCIAL PROGRAMME

CC *is for Ceramic Congress;* **FNM** *is for Forum on New Materials*

June 7 (CC) / June 14 (FNM)
Evening: Opening Concert

June 9 (CC)/ June 16 (FNM)
Afternoon: Guided tour to Florence

June 11(CC)/June 18 (FNM)
Afternoon: Guided tour to Pisa
Evening: Conference Dinner

OPTIONAL TOURS

June 7 (CC) / June 14 (FNM)
Afternoon: Guided tour to Volterra

June 8 (CC) / June 15 (FNM)
Full day: Guided tour to Siena and San Gimignano

June 9 (CC) /June 16 (FNM)
Full day: Guided tour to Florence

June 10 (CC) / June 17 (FNM)
Full day: Guided tour to the "Cinque Terre"

Registration and payment for optional tours is to be made on site by cash only. Subjected to availability of places.

COMPANIONS PROGRAMME

June 7 (CC) / June 14 (FNM)
Afternoon: Guided tour to Volterra
Evening: Opening Concert

June 8 (CC) / June 15 (FNM)
Full day: Guided tour to Siena and San Gimignano

June 9 (CC) /June 16 (FNM)
Full day: Guided tour to Florence

June 10 (CC) / June 17 (FNM)
Full day: Guided tour to the "Cinque Terre"

June11 (CC) / June18 (FNM)
Afternoon: Guided tour to Pisa
Evening: Conference Dinner

Appropriate booking space may be found in the Registration Form. On-line registration is also available.
Registration Fee: **260** Euro. After April 20: **290** Euro

On-site registration is subject to availability of places.

HOT POSTERS

Late-news papers will be accepted for poster presentation, provided the following mandatory conditions be verified:

- *Poster submission from Presenting Authors who **do not** have oral or poster presentations already scheduled in the conference programme will only be accepted.*
- *Only one "HOT POSTER" may be contributed by the same Presenting Author.*
- *Submission shall be accompanied by the payment of the registration fee.*
- *The submission deadline of **April 20, 2010** be strictly respected.*

To submit go to:
www.cimtec-congress.org/2010/abstract_submission.asp

The Conference Secretariat will confirm receipt of the Hot Poster and will supply the Presenting Author with proper information about Poster Presentation.

Submission and uploading instructions for the preparation of the text for the Proceedings Volumes will be supplied by Trans Tech Publications Ltd. to the Presenting Author.

CANCELLATION

Prepaid registration fees (conference, companions programme) are refundable, minus a 20% administration fee, if written notification of the cancellation is received before May 20, 2010. No refund can be made for cancellations received after May 20, 2010. However delegate substitution can be accepted. All refunds will be made after the Conference.

VISA ASSISTANCE

All travel, lodging and registration expenses will be responsibility of the individual participants. Special letters of invitation to be used for visa application will be provided upon written request by the participant to the conference organizers.
Because the application for a visa may be a lengthy process, we recommend to start your visa application process in due advance. Those attendees who need a visa to entry in Europe are suggested to contact CIMTEC Secretariat as soon as possible indicating full mailing address, date and place of birth, passport number and date of expiration and any other information useful to obtain visa to: CIMTEC 2010 Secretariat, info@technagroup.it
All letter of invitations will be sent by airmail and PDF e-mail attachment or fax.
CIMTEC organisation is unable to contact Embassies in support of an individual attempting to gain entry to attend the Conference.

WEATHER

The weather in Montecatini Terme at the beginning of June is usually fine with temperatures ranging from 20 to 25 °C during the day and 12 to 15 °C during the night. Clothing suitable for (early) summer is recommended.

HOTEL ACCOMMODATION

Rooms have been reserved in a number of hotels located at walking distance from the Congress Centre. The following prices have been agreed:

Prices per Day per Person (Euro)

HOTEL CATEGORY	FB-Full Board*		BB-Bed & Breakfast	
	DUS (Double single use)	**Double** (Per person)	**DUS** (Double Single Use)	**Double** (Per person)
5 star (Luxury)	165,00	122,00	135,00	92,00
4 star super	155,00	112,00	130,00	87,00
4 star	122,00	92,00	100,00	70,00
3 star super	108,00	75,00	89,00	56,00
3 star	80,00	57,00	65,00	42,00
2 star	65,00	48,00	55,00	38,00

FB in Montecatini Terme is the most recommended option, being restaurants limited in number and very expensive

*Prices for Full Board include buffet breakfast, served meals, ¼ wine and ½ mineral water at each meal, service and taxes. All rooms are with private bath or shower. Full board starts from the dinner of the arrival day of the participant.
Third occupancy with additional bed in double room: 30% discount on third occupancy. Children less 2 years with no additional bed: no charge.

Room reservations have to be made by returning by **April 20, 2010** the Hotel Accommodation Form accompanied by one night hotel deposit to:

PAM Hotel Booking Centre
Via Palestro 2/A
51016 Montecatini Terme (PT)
Italy
Tel. +39 0572 75365
Fax +39 0572 771546
e-mail: pam@montecatinipromozione.com

CURRENCY, BANKING AND INSURANCE

Banks are generally open Monday to Friday from 8.30 a.m. to 1.30 p.m. and from 3.00 p.m. to 4.00 p.m. All banks are closed on Saturdays and Sundays. Traveller's cheques and major credit cards are accepted in most hotels, and in some restaurants and shops.
The Organizers do not assume any responsibility for participant's personal accidents, sickness, thefts or property damage.

SUMMARY OF DEADLINES

April 20, 2010
Paper uploading for Proceedings Volumes

April 20, 2010
Registration at reduced rate

May 20, 2010
Conference Fees Cancellations (80% refund)

AVAILABLE ON THE WEB

http://www.cimtec-congress.org/2010/

as from February 15, 2010
Final Announcement
Registration Form
Hotel Accommodation Form
On-line Registration

as from May 25, 2010
Final Programme
Abstracts

FURTHER INFORMATION

For scientific and organizational aspects of the conference ***(until May 30)***

CIMTEC 2010
Ms Stefania Bianchedi
P.O. Box 174
48018 FAENZA - ITALY
Tel. +39 0546 22461
Fax +39 0546 664138
e-mail: congress@technagroup.it

For aspects related to hotel accommodation (booking, schedule changes, cancellations, etc.)

PAM Hotel Booking Centre
Via Palestro 2/A
51016 Montecatini Terme (PT)
Italy
Tel. +39 0572 75365
Fax +39 0572 771546
e-mail: pam@montecatinipromozione.com

SOCIAL PROGRAMME

The Social Programme for Registered Members to CIMTEC 2010 will include:

Opening Concert "NuovoTeatro Verdi" Montecatini Terme

The Opening Concert of CIMTEC 2010 will be performed by the "Strauss Konzert Orchestra" of Sophia, Bulgarie, at the "Nuovo Teatro Verdi" of Montecatini Terme. The Orchestra is composed by about sixty players selected from the three main orchestras of the Bulgarian Capital, i.e. the Rundfunksorchester, the Staatsoper Orchestra -well known for its cooperation with Herbert Von Karajan- and the Sophia Philarmonic Orchestra.

The Opening Concert of the **Ceramic Congress** "*Opera Gran Gala'"* will be held on Monday June 7 evening (21.30-23.30). The programme will include pieces by: W.A. Mozart, R. Wagner, G. Verdi, G. Puccini, G. Rossini. Soprano: Silvia Pacini; Basso: Vladimir Marinov; Tenore: Aurelio Cicero Santaelena; Soprano II: Claudia Roberta Strano; Director Maestro Andrea Colombini.

The Opening Concert of the **Forum on New Materials** "*Opera & Operetta Gran Galà"* will be held on Monday June 14 evening (21.30-23.30). The programme will include pieces by: G. Bizet, W.A. Mozart, G. Puccini, J. Strauss, L.V. Beethoven, E. Elgar, P. Wagner, F. Lehar, J. Sibelius, G. Faure. Soprano: Silvia Pacini; Basso: Vladimir Marinov; Soprano II: Melissa di Biasso; Tenore: Riccardo Buoincristiani; Director Maestro Andrea Colombini.

Entrance ticket for non-registered companions: 25.00 EURO (subjected to place availability)

Tour to FIRENZE (FLORENCE) - THE CITY CENTER (Wednesday June 9 / June 16, afternoon)

Visit to the City Center. An unrivalled itinery of art and culture in the heart of Florence, Cathedral (Santa Maria del Fiore), with its Cupola by Brunelleschi, the Campanile (Bell Tower) by Giotto, and the Baptistery with the famous Gates of Paradise by Ghiberti and Andrea Pisano, Piazza della Signoria dominated by imposing Palazzo della Signoria flanked by the Loggia of Lanzi and the beautiful Neptune Fountain, Ponte Vecchio, the Uffizi Gallery, etc.

Meeting point: Montecatini Terme Central Railway Station (Stazione Centrale) at 14.45. The participation fee for not registered companions (subjected to place availability) is 20 EURO and includes transportation, English speaking hostess and local guide. Departure from Florence: Santa Maria Novella Railway Station at about 19.00. Return to Montecatini Terme at about 20.30.

Tour to PISA (Friday June 11 / June 18, afternoon)

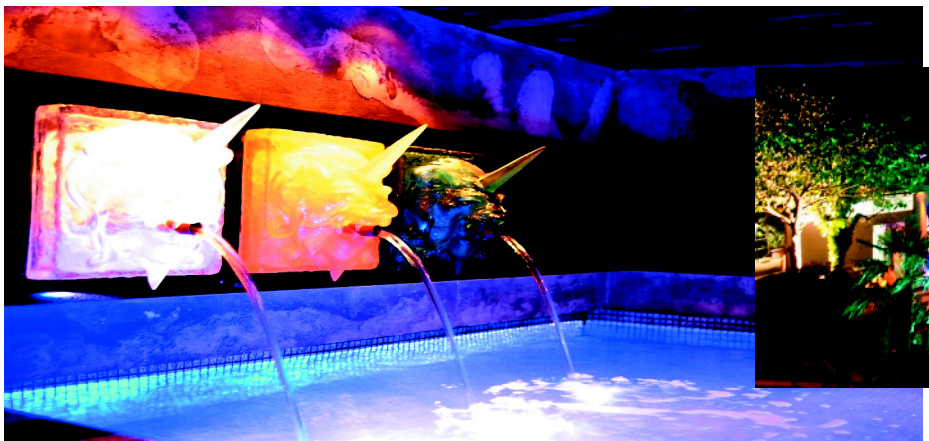
Shown is one of the loveliest architectural complexes in the world. On a large smooth lawn stands the Cathedral, the Baptistery and the famous Leaning Tower, a unique group of buildings in an unrivaled setting, the legacy of a past age which now belongs to all mankind. Along the southern side of the piazza lie the buildings of the old University, center of research and thought and famous for scientific disciplines.

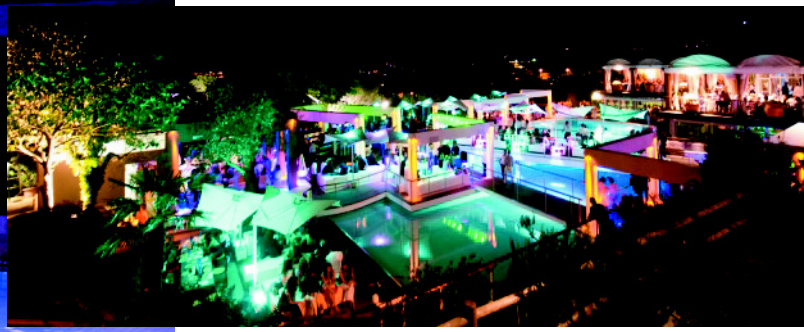
Meeting point: entrance of the Palazzo dei Congressi at 14.45. The participation fee for not registered companions (subjected to place availability) is 25 EURO and includes transportation, English speaking hostess and local guide. Return to Montecatini Terme at about 19.30.

Conference Dinner

The Conference Dinner will be held at the "Lido Le Panteraie" in Montecatini Terme on Friday June 11 (21.00-23.30 for the **Ceramics Congress** and on Friday June 18 (21.00-23.30) for the **Forum on New Materials**.

Entrance ticket for non-registered companions: 40.00 EURO (subjected to place availability)





OPTIONAL TOURS

VOLTERRA (Monday June 7 / June 14, afternoon)

The "magic and mysterious" city of Volterra has its roots in three thousand years of history. It is possible to find evidence and traces from every historical period which gives the city a unique aspect.
The ancient city walls, the imposing Porta all'Arco, the Necropolis of Marmini and the numerous archeological finds conserved in the Museo Etrusco Guarnacci bear testimony of the Etruscan period.
The Theatre of Vallebona survives from the period of Augustus and suggests the importance of Volterra under Roman domination. Today the city conserves above all a Medieval aspect not only for the 12th century city walls but also because of the urban layout with narrow streets, palaces, tower houses and churches.
The Renaissance had an important influence on Volterra but without changing the city's Medieval character. From this period are the superb palaces of Minucci Solaini, Incontri-Viti and Inghirami, which are built into the Medieval city, the imposing Fortezza Medicea and the Convent of San Girolamo.





Meeting point: entrance of the "Palazzo dei Congressi" at 14.30. Return to Montecatini Terme at about 19.30.
The participation fee (30 EURO) includes transportation, city entrance tax, English speaking hostess and local guide.

SIENA - SAN GIMIGNANO (Tuesday June 8 / June 15, full day)

Takes you through one of the most attractive landscapes of Central Italy, with wooded hills and valleys and the renowned Chianti area, famous throughout the world for its high-quality wines. Siena is a treasure of history and art with its rich School of Sienese Painting, its marvellous Cathedral, the Palazzo Comunale rising majestically from the lovely fan-shaped Piazza del Campo, the Tower of Mangia, San Domenico, Piazza Salimbeni, Palazzo Ghigi, Piazza del Capitano, etc. It will leave unforgettable memories.
In the afternoon, visit to S. Gimignano, a small town famous for its numerous towers. It is a real gem of Medieval architecture which takes you back to the time of great battles and romantic love stories, as described by minstrels' tales.



Meeting point: entrance of the "Palazzo dei Congressi" at 9.00. Return to Montecatini Terme at about 19.30.
The participation fee (65 EURO) includes transportation, cities entrance taxes, English speaking hostess, local guides and lunch.

FIRENZE (FLORENCE) (Wednesday June 9 / June 16, full day)

In the morning visit to the City Center. An unrivalled itinery of art and culture in the heart of Florence, Cathedral (Santa Maria del Fiore), with its Cupola by Brunelleschi, the Campanile (Bell Tower) by Giotto, and the Baptistery with the famous Gates of Paradise by Ghiberti and Andrea Pisano, Piazza della Signoria dominated by imposing Palazzo della Signoria flanked by the Loggia of Lanzi and the beautiful Neptune Fountain, Ponte Vecchio, the Uffizi Gallery, etc.
In the afternoon, after lunch, visit to Poggio Imperiale, Piazzale Michelangelo and San Miniato Church.

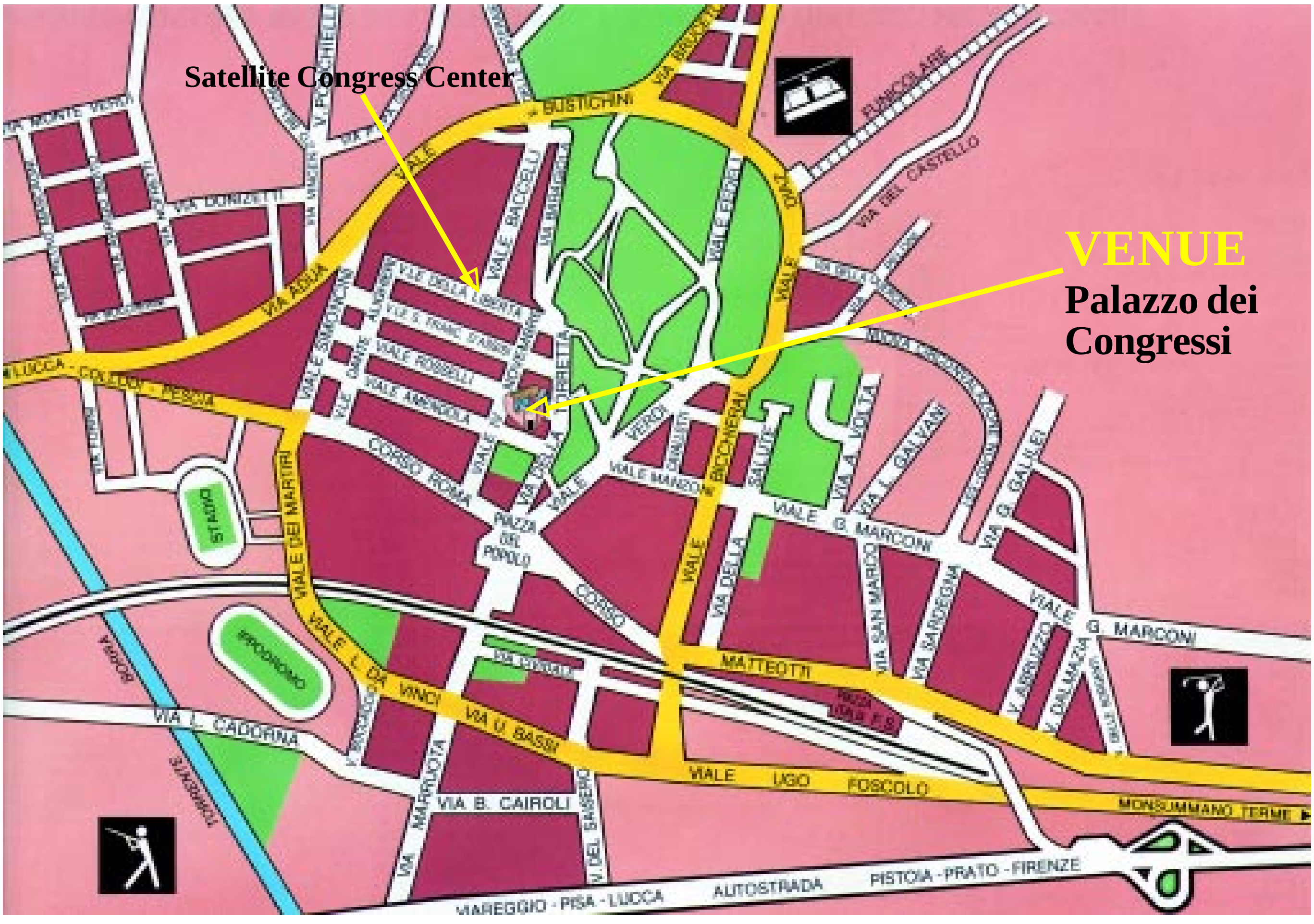
Meeting point: entrance of the "Palazzo dei Congressi" at 9.00. Return to Montecatini Terme at about 19.00.
The participation fee (60 EURO) includes transportation, city entrance tax, English speaking hostess, local guide and lunch.

THE "CINQUE TERRE" (Thursday June 10 / June 17, full day)

The Cinque Terre are one of the most uncontaminated areas in the Mediterranean Sea. Five miles of rocky coast among two promontories, thousands of kilometres of dry-laid stone walls, five small towns castled up on stone spurs in minuscule creeks. For their history and their position, the Cinque Terre have not suffered a massive expansion. The vineyards, typical of this area, have contributed to create a unique landscape with dry-laid stone walls, winding paths, enchanting beaches between cliffs and clear waters. Not only sea, the Cinque Terre offer beautiful footpaths with take breathing view, churches, oratories and old castles, diving, food and wines of first quality. The Cinque Terre are National Park and UNESCO protected territory since 1997. Riomaggiore, Corniglia, Manarola, Vernazza, Monterosso are the five villages that form the Cinque Terre, suspended between sea and land on sheer cliffs upon the beautiful sea.

Meeting point: entrance of the "Palazzo dei Congressi" at 9.00. Return to Montecatini Terme at about 19.30.
The participation fee (60 EURO) includes transportation, English speaking hostess and guide, and lunch.


Montecatini Terme


Satellite Congress Center
VENUE
Palazzo dei Congressi
VIALE MATTEOTTI
VIALE UGO FOSCOLO
VIALE G. MARCONI
CORSO ROMA
PIAZZA DEL POPOLO
VIALE DEI MARTIRI
VIALE L. DA VINCI
VIA U. BASSI
VIA L. CADORNA
VIA B. CAIROLI
AUTOSTRADA
VIAREGGIO - PISA - LUCCA
PISTOIA - PRATO - FIRENZE
MONSUMMANO TERME
LUCCA - COLLODI - PESCIA
FUNICOLARE
VIA DEL CASTELLO
STADIO
IPPODROMO

REGISTRATION FORM

Return by April 20, 2010 to:

CIMTEC P.O. BOX 174 48018 FAENZA ITALY - Fax +39 0546 664138

PARTICIPANT for on-line registration and/or Hot Poster submission, please go to:
http://www.cimtec-congress.org/2010/onlinereg.asp

Family Name ..... First Name .....

Full Address .....

.....

Postal Code ..... City ..... Country .....

Phone ..... Fax ..... E-mail .....

VAT Number (for EC countries) .....

For Italian delegates only: Codice Fiscale anche se uguale alla Partita IVA .....

REGISTRATION FEES* (EURO)	**Early** (by April 20)	**Late and On Site**
CERAMICS CONGRESS (June 6-11)[a]		
Full Member**	❒ 680.00 EURO	❒ 730.00 EURO
Student under 26***	❒ 370.00 EURO	❒ 420.00 EURO
Invited Lecturer (IL)****	❒ 340.00 EURO	❒ 390.00 EURO
DVD of FORUM Proceedings (optional)	❒ 45.00 EURO	❒ 50.00 EURO
FORUM ON NEW MATERIALS (June 13-18)[b]		
Full Member**	❒ 660.00 EURO	❒ 710.00 EURO
Student under 26***	❒ 360.00 EURO	❒ 410.00 EURO
Invited Lecturer (IL)****	❒ 330.00 EURO	❒ 380.00 EURO
DVD of CERAMIC CONGRESS Proceedings (optional)	❒ 50.00 EURO	❒ 55.00 EURO
WHOLE CIMTEC 2010 (June 6-18)[c]		
Full Member**	❒ 1,130.00 EURO	❒ 1,200.00 EURO
Student under 26***	❒ 700.00 EURO	❒ 770.00 EURO
Invited Lecturer (IL)****	❒ 790.00 EURO	❒ 860.00 EURO

** Payment may also be in US$ at the exchange rate of the day in which the payment is made*

*** Authors of Contributed Lectures (L) and Posters (P), other participants*

**** Evidence of student status and xerocopy of passport or other document showing the student age must accompany the registration*

***** and/or Member of Conference Committees*

[a] *includes one DVD of the Ceramics Congress Proceedings*

[b] *includes one DVD of the Forum Proceedings*

[c] *includes the DVD of the whole CIMTEC 2010 (Congress and Forum)*

I confirm attendance in the following complimentary socials (check please)

Opening Concert (❒ June 7 ❒ June 14) Tour to Florence (❒ June 9 ❒ June 16)

Tour to Pisa (❒ June 11 ❒ June 18) Conference Dinner (❒ June 11 ❒ June 18)

This section is to be filled-out ONLY if you are a **Presenting Author**

Please indicate below the code number of your presentation as assigned by the Conference Secretariat and reported in this Final Announcement **Code Number** .....

ACCOMPANYING PERSONS Family Name ..... First Name .....

Family Name ..... First Name .....

Family Name ..... First Name .....

Companions Programme	**Early** *(by April 20)*	**Late and On Site***
Persons	No. ..... x 260.00 EURO .....EURO	No. ..... x 290.00 EURO .....EURO

** On site registration is subject to availability of places*

SUMMARY OF FEES

Registration Fee (Full Member)	EURO .....
Registration Fee (Student)	EURO .....
Registration Fee Invited Lecturer or/and CIMTEC 2010 Committees Member	EURO .....
Optional DVD of Ceramics Congress Proceedings	EURO .....
Optional DVD of Forum Proceedings	EURO .....
Registration Fee (Accompanying Persons)	EURO .....
TOTAL	EURO .....

PAYMENT (to be made ***net of all charges*** in EURO or equivalent in US$)

Payment of ..... EURO / US$ is being made:

❒ By bank draft made payable to: **Techna Group Srl**, Banca di Romagna SpA
SWIFT: BARM IT 2F
IBAN: IT02 F062 0523 705C C505 0002 852
DESCRIPTION: CIMTEC 2010 and Participant Name
(please enclose copy of the Bank Draft)

❒ By bank cheque, attached herewith, payable to **Techna Group Srl, Faenza**

❒ I will pay on-site (on-site payment to be made by cash or travellers cheques only)

NOTE: USE A SEPARATE FORM FOR EACH INDIVIDUAL REGISTRATION

HOTEL ACCOMMODATION FORM Return by April 20, 2010 to:

PAM-Hotel Booking Center Via Palestro 2/A 51016 Montecatini Terme (PT) Italy
Tel. +39 0572 75365 Fax +39 0572 771546
pam@montecatinipromozione.com

PARTICIPANT (please use block letters or type)

Family Name ..... First Name .....

Full Address .....

.....

Post Code ..... City ..... Country .....

Phone ..... Fax ..... E-mail .....

VAT Number (for invoicing) .....

Prices per Day per Person (Euro)

HOTEL CATEGORY	FB-Full Board*		BB-Bed & Breakfast	
	DUS (Double single use)	Double (Per person)	DUS (Double Single Use)	Double (Per person)
5 star (Luxury)	**165,00**	**122,00**	**135,00**	**92,00**
4 star super	**155,00**	**112,00**	**130,00**	**87,00**
4 star	**122,00**	**92,00**	**100,00**	**70,00**
3 star super	**108,00**	**75,00**	**89,00**	**56,00**
3 star	**80,00**	**57,00**	**65,00**	**42,00**
2 star	**65,00**	**48,00**	**55,00**	**38,00**

FB in Montecatini Terme is the most recommended option, being restaurants limited in number and very expensive

*Prices for Full Board include buffet breakfast, served meals, ¼ wine and ½ mineral water at each meal, service and taxes. All rooms are with private bath or shower. Full board starts from the dinner of the arrival day of the participant. Third occupancy with additional bed in double room: 30% discount on third occupancy. Children less 2 years with no additional bed: no charge.

Please book No. ..... DUS ❒ Full Board ❒ Bed & Breakfast for No. ..... nights

Please book No. ..... Double ❒ Full Board ❒ Bed & Breakfast for No. ..... nights

in a ❒ 5 star ❒ 4 star super ❒ 4 star ❒ 3 star super ❒ 3 star ❒ 2 star hotel

at the prices reported above

Arrival on ..... Departure on .....

Arrival by: ❒ car ❒ train plane at ❒ Florence Airport ❒ Pisa Airport

Rooms Booked	Deposit per Room**	Total
No. ..... DUS Full Board	.....Euro	.....Euro
No. ..... DUS B&B	.....Euro	.....Euro
No. ..... Double Full Board	.....Euro	.....Euro
No. ..... Double B&B	.....Euro	.....Euro
	GRAND TOTAL	**.....Euro**

**** First night deposit has to be forwarved for each booked room. The full amount of deposit received will be detracted from the final hotel bill.***

❒ The payment has been effected by **bank draft free of charge** to:
Promozione Albergatori Montecatini/Tettuccio Tour - **IBAN:** IT 91 Z 06200 70460 000000 180383
B.I.C. BPAL ITL 1643
DESCRIPTION: CIMTEC 2010 and Participant Name

❒ Enclosed please find a cheque No..... Bank.....of Euro.....
drawn on: **PAM Soc.coop**

❒ The payment has been effected by telegraphic money-order to:
Promozione Albergatori, Via Palestro 2, 51016 Montecatini Terme, Italy
DESCRIPTION: CIMTEC 2010 and Participant Name

❒ PAYMENT BY CREDIT CARD

I authorise PAM to charge the indicated GRAND TOTAL amount for hotel reservation

Please charge my credit card ❒ VISA ❒ MASTERCARD

Credit card number…….... Expiration date……..

for the total payment (subject to verification) of Euro .....

…….
Signature (binding)

REMARKS

- *You will be informed by PAM about available accommodation giving the name of the hotel, the price and confirming receipt of the first night deposit. Balance will be made to hotel by each individual participant.*
- *In case of not showof the first night, room(s) availability or refund of the deposit cannot be guaranteed.*

*Cancellation policy: i. Cancellations received **by May 25**, refund of first night deposit less Bank charges.*
*ii. Cancellations received **after May 25**, no refund. However delegate substitution is admitted.*

Please send this form to PAM:

by mail: PAM-Hotel Booking Center Via Palestro 2/A 51016 Montecatini Terme (PT) Italy

or by fax: +39 0572 771546

or scanned copy by e-mail: pam@montecatinipromozione.com

NO RESERVATION WILL BE MADE WITHOUT PAYMENT OF THE HOTEL DEPOSIT

CIMTEC 2010


Flowsheet
JUNE 13 A.M. P.M.
JUNE 14 A.M. P.M.
JUNE 15 A.M. P.M.
JUNE 16 A.M. P.M.
JUNE 17 A.M. P.M.
JUNE 18 A.M. P.M.
5th FORUM ON NEW MATERIALS
REGISTRATION
SYMPOSIUM FA
SYMPOSIUM FB
SYMPOSIUM FC
SYMPOSIUM FD
SYMPOSIUM FE
SYMPOSIUM FF
Focused Session FF-10
SYMPOSIUM FG
SYMPOSIUM FH
SYMPOSIUM FI
SYMPOSIUM FJ
CONFERENCE FK
CONFERENCE FL
SYMPOSIUM FM
PLENARY SESSION
POSTER MOUNTING
POSTER DISCUSSION
SOCIALS
OPENING CONCERT
TOUR TO FLORENCE
TOUR TO PISA
CONFERENCE DINNER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