

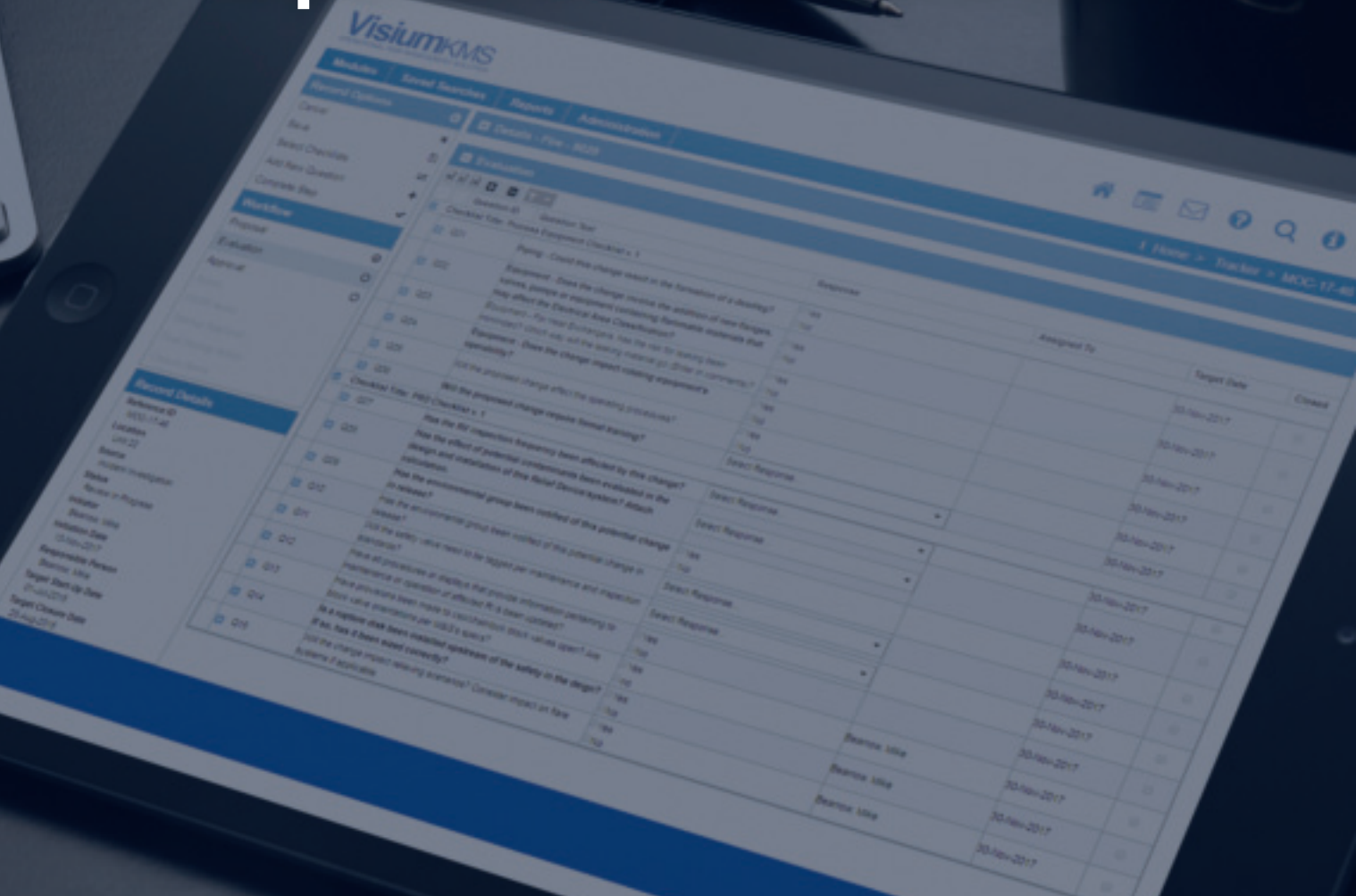


2018 AIChE® SPRING MEETING & 14TH GLOBAL CONGRESS ON PROCESS SAFETY • APRIL 22 - 26 • ORLANDO, FL



APRIL 22-26 • CONFERENCE PROGRAM

Smarter Solutions for Operational Excellence



VisiumKMS EHS, Quality and Operational Risk Management software solutions help high performing organizations continuously improve safety performance, ensure quality and compliance, manage changes, assess risks, and gain actionable insight into critical business operations.

Contact us for more information and a live demo.

US: +1 281 617 4800

www.visiumkms.com

Trusted to deliver excellence

Solutions by Discipline:

- Management of Change
- Audit Management
- Incident Investigation
- Risk Assessment
- Risk Reporting
- Action Tracking

Solutions by Excellence:

- EHS
- Quality
- Operational Risk Management
- Process Safety Management
- Compliance Reporting

VisiumKMS



A Rolls-Royce solution

TABLE OF CONTENTS



A Note on Sustainability at AChE Meetings

AChE constantly reviews the materials used at and produced for Meetings in terms of sustainability. Every attempt is made to use sustainable products within the economic framework of the meeting. Specific items may include the use of recycled or FSC certified papers, environmentally friendly inks and solvents, use of electronic (pdf) instead of printed materials, limiting the quantities produced and use of production facilities closer to the meeting site.



Download the App

Everything you need to know about the 2018 AChE Spring Meeting and 14th GCPS in the palm of your hand. Available for free at the Apple or Android App Store.



Stay Connected with AChE

#AChESpring | #GCPS | @ChEnected

2	Welcome from the President
3	Meeting Program Chairs
4	14th Global Congress on Process Safety Organizing Committee
5	2018 AChE Spring Meeting Organizing Committee
6	2018 Sponsors
7	2018 Exhibitors
8	AChE Meeting Regulations & Safety
9	Orlando World Center Marriott Floor Plans
13	Onsite Information
15	Fuels and Petrochemicals Programming Grid
27	30th Ethylene Producers' Conference Grid
35	Distillation Symposium Programming Grid
43	Industry 4.0 - Big Data Analytics & Related Programming Grid
51	Innovations in Process Intensification and Development & Related Programming Grid
63	Management & Leadership Development Programming Grid
67	Environmental, Sustainability Engineering & Related Programming Grid
75	14th Global Congress on Process Safety Programming Grid
87	Special Events
96	Young Professionals Committee Programming Grid
99	Technical Sessions
133	Session Participants
142	Volunteer and Meeting Attendee Conduct Guidelines
144	Code of Ethics
147	Notes



WELCOME FROM THE PRESIDENT



Dear Colleagues:

It is my pleasure to welcome you to Orlando and AIChE's 2018 Spring Meeting and 14th Global Congress on Process Safety (GCPS).

At this meeting, you will join with ChemE practitioners from around the globe to explore our profession's hottest topics. One of those is examined in a new **Industry 4.0 Topical Conference**, highlighting the role of chemical engineers at the forefront of modern manufacturing. On Monday, two panel discussions set the stage for Industry 4.0, with subsequent sessions expanding on pertinent topics in big data analytics, cybersecurity, process intensification, and more. Complimenting Industry 4.0 is a topical conference on innovative and smart manufacturing.

Starting everything off on Monday morning, **Mark Vergnano**, President and CEO of The Chemours Co., receives the 2018 AIChE Government and Industry Leaders (AGILE) Award, and delivers our keynote address about the power of shared values in building a winning corporate culture. The AGILE address is followed by the "What is Industry 4.0?" panel. Then, at 11:00 AM, the Fuels and Petrochemicals Division's Welcome Session features a keynote by **Jim Rekoske** (Honeywell UOP).

Considerations of process safety underscore practically all of our program tracks. This year's **Global Congress on Process Safety (GCPS)** — organized by AIChE's Center for Chemical Process Safety (CCPS) and the Safety and Health Division — kicks off on Monday with a plenary and keynote talk by **Michael Graff** (American Air Liquide and Air Liquide Group). GCPS programming incorporates the 52nd Annual Loss Prevention Symposium, the 33rd CCPS International Conference, the 20th Process Plant Safety Symposium (highlighting "best papers" from the past two decades), the 7th Process Safety Management Mentoring Forum, and Process Safety Spotlight sessions. Perspectives on Process Safety from Around the Globe will feature a presentation by **Wang Haoshui** of China's Administration of Work Safety, along with case studies from companies in Asia and the Americas.

Debuting at this year's Spring Meeting is a new Leadership Development conference, offering insights on career building. Other topics essential to practicing ChemEs will be investigated in conferences devoted to distillation, sustainable engineering, and emerging technologies in clean energy, as well as at the 6th International Conference on Upstream Engineering and Flow Assurance, the 18th Gas Utilization Conference, the 21st Refinery Processing Conference, and the 30th Ethylene Producers Conference.

Our meeting also makes room for the co-located **8th World Congress on Particle Technology (WCPT8)**, which delves into that field's fundamentals and highlights applications in pharmaceuticals, sustainable energy, and more. Sessions — including five plenaries and 25+ keynotes — and exhibits of the WCPT8 are open to registrants of the Spring Meeting.

Registrants who purchased a meeting bundle shouldn't miss our keynote luncheons. Monday's luncheon spotlights cybersecurity, with a talk by **Andrew Lenzen**, a special agent of the U.S. Federal Bureau of Investigation. Tuesday showcases the 20-year history of AIChE's Women's Initiatives Committee, with a keynote by **Delia Contreras** (Ecolab). Wednesday's luncheon welcomes **Jun Mutoh** (JXTG Holdings), who will discuss safety culture "Beyond Operations Management Systems."

To keep track of all of these opportunities, download the AIChEvents app, which allows you to maintain a personal schedule, receive event reminders, and make the most of your time. I hope that you will devote some of that time to visiting our meeting's exhibits, attending the poster sessions, and networking with friends — old and new — at some of the many social activities we've planned.

On behalf of my colleagues on AIChE's Board of Directors, the Institute extends its appreciation to the meeting programmers and the hundreds of presenters for sharing their knowledge at this meeting. And, speaking for myself, I am happy to be here with you this week, and look forward to meeting many of you to discuss our ever-evolving and dynamic profession and Institute.

Sincerely,

Christine Seymour, PhD
2018 AIChE President



2018 MEETING PROGRAM CHAIRS



2018 Spring Meeting Program Chair

Leo Chiang

*Associate Technology Director
Analytical Tech Center
The Dow Chemical Company*



2018 Spring Co-Meeting Program Chair

Walter S. Postula

*Sr. Engineer – Base Chemicals
Shell Global Solutions (US) Inc.*



14th Global Congress on Process Safety Chair

Kathy Shell

*Executive Vice President
Process Safety & Lifecycle Solutions
aeSolutions*



14th Global Congress on Process Safety Vice Chair

Robert W. Johnson

*President & CEO, Principal Consultant
Unwin Company*



14TH GLOBAL CONGRESS ON PROCESS SAFETY

ORGANIZING COMMITTEE

Global Congress on Process Safety

Kathy Shell, aeSolutions, Chair

Robert W. Johnson, Unwin Company, Vice-Chair

Center for Chemical Process Safety International Conference

Donald J. Connolley, BP

Jennifer Mize, Eastman Chemical Company

Process Plant Safety Symposium

Brooke Beveridge, Bayer CropScience

Fred Gregory, Lubrizol

Annual Loss Prevention Symposium

Kathleen A. Kas, The Dow Chemical Company

Morgan Reed, Exponent, Inc.

Process Safety Management Mentoring Forum

Scott Haney, Americas Styrenics

Brenton Cox, Exponent, Inc.

Process Safety Perspectives from Around the World

Andrés Valencia, Universidad de los Andes

Marcela Mz Recaman, Ecopetrol

Process Safety Spotlights

Wayne Chastin, Eastman Chemical Company

Kim Mullins, Oxy

Session Chairs and Co-Chairs

Rao Akula, California EPA

Laura Ankrom, aeSolutions

Wolfram Jahn Von Arnswaldt, Pontificia Universidad Católica De Chile

Susan Behr, Braskem

Scott Berger, Scott Berger and Associates

Susan Bershad, NFPA

Bill Bradshaw, ABS Consulting

San Burnett, BHP Billiton

Myron Carlson, Cargill

John W. Champion, The Dow Chemicals Company

Jack Chosneck, KnowledgeOne LLC

Neil Concibido, Mitsubishi Chemical Corporation

Ana Maria Cruz, Kyoto University

Seshu Dharmavaram, DuPont

Brian Dickson, University of Strathclyde

David Drabish, Solvay

Henry Dwight, BP

Victor Edwards, VHE Technical Analysis

Steven D. Emerson, Emerson Technical Analysis, LLC

Sergio Fernandez, Fernandez Pan American Energy

Jerry J. Forest, Celanese

Eduardo M. Francisco, DuPont

Walt Frank, Frank Risk Solutions

Self Freeman, Bechtel

Eric Freiburger, Praxair

Jim Garrison, aeSolutions

Andrew Goddard, Arkema

Nirupma Gopaldaswami, Honeywell

Bernard Groce, Hess Corporation

Mike Hazzan, AcuTech

Fred Henselwood, NOVA Chemicals

Rainer Hoff, Gateway Consulting Group, Inc.

Colin S. Howat III, C. S. Howat & Associates

Chris Isles, Evonik

Chris Israni, Environmental Resources Management

Faraz Khan, SIEMENS Energy Inc.

Jim Klein, ABS Consulting

Hyuck-Myun Kwon, Yonsei University

Sean Lapekas, Ash Stevens Inc.

Sandipan (Sandi) Laskar, Oxy

Moyer Lauren, Lubrizol

Yi Liu, China University of Petroleum (East China)

Pete Lodal, Eastman Chemical Company

Lisa Long, OSHA

Srihari Maganti, Provenance

Holsinger Marabeth, The Dow Chemical Company

George Melhem, IoMosaic

Ray Mentzer, Process Safety Center at Purdue

Dan Miller, CCPS Staff Consultant

Derek Miller, Air Products

Atsumi Miyake, Yokohama National University

Davide Moncalvo, Protego

Dave Moore, AcuTech Group, Inc.

Mike Moosemiller, BakerRisk

Michael Morris, BP

Trey Morrison, Exponent Inc

Bill Mosier, Syngenta

Joshua Moyers, Bayer

Felipe Munoz, Universidad de los Andes

John Murphy, CCPS Staff Consultant

Tim Murphy, Arkema Inc.

Megan Murray, BP

Philip M. Myers, Advantage Risk Solutions Inc

Ian S. Mylenbusch, Southern Company

Masaki Nakagawa, Corning Inc.

Brad Newman, Praxair

Kathy Pearson, BP

Eric Peterson, Exponent Inc

Katherine Prem, ARKEMA

Ray Qi, Huntsman

Neha Suresh Rajan, Bayer Business & Technology Services, LLC

Rahul Raman, Kaypear Consulting

Dan Rathgeber, Praxair

Sam Rodgers, Honeywell

Paul Rostick, aeSolutions

Samantha Scruggs, BP

David Skelton, Eastman Chemical Company

Cynthia Spitzenberger, DNV GL USA, Inc.

Nestor Sposito, CCPS Staff Consultant

Jeff Stawicki, Exponent, Inc.

Karen Study, The Dow Chemical Company

Jérôme Taveau, Fike

Tab Vesta, Eastman Chemical Company

Terry Waldrop, AIG

Qingsheng (Sam) Wang, Oklahoma State University

Daniel Wilczynski, Marathon Petroleum Company

John Wincek, DEKRA

Elliot Wolf, Syngenta

Dongfeng Zhao, China University of Petroleum (East China)

2018 AIChE SPRING MEETING

ORGANIZING COMMITTEE



Management Division

Donna Bryant, Syngenta, *Chair*
Joe Cramer, AIChE, *Co-Chair*
Mahdi Nouri, JACOBS, *Co-Chair*

Environmental Division

Jeffrey Seay, University of Kentucky, *Chair*
Gerardo Ruiz-Mercado, US EPA, *Co-Chair*

Computing and Systems Technology Division

Prodomos Daoutidis, University of Minnesota, *Chair*

Process Development Division

Juben Chheda, Shell Oil Inc., *Chair*
Joseph Schroer, SABIC, *Co-Chair*

Fuels and Petrochemicals Division

Kirtan K. Trivedi, ExxonMobil Research & Engineering Company, *Chair*
Belma Demirel, BP, *Chair*
Frank del Nogal, BP, *Co-Chair*
John Senetar, Honeywell UOP, *Co-Chair*

Young Professionals Committee

Samantha Schmidt, Lehigh University, *Chair*

Chemical Engineering & the Law Forum

Charles Collins-Chase, Finnegan, *Chair*

4th Big Data Analytics

Ivan Castillo, The Dow Chemical Company, *Chair*

Topical B: Leadership Development – Professional Skills to Catalyze Your Career

Lori McDowell, Matheson, *Chair*
Laura Dietche, The Dow Chemical Company, *Co-Chair*
Megan Lewis, Honeywell UOP, *Co-Chair*

Topical C: Process Intensification

Jim Bielenberg, RAPID, *Chair*
Shawn Fiest, The Dow Chemical Company, *Co-Chair*

Topical D: Industry 4.0

Leo Chiang, The Dow Chemical Company, *Chair*
Scott McWhorter, Savannah River National Laboratory, *Co-Chair*

Topical 2: Sustainable Engineering

Sipho Ndlela, *Chair*
Cory Jensen, Federal Energy Regulatory Commission, *Co-Chair*

Topical 3: Innovative Manufacturing

Ahmed Youssef, SABIC, *Chair*
William Hollar, SABIC, *Co-Chair*

Topical 4: The 30th Ethylene Producers' Conference

Richard Rolke, The Dow Chemical Company, *Chair*
Richard Beleutz, LyondellBasell, *Co-Chair*

Topical 5: Emerging Technologies in Clean Energy

Jason Morgan, AvCarb Material Solutions, *Chair*

Topical 6: 18th Topical Conference on Gas Utilization

Jeffery Gaspard, KBR, *Chair*
Mahdi Nouri, JACOBS, *Co-Chair*

Topical 7: 21st Topical Conference on Refinery Processing

Virginia Sommer, Fluor, *Chair*
Saadet Acikgoz, Honeywell UOP, *Co-Chair*

Topical 8: Distillation Symposium

Dan Summers, Sulzer, *Chair*
Andrew Sloley, Advisian (WorleyParsons Group), *Co-Chair*

Topical 9: 6th International Conference on Upstream Engineering and Flow Assurance

Mohammad Tavakkoli, Ennva LLC/Rice University, *Chair*

AIChE Staff Leads:

Gina Gatto, Program Development
Jing Chen, Program Development
Michelle Marsnick, Meeting Logistics
Todd Capporizzo, Meeting Logistics

PUT THE MEETING ON YOUR PHONE OR TABLET.

Download the AIChEvents App to get access to everything you need to have a better meeting.

SEARCH. SCOPE OUT. PREVIEW. LEARN MORE. FIND. PLAN, STORE AND UPDATE YOUR SCHEDULE.

See the past, present and upcoming events all in one place. Whether you carry an Android or iOS device, the AIChEvents app delivers the same native functionality.

Blackberry and other smartphone users can access the Spring Meeting & GCPS content via their standard phone-based browser.

DOWNLOAD THE APP TODAY.





SPONSORS 2018 AIChE SPRING MEETING & 14TH GLOBAL CONGRESS ON PROCESS SAFETY

PLATINUM



GOLD



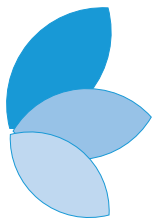
SILVER



BRONZE



*Sponsors as of press time



Exhibitor Showcases

Stop by the exhibit hall during Monday AM and PM coffee breaks to hear about new technologies, products and services from the following companies.





Monday AM [Coffee Break](#)
 Monday PM [Coffee Break](#)
 Tuesday PM [Happy Hour](#)






Stage 1
 VisiumKMS
 Endeavor Robotics Demo

Stage 2
 Voovio Technologies
 GexCon

Exhibitor List

ABS Group
 AcuTech 
 aeSolutions
 AFGlobal Corporation
 AIChE Safety & Health Division
 Alliant Insurance Services, Inc.
 AON Affinity
 BakerRisk
 CGE Risk Management Solutions
 Chemstations
 Cognascents Consulting Group, Inc.
 Curtiss-Wright
 Decision Point Associates Inc.
 DEKRA Process Safety
 DIFREX
 DIPPR
 DNV GL
 Enablon
 Endeavor Robotics 
 EN Engineering, LLC
 Environmental Resources Management 
 Environmental Standards
eVision Industry Software †
 Exida
 Exponent, Inc. 
 Flyability 
 FM Global
 Gateway Consulting Group, Inc.

GexCon † 
 GTC Technology
 HEL Inc.
 HIMA Americas
 Honeywell
 Hunter Buildings
 Institution of Chemical Engineers
 ioKinetic
 ioMosaic
 JCL Risk Services
 Lloyd's Register 
 Mangan Software Solutions
 Mary Kay O'Connor Process Safety Center
 Micropack Detection (Americas)
 Middle East Energy Events (ME3)
 Midland Engineer
 ing, Ltd.
 MineARC Systems
 Mistras Group, Inc.
 Molecular Knowledge Systems
 OBG
 Operational Sustainability
 Primatech, Inc. 
 Process & Safety Solutions LLC
 Process Improvement Institute, Inc. (PII) 
 Process Industry Practices
 Process Integration Limited
 Process Systems Enterprise (PSE)

Prosim
 Provenance Consulting, LLC. 
 PSRG 
 Quest Consultants Inc.
Rebellion Photonics †
 REXA, Inc.
 Risk Management Professionals
 Schneider Electric Software LLC
SHECO/Worldwide †
 Siemens
 SIS SILverstone LLC
 SIS-TECH Solutions
 Smart-Hose Technology
 Smith & Burgess 
 Specialized Professional Services
 Spirax Sarco
 Technip FMC
 Thermal Hazard Tecology
 Trinity Consultants
 TUV Rheinland Risktec 
 VEGA Americas
 Visium KMS
 Voovio Technologies 
 Wieland Thermal Solutions
 Wiley
 YOKOGAWA

 Industry 4.0 Exhibitor † **Featured Exhibitor**  Recruiting

Exhibitors as of March 27, 2018



A NOTE ON PHOTOGRAPHY & VIDEOGRAPHY FROM THE MEETING ORGANIZERS

AIChE Meetings are one of the primary ways the Institute fulfills its mission to advance the development and exchange of relevant knowledge.



The content presented at the 2018 AIChE Spring Meeting and 14th Global Congress on Process Safety is the property of the presenters and the firms where they work.



Recording of sessions or taking photos of slides is strictly prohibited.

Thank you.

SAFETY TIPS

Enhance your experience at the 2018 AIChE Spring Meeting and 14th Global Congress on Process Safety by staying safe. Here are some safety tips to observe:



- When off the hotel grounds, please do not wear your badge in public. Doing so can give professional opportunists access to your name, which they may then exploit to your detriment.
- When you are through with your badge, turn it in to registration. Do not leave it laying in the open so that unscrupulous individuals have access to it. In addition, please do not let anyone have access to your badge for any purpose. Lending badges to others for access to the meeting is strictly prohibited.
- Have your room key out and ready when entering your hotel room. Fumbling in an attempt to locate it in either a pocket or purse outside your door could be a security risk.
- Never give a stranger your room number.
- Upon check-in to your room, note where the nearest fire exits are, so you know in which direction to go quickly in case of a fire emergency. Remember – smoke rises, so if necessary, while exiting, get as close to the floor as possible when there is heavy smoke present.
- When out in an urban area, it is advisable to travel in groups or pairs.
- Looking down and concentrating on a mobile device while texting or listening to music through earbuds can be a hazardous activity. Doing so while you are attempting to cross a street, get on or off an escalator, walk in a crowd, or make your way through an exhibit area can all be harmful to your safety and the safety of others.

Recently, there have been many incidents of distracted meeting attendees who have attempted to walk up the down escalators or walk down the up escalators in our meeting venues.

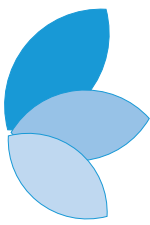
Please take advantage of the ample seating provided in our meeting facilities in order to use your mobile device(s) in a calm setting, so that you have a safe, enjoyable experience at AIChE meetings.

- Avoid excessive consumption of alcohol. Alcohol reduces inhibitions and impairs the capacity to reason – a perfect formula to make you a target for unscrupulous behavior.

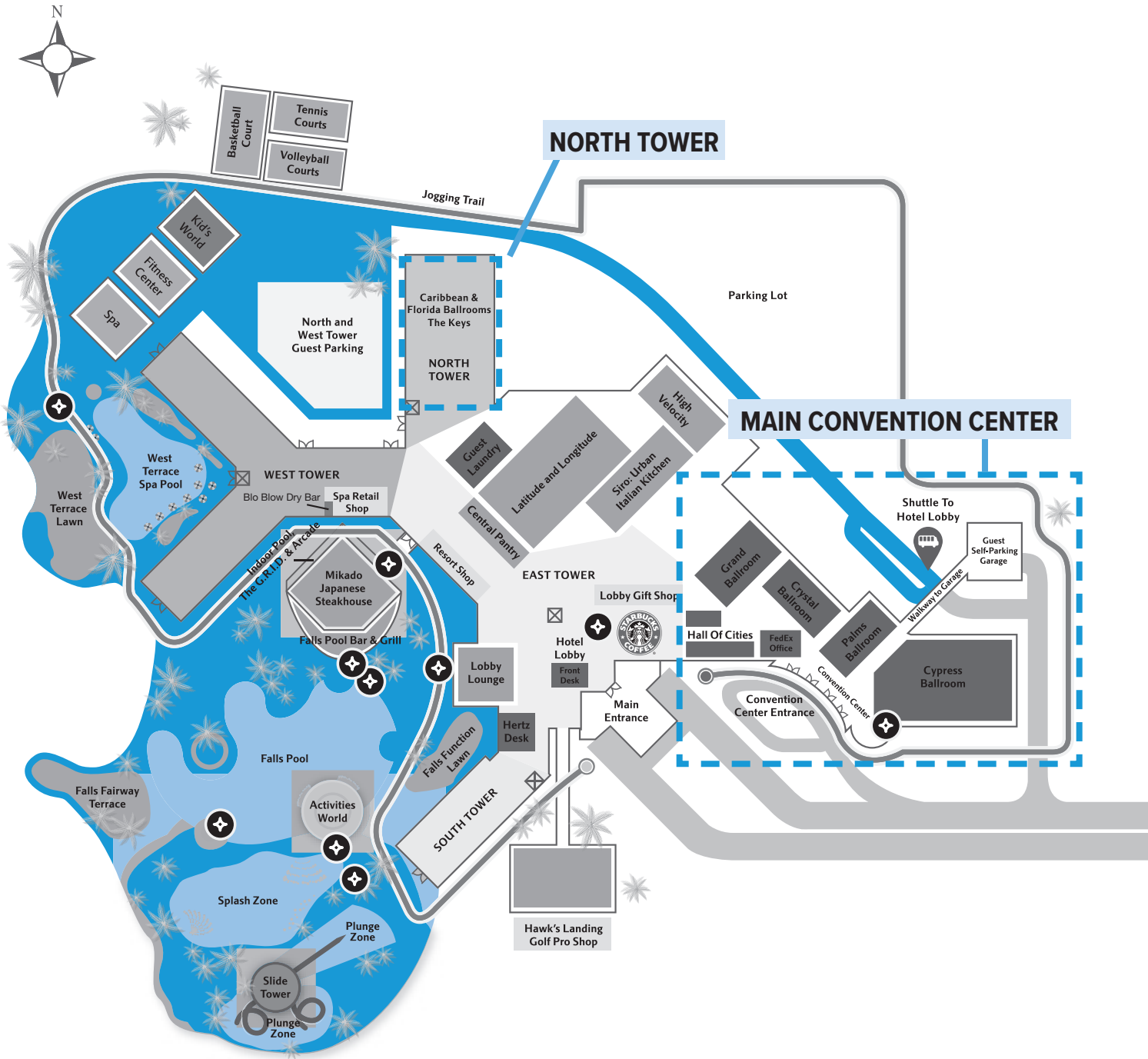
This security advisory was implemented by AIChE's Executive Board of the Program Committee (EBPC) with your safety in mind. We welcome any other suggestions you may have to help attendees have a safe and pleasant experience at our meetings.

MARRIOTT ORLANDO WORLD CENTER

FLOOR PLANS



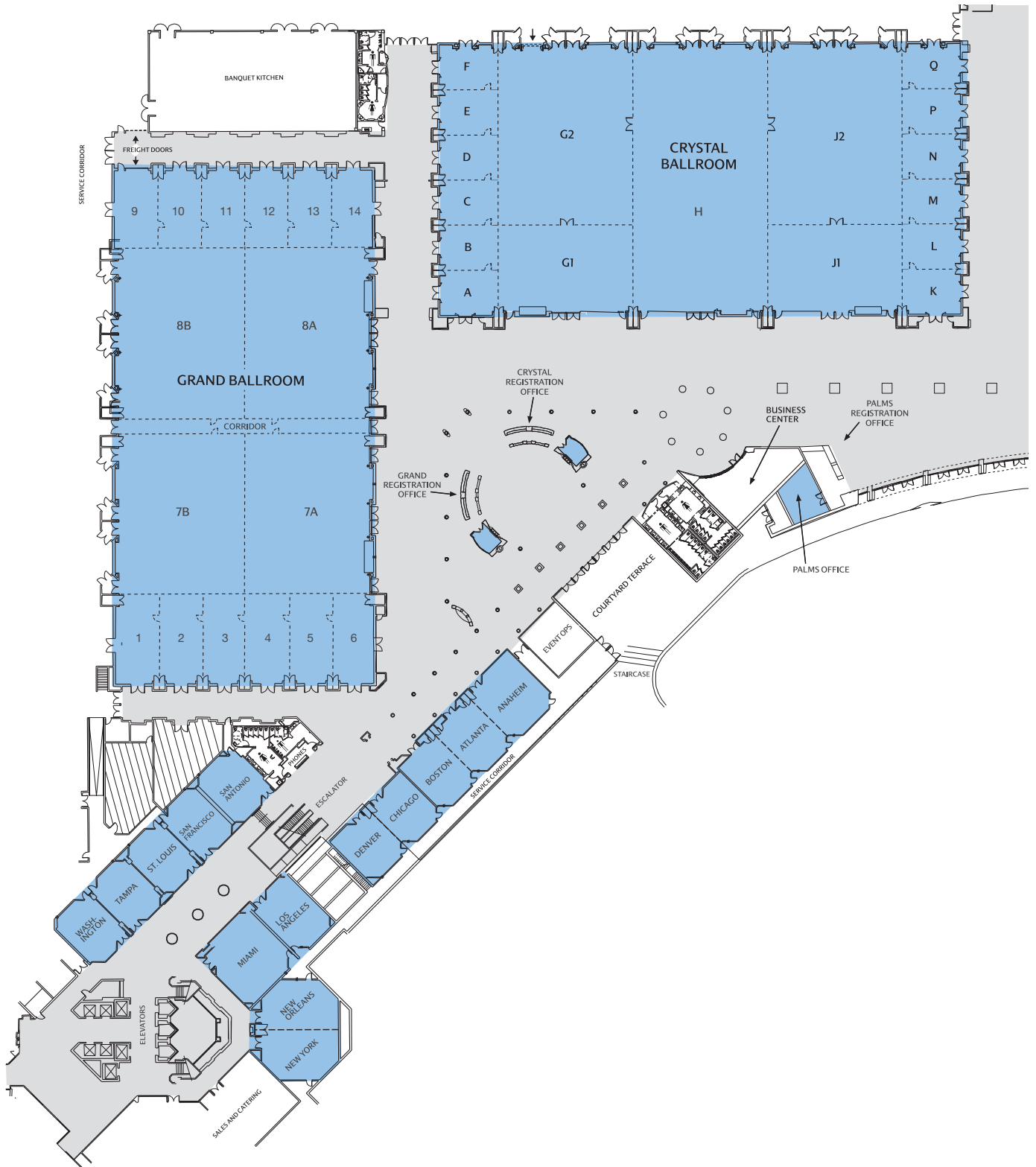
PROPERTY MAP ▼

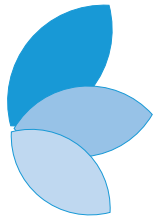




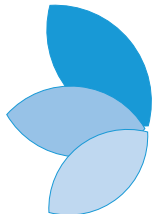
MARRIOTT ORLANDO WORLD CENTER

MAIN CONVENTION CENTER ▼





MARRIOTT
ORLANDO
WORLD CENTER

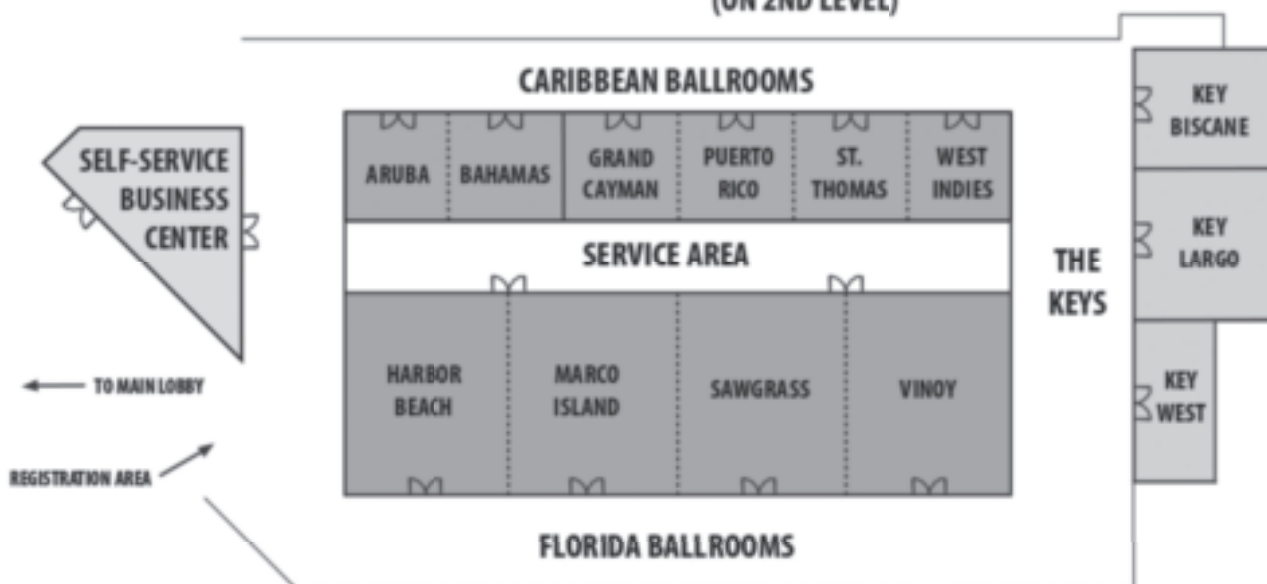


MARRIOTT ORLANDO WORLD CENTER

FLOOR PLANS

NORTH TOWER MEETING ROOMS ▼

(ON 2ND LEVEL)



MARRIOTT
ORLANDO
WORLD CENTER



ORLANDO WORLD CENTER MARRIOTT



REGISTRATION CYPRESS BALLROOM 1/2

Sunday, April 22	12:00 PM - 7:30 PM
Monday, April 23	7:00 AM - 5:30 PM
Tuesday, April 24	7:30 AM - 5:00 PM
Wednesday, April 25	7:30 AM - 5:00 PM



EXPO CYPRESS BALLROOM 1/2

Sunday, April 22	6:00 PM - 7:30 PM
*Open during Conference Opening Reception	
Monday, April 23	9:00 AM - 7:00 PM
*Poster Reception from 5:00 PM - 7:00 PM	
Tuesday, April 24	9:00 AM - 6:00 PM
*Happy Hour from 5:00 PM - 6:00 PM	
Wednesday, April 25	9:00 AM - 11:00 AM

AGILE KEYNOTE CONTINENTAL BREAKFAST

Cypress 1–3 Foyer Monday, April 23	7:00 AM - 8:00 AM
---------------------------------------	-------------------



COFFEE BREAKS CYPRESS BALLROOM 1/2

Monday, April 23	9:00 AM - 9:30 AM
Tuesday, April 24	9:30 AM - 10:15 AM 3:00 PM - 3:30 PM
Wednesday, April 25	9:30 AM - 10:15 AM

Fuels and Petrochemicals Division's Keynote Coffee Break

New Orleans/New York Monday, April 23	10:45 AM - 11:00 AM
--	---------------------



BEVERAGE/SNACK STANDS CYPRESS BALLROOM 1/2

Monday, April 23	11:00 AM - 2:00 PM
Tuesday, April 24	11:00 AM - 2:00 PM



WIC FAMILY ACCOMMODATIONS ROOM PALMS BALLROOM OFFICE

Sunday, April 22 - Thursday, April 26

ioMosaic

Minimizing risk. Maximizing potential.®



WE'LL SEE YOU IN
ORLANDO

AT THE **14TH**
GLOBAL
CONGRESS
ON PROCESS SAFETY

BOOTH 209

VISIT OUR BOOTH to view the latest innovations
in process safety and risk management

SEE OUR PRESENTATIONS AND PAPERS:

Relief and Flare System Design Mitigation Options

Pressure Relief Design for Reactive Systems

Advanced QRA Methodology – Quantifying Risk Reduction Measures to
Minimize Economic Investment

Pressure Relief Sizing Using Area to Charge Scaling Method
and Automatic Pressure Tracking

Overpressure Protection of a Pressure Vessel by System Design through the
Application of ASME VIII UG-140 in Lieu of a Relief Device by an Appropriate
Choice of MAWP and/or by Safety Instrumented System

www.ioMosaic.com / 1.844.ioMosaic

Fuels & Petrochemicals Programming Grid

Property Key
Location = Orlando World Center Marriott

Sunday, April 22nd	
6:00 PM – 7:30 PM	2018 AIChE Spring Meeting and 14th GCPS Opening Reception Cypress Ballroom 1/2
Monday, April 23rd	
7:00 AM	2018 AIChE Spring Meeting and 14th GCPS AGILE Keynote Continental Breakfast Cypress Ballroom 3
8:00 AM	2018 AIChE Spring Meeting and 14th GCPS Opening Plenary Session: Christine Seymour , AIChE President and June C. Wispelwey , AIChE Executive Director Cypress Ballroom 3
8:30 AM	AGILE Award Keynote Address Cypress Ballroom 3 Keynote Address: “Building a Winning Culture: Harnessing the Power of Values” Presented by Mark Veirgnano , President and CEO, The Chemours Company
9:30 AM	Industry 4.0 Panel Discussion – “What is Industry 4.0?” Crystal Ballroom J2 Chair: Leo Chiang , The Dow Chemical Company Co-Chair: Scott McWhorter , Savannah River National Lab Panelists Include: Billy Bardin , Global Operations Technology Director, The Dow Chemical Company Rob Ivester , Deputy Director of the EERE Advanced Manufacturing Office, U.S. Department of Energy Hareesh Malkani , CTO, Clean Energy Smart Manufacturing Innovation Institute (CESMII) Adele Ratcliff , Director, IBAS (DoD MIBP) Moderated by Jim Davis , Vice Provost - IT/Chief Academic Technology Officer, UCLA
11:00 AM	Session #6: Fuels & Petrochemicals Division Keynote New Orleans/New York Chair: Bill Rooney Co-Chair: Ian Glasgow Keynote Address: “A View Toward 2035: Challenges for Refining and Petrochemicals in a Changing Energy Mix” Presented by Jim Rekoske , Vice President and Chief Technology Officer, Honeywell UOP
12:00 PM	AIChE Spring Meeting and GCPS Joint Luncheon with Speaker: Andrew Lenzen , Special Agent, Federal Bureau of Investigation Cypress Ballroom 3 “Cyber Threat Landscape”

Monday, April 23rd					
	Simulations/Control	Operations	Refinery Processing	Petrochemicals	Gas Utilization
1:30 PM– 3:00 PM	<p>Session #15: Advanced Process Control and Optimization I Grand Ballroom 1 Chair: Mark Darby Co-Chair: M. Nazmul Karim</p> <p>Plant-Wide Scheduling for Profitable Emission Reduction in Petroleum Refineries <i>Jialin Xu</i></p> <p>Using Advanced Process Control (APC) to Solve LPG Quality Issues While Optimizing the Product Distribution <i>Randy J. Cernik</i></p> <p>Model Predictive Control on a Vacuum Column <i>Will McBride and Dustin Beebe</i></p>	<p>Session #25: Operational Excellence in Refinery Distillation Grand Ballroom 2 Chair: Andrew W. Stoley Co-Chair: Daniel R. Summers</p> <p>Operational Excellence in Refinery Distillation Better Decision Faster <i>Bill Fairleigh</i></p> <p>Three Products with High-Purity BTX Dividing Wall Columns in Operation <i>Manish Bhargava</i></p> <p>Operational Optimization of Crude Distillation Units with Unknown and Changing Crudes <i>Xiao Yang</i></p>	<p>Session #27: Pressure Relief Design Modeling – In Honor of Ron Darby Grand Ballroom 9/10 Co-Chairs: Sam Wang and Srihari Maganti</p> <p>Good Engineering Practice in Protecting Low Pressure Tanks <i>Davide Moncalvo</i></p> <p>Selecting the Proper Gas Compressibility Z for Relief Valve Sizing <i>Freeman Self</i></p> <p>Properly Size Two-Phase PRV – Easier than API 520 HDI Method <i>Guofu Chen</i></p>	<p>Session #19: Developments in C3-C5 Petrochemicals Grand Ballroom 4 Chair: Clayton Sadler Co-Chair: Shyamal K. Bej</p> <p>Overview of Honeywell UOP Oleflex™ <i>Christopher DiGiulio</i></p> <p>Propane Aromatization Using Sulfated Zirconia Supported Mo Catalysts <i>Swarom Kanitkar</i></p> <p>Oxy Dehydrogenation of Paraffin's to Olefins Using Co5MgAlO Catalyst <i>Nampe Majoo</i></p>	<p>Session #16: Advances in Gas Processing Design, Purification, and Separation I Grand Ballroom 5 Chair: Mahdi Nouri Co-Chair: Fuyue Stephanie Li</p> <p>Adsorbents for Trace Sulfur Removal for Gas Processing <i>Stephen Caskey</i></p> <p>Tailoring Amine Based Solvents for Reactive CO₂ Absorption Using Structure-Property Relationships <i>Elmar Kessler</i></p> <p>Adsorptive Removal of CO₂ from Natural Gas <i>Hyung Chul Yoon</i></p> <p>Meeting Additional Plant Capacity Requirements without Adding Additional Vessels <i>Gene Eberhardt</i></p>
3:00 PM	Coffee and Networking Break Cypress Ballroom 1/2				

Monday, April 23rd (continued)

	Simulations/Control	Operations	Refinery Processing	Petrochemicals	Gas Utilization
3:30 PM – 5:00 PM	<p>Session #35: Advanced Process Control and Optimization II Grand Ballroom 1 Chair: Mark Darby Co-Chair: M. Nazmul Karim</p> <p>Real Time Calculation and Closed-Loop Control of Dewpoint and Salt Deposition Temperature at a CDU, Using an Online Analyzer <i>Sebastien Osta</i></p> <p>Data-Driven Real-Time Estimation and Optimization for Integrated Pre-Heat Exchange Trains and Distillate Cutpoints in Multiple Fractionation Columns <i>Brenno C. Menezes</i></p> <p>Increase Profitability with Global Optimization <i>Shashi Mistry and Perry Nordh</i></p> <p>Decision Automation for Lubes and Asphalt Production Scheduling Using MILP with Sequence-Dependent Switchovers <i>Brenno C. Menezes</i></p>	<p>Session #42: Fouling and Corrosion / Heat Exchangers Grand Ballroom 2 Chair: Francesco Coletti Co-Chair: Artur W. Krueger</p> <p>Automation Strategies for Crude Feedstock Optimization <i>Kjell Wold</i></p> <p>Improving Crude Oil Fouling Monitoring, Prediction and Mitigation Strategies in Refinery Preheat Trains <i>Francesco Coletti</i></p> <p>Improving the Crude Vacuum Heater <i>Andrew W. Stoley</i></p>	<p>Session #45: Pressure Relief Design Learned from Practice – In Honor of Ron Darby Grand Ballroom 9/10 Co-Chairs: Davide Moncalvo and Freeman Self</p> <p>Test-Based Good Engineering Practice in Avoiding Relief Valve Chatter on Cryogenic Low Pressure Storage Tanks <i>Michael Davies</i></p> <p>Pressure Relief Design for Reactive Systems <i>Michelle Murphy</i></p> <p>A Structured Data Collection Approach to Improve Pressure Relief Analysis (PRA) Efficiency and Keep Process Safety Information (PSI) Documentation Ever-Greening <i>Pengchong Zhang</i></p>	<p>Session #40: Developments in Bio-Petrochemicals Grand Ballroom 4 Chair: John Senetar Co-Chair: Belma Demirel</p> <p>Ethanol to Infrastructure Compatible (Jet) Fuels Via Ethanol Coupling Reactions <i>Karthikeyan K. Ramasamy</i></p> <p>Purification of Tire Pyrolytic Oil (TPO) and Its Comparison with Diesel Fuel <i>Adeel Ahmad and Srishti Mishra</i></p>	<p>Session #36: Advances in Gas Processing Design, Purification, and Separation II Grand Ballroom 5 Chair: Mahdi Nouri Co-Chair: Fuyue Stephanie Li</p> <p>Regeneration Peak Profiles of Temperature Swing Adsorption Processes <i>Shalin Doang</i></p> <p>CFD Simulation of a Plunging Jet Down-Flow Bubble Column with Variable Free-Jet Length Using a Euler-Euler Method <i>Mutharasu LC</i></p> <p>Design and Analysis of Cryogenic Air Separation Processes Integrated with Liquefied Natural Gas Gasification <i>Huilong Gai</i></p>
5:00 PM – 7:00 PM	<p>Session #51-58: AIChE Spring Meeting & GCPS Poster Sessions and Networking Reception (Includes electronic presentations of select posters) Cypress Ballroom 1/2 Chair: Walter S. Postula</p>				

Tuesday, April 24th					
8:00 AM – 9:30 AM	<p>Session #74: Shale Gas/Oil Impact on N. America - Panel Discussion New Orleans/New York Chair: Jeffery Gaspard Co-Chairs: Bill Rooney and Ian M. Glasgow</p> <p>Panelists Include: Lee Nichols, Hydrocarbon Processing and Gas Processing Sanjeev Kapur, Apex PetroConsultants Paul Durand, ExxonMobil</p>				
9:30 AM	<p>Coffee and Networking Break Cypress Ballroom 1/2</p>				
	Simulations/Control	Operations	Refinery Processing	Smart Manufacturing	Gas Utilization
10:15 AM – 11:45 AM	<p>Session #96: Process Control Monitoring and Analytics I Grand Ballroom 1 Chair: Mark Darby Co-Chair: Azita Ahmadzadeh</p> <p>Using Advance Control to Monitor Plant Performance and Economics <i>Christopher Webb</i></p> <p>Process Monitoring of Batch Bioreactor Process Using Optimized Data Based Model <i>Chiranjivi Botre</i></p>	<p>Session #80: 2020 Bunker Fuel Specs, Lubes, and Waxes Grand Ballroom 2 Chair: Andrew W. Stoley Co-Chair: Julie Valentine</p> <p>Refinery Residue and Bitumen Upgrading: Gasification <i>Armen Abazajian</i></p> <p>Best Practices for Bulk and Additive Transfers in Lubricant Blending Plants <i>Meha Jha and Julie Valentine</i></p> <p>IMO Low Sulfur Marine Fuel Requirement for 2020 and the Road to Compliance <i>Christine Hobson</i></p>	<p>Session #99: Revamps, Operability, and Reliability Grand Ballroom 3 Chair: Jayce Mathews Co-Chairs: Ellen Kloppenborg and Leandro Labanca</p> <p>Retrofit Strategy for Heat Exchanger Networks <i>Akpomiemie Mary Onome</i></p> <p>Identifying the Causes of Acute Fouling in Refinery Preheat Trains <i>Francesco Coletti</i></p> <p>Improving Catalytic Reformer Heaters Duty Using New Technologies <i>Ashutosh Garg</i></p>	<p>Session #100: Smart Manufacturing I Grand Ballroom 4 Chair: Minghua Ye Co-Chairs: Francesco Coletti and William Hollar</p> <p>Integration of Smart Manufacturing in the Advancement of Polymer Processing <i>Efstathios N. Pistikopoulos</i></p> <p>Smart Manufacturing: A Must to Remain Competitive <i>Munawar Saudagar</i></p> <p>Development of an Advanced Control Philosophy for Dry Gas Combined Steam Reforming, to Operate the Plant Efficiently during Feed Composition Changes <i>Jagan Mohan Rallapalli</i></p>	<p>Session #92: LNG Safety Grand Ballroom 5 Chair: Christopher S. Buehler Co-Chair: Jeffery Gaspard</p> <p>Numerical Study of Bund Overtopping after Catastrophic Tank Failures <i>Bin Zhang</i></p> <p>LNG Pool Spreading and Vaporization <i>Nirupama Gopalaswami</i></p>
11:45 AM	<p>AICHE Spring Meeting and GCPS Joint Luncheon & 20th WIC Anniversary Celebration with Speaker: Delia Contreras, VP of Engineering – ES, Global Supply Chain, NALCO Champion an Ecobal Company Cypress Ballroom 3</p> <p>“Doing Better Together – Transforming Business Sustainability”</p>				

Tuesday, April 24th (continued)

	Simulations/Control	Operations	Refinery Processing	Smart Manufacturing	Gas Utilization
1:30 PM – 3:00 PM	<p>Session #122: Process Control Monitoring and Analytics II Grand Ballroom 1 Chair: Mark Darby Co-Chair: Azifa Ahmadzadeh</p> <p>Machine Learning at Scale for the Advanced Process Control Toolkit <i>Aswin N. Venkat</i></p> <p>Driving Ammonia Plant Operational Excellence through Performance Monitoring and Analytics <i>Satish Baliga</i></p> <p>A Review of Generalized Likelihood Ratio Based Monitoring Techniques <i>Chiranjivi Botre</i></p>	<p>Session #124: Refinery Profitability, Flexibility, and Optimization I Grand Ballroom 2 Chair: Ellen Kloppenborg Co-Chair: Ahmed Khogeer</p> <p>Improving Profitability By Solving Crude and Fuel Blending Challenges <i>Meha Jha and Julie Valentine</i></p> <p>What is the Right Gasoil Cutpoint? <i>Bill Fairleigh</i></p> <p>Building Flexibility into a Refinery with a Delayed Coking Unit <i>Richard R. Heniford</i></p>	<p>Session #106: Advance Process Concepts - Heat & Mass Transfer I Anaheim Chair: Quinta Nwanosike-Warren Co-Chair: Kirtan K. Trivedi</p> <p>cMIST Compact Inline Gas Treating Technology <i>Shwetha Ramkumar</i></p> <p>Novel Cryogenic CO₂ Removal- Operating Conditions and Economic Analysis <i>Farhad Fazlollahi</i></p> <p>Dynamic Intensification of Separation Processes <i>Lingqing Yan</i></p> <p>Top Dividing Wall Columns in Process Intensification <i>Manish Bhargava</i></p>	<p>Session #125: Smart Manufacturing II Grand Ballroom 4 Chair: Minghua Ye Co-Chairs: Francesco Coletti and William Holler</p> <p>Smart Systems for the Process Industries <i>Samwith Rao</i></p> <p>Smart Damper Design Provides Better Control of Fired Heaters <i>Ashutosh Garg</i></p> <p>Application Centralized Information Technology in Process Design Package Development <i>Minghua Ye</i></p>	<p>Session #114: Gas Monetization Projects: Challenges and Strategies Grand Ballroom 5 Chair: Jeffery Gaspard Co-Chair: Mahdi Nouri</p> <p>How to Partner up and Protect Your Intellectual Property in Energy Industry Joint Ventures <i>Charles Collins-Chase</i></p> <p>Project Changes in Gas Monetization: Pitfalls or Success <i>Jeffery Gaspard</i></p> <p>Strategies for LNG Project Development <i>Arif Habibullah and Yoshitsugi Kikkawa</i></p>
3:00 PM	<p>Coffee and Networking Break Cypress Ballroom 1/2</p>				

Tuesday, April 24th (continued)					
	Simulations/Control	Operations	Refinery Processing	Smart Manufacturing	Gas Utilization
	<p>Session #137: Data and Operations Grand Ballroom 1 Chair: Tim Olsen Co-Chairs: Deval Pandya and Lluvia M. Ochoa-Estopier</p>	<p>Session #148: Refinery Profitability, Flexibility, and Optimization II Grand Ballroom 2 Chair: Ellen Kloppenborg Co-Chair: Ahmed Khogeer</p>	<p>Session #131: Advance Process Concepts - Heat & Mass Transfer II Anaheim Chair: Quinta Nwanosike-Warren Co-Chair: Kirtan K. Trivedi</p>	<p>*No programming at this time.</p>	<p>Session #149: Syngas Processing and Technology Development Grand Ballroom 5 Chair: Hebab Quazi Co-Chair: Eric Peterson</p>
<p>3:00 PM – 5:00 PM</p>	<p>Advances in Utilizing Data to Improve Operations <i>Tim Olsen</i></p> <p>Adaptive Anomaly Detection and Its Application to Online Asset Monitoring <i>Tim Butters</i></p> <p>Dynamic Data Analysis of Large Scale Data to Monitor Fouling in Heat Exchanger Networks <i>Francesco Coletti</i></p>	<p>Optimization of Refinery Preheat Trains: Predictive Maintenance and Operations Improvement <i>Francesco Coletti</i></p> <p>Refinery Preheat Train Fouling Management for Enhanced Energy Efficiency <i>Stephen Hall</i></p> <p>Optimising Productivity and Energy Consumption in Crude Oil Distillation Units with Investment-Free Solutions <i>Lluvia M. Ochoa-Estopier</i></p>	<p>Use of Dividing Wall Technology to Increase Throughput and Improve Product Specifications in Two-Diameter Columns <i>Manish Bhargava</i></p> <p>Process Intensification of Distillation Using a Microwick Technology Platform <i>Ward E. Tegrathuis</i></p> <p>Improving Plant Economics By Upgrading Low Value Hydrocarbon Stream By Enrichment of C9+ Compounds Using Divided Wall Distillation Columns <i>Maresh Kumar Srinivas</i></p>		<p>Optimal Synthesis of Integrated Reactive Distillation Systems for Fischer-Tropsch Process <i>Cornelius Mduuzi Masuku</i></p> <p>A Mini-Pilot Scale Demonstration of Single-Stage Syngas-to-DME Process <i>Lujie Ye</i></p> <p>Enhancing Lubricity of Gas-to-Liquid (GTL) Paraffinic Kerosene Using Additives and Optimizing the Fuel™s Physicochemical Properties <i>Hani Ababneh</i></p> <p>Effect of Space Velocity and Long Residence Time to Fischer Tropsch Products and Catalysts Reduced with Different Gases <i>Joshua Gorimbo</i></p>

Wednesday, April 25th

	Simulations/Control	Operations	Refinery Processing	Biofuels	Gas Utilization
	<p>Session #153: Controls and Digitalization Technology I Grand Ballroom 1 Chair: Nikki Bishop Co-Chair: Swapnil Fegade</p>	<p>Session #166: Synergies between Refining and Petrochemical Processing I Grand Ballroom 2 Chair: Eberhard Lucke Co-Chairs: Ahmed Khogeer and Abyar Aejaz</p>	<p>Session #151: Advances in Catalysis I Grand Ballroom 3 Chair: Azita Ahmadzadeh Co-Chairs: Tracy J. Benson and Gary Gildert</p>	<p>*No programming at this time.</p>	<p>Session #165: Simulation, Optimization and Controls for Gas Applications Grand Ballroom 5 Chair: Azita Ahmadzadeh</p>
8:00 AM – 9:30 AM	<p>How to Sell the Value of Digitalization with MPC <i>Laurie Ben and James Beall IV</i></p> <p>Autonomous Tuning and Firing Temperature Control for Variable Engine Operating Conditions - a New Control Scheme Designed for Optimized Engine Control in All Seasons and a Variety of Fuel Gas Compositions <i>Matthew Burton</i></p> <p>To Cloud or Not to Cloud: That Is the Question <i>Ben Bishop and Bill Thackston III</i></p>	<p>The Journey Towards 2030, Was It to Ambitious? Update on the Impact of 2030 Vision and 2020 Transformation Program on Energy, Infrastructure and Other Projects in the Region <i>Ahmed Khogeer</i></p> <p>Refinery-Petrochemical Integration: Organization and Culture <i>Andrew W. Soley</i></p> <p>One Stone Two Birds: CO₂ to Methanol and Petrochemicals <i>Edgar Amaro Ronces</i></p>	<p>Sorbent-Based Desulfurization Process for Removing Organic Sulfur Compounds <i>Gokhan Alptekin</i></p> <p>Catalytic Reforming for Syngas Production Using Industrial CO₂: Carbon Capture and Chemical Manufacturing <i>Prashant Kumar</i></p> <p>Medium Chain Alcohol Production Using Alkali Promoted Mo-Sulfide Fischer-Tropsch Catalysts <i>Tracy J. Benson</i></p>		<p>Dynamic Simulation of Natural Gas Liquefaction with Helium Recovery <i>Yogesh Kurle</i></p> <p>Experimental Study and CFD Simulation of the Multiphase Flow Conditions Encountered in a Novel Down-Flow Bubble Column <i>Mutharasu LC</i></p> <p>Flowsheet Safety and Techno-Economic Analysis of Ammonia and Urea Production Route <i>Ahmed AlInouss</i></p>
9:30 AM	<p>Coffee and Networking Break Cypress Ballroom 1/2</p>				

Wednesday, April 25th (continued)					
	Simulations/Control	Operations	Refinery Processing	Biofuels	Gas Utilization
	<p>Session #178: Controls and Digitalization Technology II Grand Ballroom 1 Chair: Nikki Bishop Co-Chair: Swapnil Fegade</p>	<p>Session #185: Synergies between Refining and Petrochemical Processing II Grand Ballroom 2 Chair: Eberhard Lucke Co-Chairs: Ahmed Khogeer and Abyar Aejaz</p>	<p>Session #174: Advances in Catalysis II Grand Ballroom 3 Chair: Azita Ahmadzadeh Co-Chairs: Tracy J. Benson and Gary Gildert</p>	<p>*No programming at this time.</p>	<p>Session #183: LNG Simulation, Operations and Control Grand Ballroom 5 Chair: Matthew J. Okasinski Co-Chair: Vinod Rajkumar</p>
<p>10:15 AM – 11:45 AM</p>	<p>Using the Industrial Internet of Things to Monitor Process Equipment for Health, Performance, and Energy Consumption <i>Brian Atkinson</i></p> <p>Using Automation Modernization As a Lever for Business Success <i>Laurie Ben</i></p>	<p>Advanced Process Modelling for Refinery-Petrochemical Integration <i>Stephen Hall</i></p> <p>Re-Thinking Benzene Control Strategies to Maximize Octane <i>Dominic Varraveto</i></p>	<p>A New Era for Alkylation <i>Elizabeth Carter</i></p> <p>Organotemplate-Free Synthesis of Hierarchical Beta Zeolites <i>Ke Zhang</i></p> <p>The Future Is Here: Robotic Catalyst Removal <i>Andrew W. Soley</i></p>		<p>Application of Dynamic Simulation for Relief System Design in LNG Facility <i>Haribabu Chittibabu</i></p> <p>A CFD Study of System Vibration's Effect on LNG Boil-Off in a Transportation Vehicle <i>Xingchun Wang</i></p> <p>Development of LNG Heel Stock Estimation Technology for Ballast Voyage <i>David Hill</i></p> <p>High Capacity Concept for an Efficient Gas Expander FLNG Process <i>Heinz C. Bauer</i></p>
<p>11:45 AM</p>	<p>AICHE Spring Meeting and GCPS Joint Luncheon with Speaker: Jun Mutoh, Representative Director, Executive Vice President, JXTG Holdings, Inc. Cypress Ballroom 3</p> <p>"Beyond Operations Management Systems – Establishing a Solid Safety Culture"</p>				

Wednesday, April 25th (continued)

	Simulations/Control	Operations	Refinery Processing	Biofuels	Gas Utilization
1:30 PM – 3:00 PM	<p>Session #202: Process Control and Optimization Developments Grand Ballroom 4 Chair: Mark Darby Co-Chairs: Tony Liu and M. Nazmul Karim</p> <p>Tuning PID Controllers for Complex Integrating Process Dynamics <i>James Beal / IV</i></p> <p>Tune Your PID Loops Please! <i>Sam Dhalliwal</i></p> <p>pH and Other Non-Linear Control Applications <i>Tom Nolan</i></p>	<p>Session #208: Water Solutions Grand Ballroom 3 Chair: Quan Yuan Co-Chairs: Eberhard Lucke and Ted Heron</p> <p>Molecular Dynamic Simulation Study of Water Desalination across Carbon Nanotube Membrane <i>Shaghayegh Agha</i></p> <p>Inorganic Salts Removal from Hydraulic Fracturing Flowback Water By Cooling <i>Maoqi Feng</i></p> <p>Metal-Hexacyanoferrate Based Nanoadsorbents for the Removal of Radioactive Cesium from Seawater <i>Hee-Man Yang</i></p>	<p>Session #200: Hydroprocessing / Hydrogen Grand Ballroom 2 Chair: Saadet Ulas Acikgoz Co-Chair: Sanjiv Ratan</p> <p>Catalytic Option(s) for Hydrotreaters Struggling with Cracked-Rich Feeds <i>Steven F. Zink</i></p> <p>Smart Equipment Integration for Improved Process Yield <i>Whyman William</i></p> <p>Innovative Zoneflow® Reactor Technology- Gearing for Future in Steam Reforming for Hydrogen Generation <i>Sanjiv Ratan</i></p> <p>Catalyst Characterization in the Molecular-Level Kinetic Modeling of Hydroprocessing Reactors <i>Pratyush Agarwal</i></p>	<p>Session #191: Biomass Conversion to Valuable Products I Atlanta Chair: Vinod Kumar Venkatakrishnan Co-Chair: Fuyue Stephanie Li</p> <p>Development of a Two-Stage Thermal Deoxygenation Process for Fuels and Chemicals from Biomass <i>M. Clayton Wheeler</i></p> <p>Aiding the Development of Molecular-Level Kinetic Mega Models through Parallelization <i>Juan Lucio-Vega</i></p> <p>Development of Green Pathways for the Extraction of Medically Active Components from Grape Waste <i>Kyle Cogswell</i></p> <p>Optimum Utilization of Biomass for the Production of Power and Fuels Using Gasification <i>Ahmed AINouss</i></p>	<p>Session #201: Plant Design and Energy Integration Grand Ballroom 5 Chair: Steven Vallee Co-Chair: Tony Liu</p> <p>Dynamic Modeling of the Hybrid LNG Terminal Coupling NGL Recovery and LNG Re-Gasification <i>Md Emdadul Haque</i></p> <p>Shale Gas Techno-Economic Analysis: Designing Separation Units to Handle Feedstock Variability <i>Eric Bohac</i></p> <p>Remove/ Use Gigatons of CO₂ from Flue Gas without CO₂ Recovery or Purification <i>Brian Kolodji</i></p>

Wednesday, April 25th (continued)					
	Simulations/Control	Operations	Refinery Processing	Biofuels	Gas Utilization
	<p>Session #202: Process Control and Optimization Developments Grand Ballroom 4 Chair: Mark Darby Co-Chairs: Tony Liu and M. Nazmul Karim</p> <p>Living on the Edge with Distributed Embedded Model Predictive Control <i>Patrick Thorpe</i></p> <p>Automation of Knowledge Work in Advanced Process Control <i>Alex Kalafatis</i></p> <p>Data-Based Fault Detection for Safe and Reliable Process Start-up and Recovery after Natural Disasters <i>Jonathan P. Rafferty</i></p>	<p>Session #208: Water Solutions Grand Ballroom 3 Chair: Quan Yuan Co-Chairs: Eberhard Lucke and Ted Heron</p> <p>A Computational Model to Simulate Performance of Industrial Clarifiers <i>Shankhadeep Das</i></p> <p>CFD Modeling of Honeywell-UOP Xceed™ Wastewater Bioreactor <i>Azita Ahmadzadeh</i></p> <p>Optimization of Water Demand Growth Fulfillment in Seawater Thermal Desalination System <i>Hassan Baaqeel</i></p>	<p>Session #200: Hydroprocessing / Hydrogen Grand Ballroom 2 Chair: Saadet Ulas Acikgoz Co-Chair: Sanjiv Ratan</p> <p>Molecular Kinetic Modeling in Hydrocracking <i>Pelin Cox</i></p> <p>Lumped Kinetic Model for Hydrocracking of Heavy Oils over Oil-Dispersed Mo-Based Catalyst <i>Woohyun Kim</i></p> <p>Change of Product Yield and Quality with a Variation of Residue Conversion in a Slurry-Phase Hydrocracking of Vacuum Residue <i>Kang Seok Go</i></p>	<p>Session #204: Biomass Conversion to Valuable Products II Atlanta Chair: Vinod Kumar Venkatakrishnan Co-Chair: Fuyue Stephanie Li</p> <p>Comparison of Several Indirect Liquefaction Pathways to Fuels and Co-Products Via Biomass Gasification and Synthesis <i>Steven D. Phillips</i></p> <p>Techno-Economic and Environmental Life Cycle Assessment (LCA) of Biodiesel Production Process from Waste Cooking Oil Via Supercritical Transesterification <i>Prashant Nagapurkar</i></p> <p>Continuous Cultivation of Microalga Nannochloropsis Oculata to Extract and Characterize Polar Lipids for Cosmetic Applications <i>Ahmet Y. Manisali</i></p> <p>Synergistic Utilization of Coal Ash and Biomass Ash Rice Husk Ash for Zeolite and Sorbent Production <i>Maooqi Feng</i></p> <p>Conversion of Syngas into Liquid Hydrocarbons <i>Girish Srinivas</i></p> <p>Hydrogen Production from Biomass <i>Anh Phan</i></p>	<p>Session #201: Plant Design and Energy Integration Grand Ballroom 5 Chair: Steven Vallee Co-Chair: Tony Liu</p> <p>Thermodynamics Analysis Based Optimal Design and Operation of Dmr Refrigeration System for Natural Gas Liquefaction Process <i>Mozammel Mazumder</i></p> <p>Reboilers with Plate-Fin Brazed Aluminum Heat Exchangers: Best Practices and Considerations for Design and Operation <i>Steven J. Vallee</i></p>
3:00 PM – 5:00 PM					

BELONGING TO SOMETHING
BIGGER

NOW INCLUDES MORE

AIChE | The Global Home of Chemical Engineers

F&PD

FUELS & PETROCHEMICALS
A DIVISION OF AIChE

Bigger ideas. Bigger networks. Bigger paths to career advancement.

AIChE® membership means access to bigger ideas, bigger networks, and bigger opportunities for career advancement and enhancement. To grow this community, we are offering an exclusive membership offer specifically-designed for Chemical Engineers working within Fuels & Petrochemicals.

Become an AIChE member and join our **Fuels & Petrochemicals Division** to immediately access these **benefits valued at over \$7,000 for the price of \$209.**



Download **17 Fuels & Petrochemicals Division Conference Recordings (2013-2017) & Proceedings (2006-2017)**, valued at \$2,635. Get access to new F&PD conference proceedings each year with continued membership. More to come in the near future!



Downloadable curated **Fuels & Petrochemicals CEP magazine article** bundles featuring 26 articles, valued at \$780.



Receive a subscription to **Hydrocarbon Processing**, valued at \$399.



Access to **8 Fuels & Petrochemicals Division Webinar Bundles**, valued at \$3,192. Want more? AIChE members receive 6 free annual credits to apply to purchasing live and archived webinars and conference presentations.



Receive a subscription to **CEP magazine**, an invaluable resource for engineers. Like to read on the go? Access the latest issues on the new **CEP Mobile App**, for members only.

Belong to **AIChE** and the **Fuels & Petrochemicals Division**.
Join at www.aiche.org/JoinFPD

AIChE 
The Global Home of Chemical Engineers



Process Engineers
today have more competing priorities and demands on their schedule than ever. We know because our tenured engineers have experienced this first-hand themselves. In fact, our Team has over 500 years of combined experience in Oil, Gas, & Petrochemical sectors. Smith & Burgess is designed to help engineers sleep well at night knowing their staff and facilities are operating in the safest, most efficient and compliant manner possible. Did you know industry studies have shown that facilities with proactive safety planning increase their overall profitability year after year? Let Smith & Burgess help light a path to sound, compliant, and realistic safety decisions for your team and facility.

**Process Safety Services
Relief & Flare Studies
Project Engineering Design**

Smith & Burgess

Process Safety Consulting

**SMITHBURGESS
.COM**

30th Ethylene Producers' Conference Programming Grid

Property Key
Location = Orlando World Center Marriott

Sunday, April 22nd	
5:00 PM – 6:00 PM	Ethylene Producer's Conference Reception Central Atrium & Courtyard Terrace
6:00 PM – 7:30 PM	2018 AIChE Spring Meeting and 14th GCPS Opening Reception Cypress Ballroom 1/2
Monday, April 23rd	
7:00 AM	2018 AIChE Spring Meeting and 14th GCPS AGILE Keynote Continental Breakfast Cypress Ballroom 3
8:00 AM	2018 AIChE Spring Meeting and 14th GCPS Opening Plenary Session: Christine Seymour, AIChE President and June C. Wispelwey, AIChE Executive Director Cypress Ballroom 3
8:30 AM	AGILE Award Keynote Address Cypress Ballroom 3 Keynote Address: "Building a Winning Culture: Harnessing the Power of Values" Presented by Mark Vergnano , President and CEO, The Chemours Company
9:30 AM – 11:30 AM	<p>Session #4: Ethylene Plant Process Control Sago</p> <p>Chair: Sasha Vragolic Co-Chair: Eddy Fontenot</p> <p>Welcoming Remarks</p> <p>Plant Wide Optimization for High Value Added Products - a Steam Cracking Case Study <i>Kevin M. Van Geem</i></p> <p>MINLP Optimization Approach for Managing Integrated Petrochemical Business Planning <i>Jesus Alejandro Ortiz-Cruz Sr. and Sandra Angelica Cardoso-Palmerin Sr.</i></p>
	<p>Session #5: Reliability and Operability of Rotating Equipment in Ethylene Plants Royal</p> <p>Chair: Brian Wadas Co-Chair: Shane Harvey</p> <p>Welcoming Remarks</p> <p>Modernization of Existing Ethylene Crackers (Compressor & Turbine Footprint Replacement Options in Brownfield Locations) <i>Yuji Kuramoto</i></p> <p>Footprint Installation of a Condensing Steam Turbine during a Shutdown <i>Bryan Barrington</i></p> <p>Compressor Wash Oil Impact on Process Gas Compressor Efficiency and Vibration <i>Michael Player</i></p>
	<p>Break</p> <p>Control System Migration Program for Dow's Hydrocarbons Facilities <i>Eddy Yap</i></p>
	<p>Break</p> <p>The Soft-Side of the Control Valve, a New Approach for Control Valve Diagnostics <i>Ricardo Castaneda</i></p> <p>Mitigating Fouling in Process Gas Compressors <i>Anahita Khanlari</i></p>
	Concluding Remarks
12:00 PM	AIChE Spring Meeting and GCPS Joint Luncheon with Speaker: Andrew Lenzen, Special Agent, Federal Bureau of Investigation Cypress Ballroom 3 "Cyber Threat Landscape"

Monday, April 23rd (continued)	
2:00 PM – 5:00 PM	<p>Session #32: Ethylene Plant Feedstock Contaminants Sago</p> <p>Chair: Mark Brayden Co-Chair: Joe Lally</p> <p>Welcoming Remarks</p> <p>Cold Box Fouling in a Cracker <i>Helene Launay</i></p> <p>Zero Waste/Polymer Disposal from Caustic Tower Saves \$1MM/Year in Versalis Ethylene Unit <i>Patrick Lucas and Oreste Vossillo</i></p> <p>CSTR Study of Aldol Polymerization Inhibition in Ethylene Plant Caustic Towers <i>Satheesh Sambandam</i></p> <p>Break</p> <p>How Much Is Too Much? -Feed Contaminants and Their Consequences <i>Kandasamy M. Sundaram</i></p> <p>A New Technology for Reduction of Sulfur Contamination in Petrochemical Feed Stocks <i>Sai Reddy Pinappu</i></p> <p>Carbon Dioxide: An Overview on Removal Technology <i>David Slim</i></p> <p>Concluding Remarks</p>
5:00 PM – 7:00 PM	<p>Session #33: Ethylene Plant Rotating Equipment Panel Discussion Royal</p> <p>Chair: Brian Wadas Co-Chair: Shane Harvey</p> <p>Welcoming Remarks</p> <p>Refrigeration Compressors in Ethylene Plants <i>Shane Harvey</i></p> <p>High Efficient and Compact Solutions for Next Generation Turbocompressors in Ethylene Plant <i>Sergio Ghezzi</i></p> <p>Design Challenges to Apply Mixed Flow Impeller Technology to 3000 Kta Ethane Cracker <i>Ronald Josefczyk and Daniel Jones</i></p> <p>Break</p> <p>Compressor Trial Design and Study with Super High Flow Coefficient Impeller <i>Satoru Yoshida</i></p> <p>Supercritical Ethylene Export <i>Torben Hoefel</i></p> <p>Panel Discussion</p> <p>Concluding Remarks</p>
<p>Session #51-58: AICHe Spring Meeting & GCPS Poster Sessions and Networking Reception (Includes electronic presentations of select posters) Cypress Ballroom 1/2</p> <p>Chair: Walter S. Postula</p>	

Tuesday, April 24th

	<p>Session #78: Ethylene Plant Operations Sago</p> <p>Chair: Richard Rolke Co-Chair: Patty Summers</p>
<p>8:00 AM – 11:00 AM</p>	<p>Welcoming Remarks</p> <p>Troubleshooting Vacuum Operation of an Inter-after Condenser Unit in Ethylene Plant <i>Thomas Weslaw</i></p> <p>Reduced Flaring Options during Ethylene Plant Start-up and Shutdown <i>Ramakrishnan Subramaniam, Muhammad Imran and Thomas Pickett</i></p> <p>Olefin Plant Turnaround Optimization <i>Claire Cagnolatti</i></p> <p>Break</p> <p>Impact of Cracked Gas Drier Adsorbent Pressure Drop Increase on Plant Profitability <i>Bruno De Jonckheere</i></p> <p>Mole Sieve Steam Deactivation <i>Megan Finstad</i></p> <p>Ethylene Furnace Pre-Commissioning and Commissioning - New Furnace or after Major Revamp <i>Kari J. Enqvist</i></p> <p>Concluding Remarks</p>
<p>11:45 AM</p>	<p>AIChE Spring Meeting and GCPS Joint Luncheon & 20th WIC Anniversary Celebration with Speaker: Delia Contreras, VP of Engineering – ES, Global Supply Chain, NALCO Champion an Ecolab Company Cypress Ballroom 3</p> <p>“Doing Better Together – Transforming Business Sustainability”</p>

Tuesday, April 24th (continued)	
<p>Session #129: Ethylene Plant Technology Fundamentals Sago</p> <p>Chair: Jack Buehler Co-Chair: Bob Krimock</p> <p>Welcoming Remarks</p> <p>Rdr - Revolution in Ethylene Yield <i>Harri Johannesdahl</i></p> <p>Flameless Oxidation for Heating of Ethylene Furnaces <i>Sebastian Muschelknautz</i></p> <p>Thermal Decomposition of Sulfur Compounds and Their Role in Coke Formation during Steam Cracking of Ethane and Heptane <i>Marko R. Djokic</i></p> <p>Break</p> <p>Separation of Olefin-Paraffin Mixtures with Optiperim™ Customized Amorphous Fluoropolymer Membranes <i>Bill Charlton</i></p> <p>Catalytic Cracking of Light Hydrocarbons over Zeolite-Based Composites for on-Purpose Propylene <i>Fuyuki Yagi</i></p> <p>Improof: Integrated Model Guided Process Optimization of Steam Cracking Furnaces <i>Kevin M. Van Geem</i></p> <p>Concluding Remarks</p>	<p>Session #128: Ethylene Plant Maintenance & Reliability Royal</p> <p>Chair: Jorge E. Blanco Co-Chair: Shailendra Inamdar</p> <p>Welcoming Remarks</p> <p>Exploring the Use of Fitness for Service (API 579) in Ethylene Production Facilities <i>Scott Bouse</i></p> <p>Transfer Line Exchanger Fitness for Service Analysis Case Study: Assessing Erosion for Remaining Life Prediction <i>Jimmy Cleavinger</i></p> <p>Maintenance & Reliability - Predictive Analytics Using Process & Operating Data <i>Sandra Peterson</i></p> <p>Break</p> <p>Condition Based Recolling <i>Stef Luijten</i></p> <p>High Temperature Hydrogen Attack in Ethylene Producing Plants <i>Tatiana Randall</i></p> <p>Cold Service Bolted Joint Reliability <i>Kathryn Worden</i></p> <p>Special Venturi Technology for Condensate Removal <i>Marc Froeyen</i></p> <p>Concluding Remarks</p>

Wednesday, April 25th

	<p>Session #171: Ethylene Plant General Environmental Sago</p> <p>Chair: Mark Schmidt Co-Chairs: Mark Ulrich and Ted Heron</p> <p>Welcoming Remarks</p> <p>Ethylene Risk and Technology Review: What's the Outlook? <i>Steve Smith</i></p> <p>Delivering a Successful Ethylene Section 114 Information Collection Request Test Program <i>Jeff Thomason</i></p> <p>Break</p> <p>Predicting Long Term Evaporative Cooling Tower Water Usage: The Energy-Water Balance <i>William Celenza</i></p> <p>Optical Gas Imaging: Taking a Drive through IR Camera Technology and How It's Used <i>Justin Lamb and Nick James</i></p> <p>Implementing a Benzene Fenceline Passive Sampling Program <i>Roy Massengale</i></p> <p>Concluding Remarks</p> <p>AICHE Spring Meeting and GCPS Joint Luncheon with Speaker: Jun Mutoh, Representative Director, Executive Vice President, JXTG Holdings, Inc. Cypress Ballroom 3</p> <p>"Beyond Operations Management Systems – Establishing a Solid Safety Culture"</p>	<p>Session #169: Application of Big Data Analytics in Ethylene Production Royal</p> <p>Chair: Birgit Braun Co-Chair: Sasha Vragolic</p> <p>Welcoming Remarks</p> <p>Enterprise Manufacturing Intelligence in Hydrocarbons <i>Chaitanya Khare</i></p> <p>Big Data Analytics for Improved Overall Asset Effectiveness of Ethylene Plants <i>Pratap Nair</i></p> <p>Machine Learning Techniques to Monitor Catalyst Health in an Ethylene Oxide Reactor <i>Tim Diller</i></p> <p>Break</p> <p>Incorporating Model-Based Technology with Big Data Concepts for Monitoring Ethylene Production <i>Peter Le</i></p> <p>Improving Ethylene Furnace Performance with Big Data Analytics <i>James Brigman</i></p> <p>Start Listening to Your Heat Exchanger - Smart Data Application Enables Insight into Process Equipment <i>Joerg Weidenteller</i></p> <p>Concluding Remarks</p>
<p>8:00 AM – 11:00 AM</p>		
<p>11:45 AM</p>		

Wednesday, April 25th (continued)	
	<p>Session #203: Ethylene Plant Safety Sago</p> <p>Chair: Gwen Kelley Co-Chair: Michael Smith</p>
2:00 PM – 5:00 PM	<p>Welcoming Remarks</p> <p>Control Valve Packing Follower Failure in Cold Service <i>Richard Kratzer</i></p> <p>CSB Case Study - Summary of Williams Plant Incident <i>Lauren Grim</i></p> <p>Break</p> <p>Synopsis of Risk Assessment and Analysis Techniques for Brittle Fracture and Current Vulnerabilities <i>Jeremy Staats</i></p> <p>Avoiding Risks of New Brittle Fracture Susceptibility in Carbon Steel Pipe, Fittings and Flanges That Meet ASME Code <i>Barry Messer</i></p> <p>Chrome VI in Cracking Furnaces <i>Balaji Olayiwola and Mike Koselek</i></p> <p>Concluding Remarks</p>

Thursday, April 26th

	<p>Session #211: Ethylene Cracker Quench System Tutorial & Improvements Royal</p> <p>Chair: Bala Devakottai Co-Chair: Vk Arora</p>
<p>8:00 AM – 11:30 AM</p>	<p>Welcoming Remarks</p> <p>Quench Systems for Gas and Liquids Crackers - A Primer <i>Mark Whitney</i></p> <p>Gas Cracking Quench Systems Tutorial <i>Chris Phillips</i></p> <p>Break</p> <p>Quench Water Quality Challenges in Ethane Cracker <i>Jorge L. Cabrera Amador</i></p> <p>EPC Sasol Quench Tutorial Fundamentals Presentation <i>Thomas Weslaw</i></p> <p>Primary Fractionator Fundamentals & Flexibility to Feedstocks <i>Andre Bernard</i></p> <p>Concluding Remarks</p>

NEED A COFFEE BREAK?

CYPRESS BALLROOM 1/2

80+ EXHIBITORS. INVALUABLE NETWORKING OPPORTUNITIES.
AS MUCH COFFEE AS YOU CAN DRINK.

Morning and afternoon coffee breaks are **Monday and Tuesday**.
Morning ONLY coffee break is on **Wednesday**.



Monday, April 23

9:00 AM - 9:30 AM

3:00 PM - 3:30 PM

Tuesday, April 24

9:30 AM - 10:15 AM

3:00 PM - 3:30 PM

Wednesday, April 25

9:30 AM - 10:15 AM

GRAB A CUP & MINGLE WITH EXHIBITORS!

Distillation Symposium Programming Grid

Property Key
Location = Orlando World Center Marriott

Sunday, April 22nd	
6:00 PM – 7:30 PM	2018 AIChE Spring Meeting and 14th GCPS Opening Reception Cypress Ballroom 1/2
Monday, April 23rd	
7:00 AM	2018 AIChE Spring Meeting and 14th GCPS AGILE Keynote Continental Breakfast Cypress Ballroom 3
8:00 AM	2018 AIChE Spring Meeting and 14th GCPS Opening Plenary Session: Christine Seymour , AIChE President and June C. Wispelwey , AIChE Executive Director Cypress Ballroom 3
8:30 AM	AGILE Award Keynote Address Cypress Ballroom 3 Keynote Address: “Building a Winning Culture: Harnessing the Power of Values” Presented by Mark Vergnano , President and CEO, The Chemours Company
	Session #6: In Honor of Andrew Stoley Canary 1/2 Chair: Daniel R. Summers Co-Chair: Andrew W. Stoley
9:30 AM – 12:25 PM	Welcoming Remarks Distillation Column Dynamics <i>Anand N. Vennavelli</i> A New Pilot Scale Facility for Testing High Pressure Cryogenic Distillation in LNG Applications <i>Eric F. May</i> Process Equipment Imaging by Tomographic Gamma Scan <i>Marcia Issamu Haraguchi</i> Break Debottlenecking of a Large Industrial Deethanizer by Gravity Driven Two-Phase Flow Analysis <i>Antonio Garcia</i> Loss of Float Valves Causing Flood <i>Matthew Olsson</i> Concluding Remarks
12:00 PM	AIChE Spring Meeting and GCPS Joint Luncheon with Speaker: Andrew Lenzen , Special Agent, Federal Bureau of Investigation Cypress Ballroom 3 “Cyber Threat Landscape”

Monday, April 23rd (continued)	
1:30 PM – 3:00 PM	<p>Session #25: Operational Excellence in Refinery Distillation Grand Ballroom 2</p> <p>Chair: Andrew W. Soley Co-Chair: Daniel R. Summers</p> <p>Operational Excellence in Refinery Distillation Better Decision Faster <i>Tim Shire</i></p> <p>Three Products with High-Purity BTX Dividing Wall Columns in Operation <i>Manish Bhargava</i></p> <p>Operational Optimization of Crude Distillation Units with Unknown and Changing Crudes <i>Xiao Yang</i></p>
1:30 PM – 4:30 PM	<p>Session #31: YP Tutorial: Separation Process Fundamentals Grand Ballroom 6</p> <p>Chair: Anand N. Vennavelli Co-Chairs: Anand Govindarajan and Sravanthi Vupputuri</p> <p>Distillation 101 - Theory to Practice <i>Daniel R. Summers</i></p> <p>Be Prepared for Column Inspections <i>Ken C. McCarley</i></p> <p>Liquid Distributor Fundamentals <i>Simon Chambers</i></p> <p>Acid Gas Absorption Fundamentals <i>Clint P. Aichele</i></p> <p>Using Radioisotope Techniques for Process Investigations <i>Lowell Pless</i></p>
5:00 PM – 7:00 PM	<p>Session #51-58: AIChE Spring Meeting & GCPS Poster Sessions and Networking Reception (Includes electronic presentations of select posters) Cypress Ballroom 1/2</p> <p>Chair: Walter S. Postula</p>

Tuesday, April 24th

	<p>Session #79: Advances in Dividing Wall Column (DWC) Technology Canary 1/2</p> <p>Chair: Daniel R. Summers Co-Chairs: Andrew W. Sioley</p>
<p>8:00 AM – 11:55 AM</p>	<p>Welcoming Remarks Operable Version of Dividing-Wall Columns: A Control Perspective <i>Parrham Mobed</i></p> <p>Using a Dividing Wall Distillation Column to Isolate Trace Impurities <i>Melissa Donahue</i></p> <p>Network of Dividing Wall Columns in Complex Process Units <i>Joseph C. Gentry</i></p> <p>Break</p> <p>Multiple Dividing Wall Columns in a Refinery Complex <i>Manish Bhargava</i></p> <p>A Rate-Based Equation-Oriented Parallel Column Model: Application to Dividing Wall Columns <i>Jingsong Zhou</i></p> <p>Saving Potentials by Use of Dividing-Wall Columns for Natural Gas Liquid Separations <i>Simon Xu</i></p> <p>Concluding Remarks</p>
<p>11:45 AM</p>	<p>AICHE Spring Meeting and GCPS Joint Luncheon & 20th WIC Anniversary Celebration with Speaker: Delia Contreras, VP of Engineering – ES, Global Supply Chain, NALCO Champion an Ecolab Company Cypress Ballroom 3</p> <p>“Doing Better Together – Transforming Business Sustainability”</p>

Tuesday, April 24th (continued)	
	<p>Session #127: Safety Measures for Tower Entry Canary 1/2</p> <p>Chair: Daniel R. Summers Co-Chairs: Andrew W. Stoley</p>
1:30 PM – 5:00 PM	<p>Welcoming Remarks Tower Entry Safety Topics <i>Bhushan Suktham</i></p> <p>Practical Tower Safety from the Engineer's Perspective <i>Daniel R. Summers</i></p> <p>Break</p> <p>Practical Tower Safety from the Installer's Perspective <i>Michael Lochbaum</i></p> <p>Concluding Remarks</p>

PUT THE MEETING ON YOUR PHONE OR TABLET.

Download the AChEEventsApp to get access to everything you need to have a better meeting.

SEARCH. SCOPE OUT. PREVIEW. LEARN MORE. FIND. PLAN, STORE AND UPDATE YOUR SCHEDULE.

See the past, present and upcoming events all in one place. Whether you carry an Android or iOS device, the AChEEvents app delivers the same native functionality. BlackBerry and other smartphone users can access the Spring Meeting & GCPS content via their standard phone-based browser.



DOWNLOAD THE APP TODAY.

Wednesday, April 25th

	<p>Session #172: Advances in Distillation Technology I Canary 1/2</p> <p>Chair: Daniel R. Summers Co-Chairs: Andrew W. Sioley</p>
<p>8:00 AM – 12:20 PM</p>	<p>Welcoming Remarks Non-Ideal Two-Phase Flow on Large Diameter Trays: The Stagnant Regions Model versus FRI Experiment <i>Simon Chambers</i></p> <p>Evolution of Random Packing Performance with a Focus on Geometry <i>Ken C. McCarley</i></p> <p>Computational Fluid Dynamic (CFD) Simulations of Multiphase Flow through Representative Elementary Units (REU) of Structured Packing <i>Trien (Mikey) Phan</i></p> <p>Break</p> <p>Evidence for the Need of Probability Density Function Representations of Liquid-Side Mass Transfer Rate Coefficients for Absorption Modeling in Structured Packings <i>John Roesler</i></p> <p>Distillation Control: Practical Aspects <i>Sigifredo Nino</i></p> <p>Packed Tower Separation Efficiency Problem Diagnosed Using Gamma Scanning Technology <i>Lowell Pless</i></p> <p>Concluding Remarks</p>
<p>11:45 AM</p>	<p>AICHE Spring Meeting and GCPS Joint Luncheon with Speaker: Jun Mutoh, Representative Director, Executive Vice President, JXTG Holdings, Inc. Cypress Ballroom 3</p> <p>“Beyond Operations Management Systems – Establishing a Solid Safety Culture”</p>

Wednesday, April 25th (continued)	
	<p>Session #197: Advances in Distillation Technology II Canary 1/2</p> <p>Chair: Daniel R. Summers Co-Chairs: Andrew W. Sioley</p>
1:30 PM – 5:00 PM	<p>Welcoming Remarks</p> <p>UFM™ Trays Expand into the Fixed Valve Arena with the UFM™ AF <i>Henk B. van Westendorp</i></p> <p>Deep-Seal Sieve Trays for Improved Scrubbing Performance <i>Joseph Flowers</i></p> <p>Revamping a Giant C3-Splitter Tower <i>Izak Nieuwoudt</i></p> <p>A Design and Computation Software for Separating Multicomponent Mixtures <i>Tony Joseph Mathew</i></p> <p>New Test Systems for Distillation Efficiency Experiments at High Liquid Viscosities <i>Raj Ganesh Manivannan</i></p> <p>Reboiled Refinery Sidestrippers Considered As a Special Case of Thermally Coupled Columns <i>Andrew W. Sioley</i></p> <p>Concluding Remarks</p>



Expert Fire & Gas Consultancy Optimizes Safety and Cost

Industrial processes often involve the use or manufacture of hazardous flammable or toxic gases, which can escape, and threaten those working within plants or living nearby. For that reason, fire & gas systems play a critical role in protecting people, processes and the environment.

Get your copy of our white paper and find out how our Process Fire and Gas Mapping Consultancy offerings help you apply Risk-Based techniques to place your detectors where they'll do the most good.



Honeywell
THE POWER OF **CONNECTED**

Learn more at www.hwll.co/FnGWhitePaper

©2018 Honeywell International Inc.



HAPPY HOUR

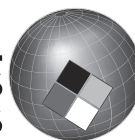
CYPRESS BALLROOM 1/2
TUESDAY, APRIL 24 | 5:00 PM - 6:00 PM

More than 80 Exhibitors | Snacks | Cash Bar
Look for Staff Wearing a Badge for a Drink Ticket.

A Free Beverage for the First 300 Attendees to Enter the Exhibit Hall


18 AIChE
Spring Meeting

14TH
GLOBAL
CONGRESS
ON PROCESS
SAFETY



Orlando World Center Marriott

Industry 4.0 – Big Data Analytics & Related Programming Grid

Property Key
Location = Orlando World Center Marriott

Sunday, April 22nd	
6:00 PM – 7:30 PM	2018 AIChE Spring Meeting and 14th GCPS Opening Reception Cypress Ballroom 1/2
Monday, April 23rd	
7:00 AM	2018 AIChE Spring Meeting and 14th GCPS AGILE Keynote Continental Breakfast Cypress Ballroom 3
8:00 AM	2018 AIChE Spring Meeting and 14th GCPS Opening Plenary Session: Christine Seymour , AIChE President and June C. Wispelwey , AIChE Executive Director Cypress Ballroom 3
8:30 AM	AGILE Award Keynote Address Cypress Ballroom 3 Keynote Address: “Building a Winning Culture: Harnessing the Power of Values” Presented by Mark Vergnano , President and CEO, The Chemours Company
9:30 AM	Industry 4.0 Panel Discussion – “What is Industry 4.0?” Crystal Ballroom J2 Chair: Leo Chiang , The Dow Chemical Company Co-Chair: Scott McWhorter , Savannah River National Lab Panelists Include: Billy Bardin , Global Operations Technology Director, The Dow Chemical Company Rob Ivester , Deputy Director of the EERE Advanced Manufacturing Office, U.S. Department of Energy Hareesh Malkani , CTO, Clean Energy Smart Manufacturing Innovation Institute (CESMII) Adele Ratcliff , Director, IBAS (DoD MIBP) Moderated by Jim Davis , Vice Provost - IT/Chief Academic Technology Officer, UCLA
12:00 PM	AIChE Spring Meeting and GCPS Joint Luncheon with Speaker: Andrew Lenzen , Special Agent, Federal Bureau of Investigation Cypress Ballroom 3 “Cyber Threat Landscape”

Monday, April 23rd (continued)			
	Computing and Systems Technology Division	Cybersecurity	Big Data Analytics
1:30 PM – 3:00 PM	*No programming at this time.	Session #21: Educating the Chemical Engineering Workforce on Cybersecurity Chicago/Denver Chair: Dave Teumim Panelist: <i>Hoda Mehrpouyan</i> , Boise State Panelist: <i>Danielle Santos</i> , National Initiative for Cybersecurity Education (NICE) Panel Discussion Moderated by <i>Dave Teumim</i> , Teumim Technical, LLC	Big Data Analytics Session #17: Big Data Analytics Plenary Grand Ballroom 13/14 Chair: Ivan Castillo Co-Chair: Leo H. Chiang Digitalization Strategies in an Age of Rapid Change <i>Lloyd Colegrove</i> and <i>Erika McBride</i> Big Data Drives Amazon Fulfillment Network <i>Andrew G. Bruce</i>
3:00 PM	Coffee and Networking Break Cypress Ballroom 1/2		
	*No programming at this time.	Session #212: How CESMII is Changing the Landscape of Smart Manufacturing Grand Ballroom 3 Chair: Hareesh Malkani How Clean Energy Smart Manufacturing Innovation Institute (CESMII) is Changing the Landscape of Smart Manufacturing <i>Hareesh Malkani</i> Overview of Proposed CESMII Projects <i>Hareesh Malkani</i>	Session #37: Big Data Analytics and Smart Manufacturing Grand Ballroom 13/14 Chair: Andrew Staszak Co-Chair: Osvaldo Bascur Digital Twins for Predicting Early Onset of Failures Flow Valves <i>Deval Pandya</i> Accelerating Time to Value By Integrating Smart Technology and Business Operations <i>Peter Kallish</i> Challenges for Big Data Use of Production Process Data <i>James Sturmfeld</i>
3:30 PM – 5:00 PM		Session #38: Big Data Analytics and Statistics Grand Ballroom 12 Chair: Swee-Teng Chin Co-Chair: James Cross III Risk Analysis for Count Data <i>Swee-Teng Chin</i> Dealing with Small Data in Biopharmaceutical Batch Process Monitoring: A Machine-Learning Approach <i>Aditya Tulsyan</i> Analysing Big Data in Dairy Processing, By Throwing Most of It Away <i>Nick Deprey</i>	
5:00 PM – 7:00 PM	Session #51-58: AIChE Spring Meeting & GCPS Poster Sessions and Networking Reception (Includes electronic presentations of select posters) Cypress Ballroom 1/2 Chair: Walter S. Postula		

Tuesday, April 24th			
	Computing and Systems Technology Division	Big Data Analytics	Big Data Analytics
8:00 AM – 9:30 AM	<p>Session #64: Computers in Operations: Process Safety and Control Grand Ballroom 6 Chair: Steve Howes Co-Chair: Aaron Driscoll</p> <p>New Technology for Closed-Loop System Identification, PID Control Loop Optimization and Advanced Process Control (APC) <i>Janarde Lepore</i></p> <p>A Stylized Trend Analysis Approach for Process Monitoring and Fault Diagnosis <i>Yan Fang</i></p> <p>Development of Process Operating Policies and Control Using Flowsheet Simulators, Plant SCADA, and CFD <i>Aaron Driscoll</i></p>	<p>Session #62: Big Data Analytics and Fundamental Modeling Grand Ballroom 12 Chair: Mothivel Mummudi Co-Chair: Wei Dai</p> <p>A Novel Prediction Method of the Chemical Leakage Range with Artificial Intelligence: Machine Learning for Chemical Species <i>Seokyoung Hong</i></p> <p>Estimating Physical Properties of the Product of an Atmospheric Distillation Column by Support Vector Regression <i>Metin Turkyay</i></p> <p>Genetic Process Visualization Using Parametric t-Sne <i>Wenbo Zhu and Zachary Webb</i></p>	<p>Session #63: Big Data Analytics - Vendor Perspective I (Invited) Grand Ballroom 13/14 Chair: Birgit Braun Co-Chair: Chaitanya Khare</p> <p>Low-Touch Machine Learning Is Fulfilling the Promise of APM <i>John Hague</i></p> <p>Big Data Analytics Platforms: The Key to Enabling the Analytic Enterprise <i>Danny Smith</i></p> <p>Industry 4.0 and Driving Better Organizational Decisions <i>Josh Shupp and Dana Petrusich</i></p>
9:30 AM	<p>Coffee and Networking Break Cypress Ballroom 1/2</p>		
10:15 AM – 11:45 AM	<p>Session #86: Decision-Making for Industrial Process Systems Grand Ballroom 6 Chair: Qiang Xu Co-Chair: Aydin K. Sunol</p> <p>Refinery Front-End Crude Scheduling with Consideration of Unit Maintenance <i>Honglin Qu</i></p> <p>Process Stream Routing and Multi-Plant Operation of Industrial Wastewater Treatment Facilities <i>Aaron Driscoll</i></p> <p>Dynamic and Manufacturing Scheduling Approaching the Maximum Profitability Applications of Air Separation Units <i>Song Wang</i></p>	<p>Session #83: Big Data Analytics - Industry Perspective I Grand Ballroom 12 Chair: Alix Schmidt Co-Chair: Deval Pandya</p> <p>Digitalization in the Process Industries – How and Where to Implement <i>Jonas Norinder</i></p> <p>Operational Analytics: Transforming Operational Data into Actionable Insights <i>Oswaldo Bascara</i></p> <p>Empirical Models for Analyzing BIG Data. What's the Difference? <i>John MacGregor</i></p>	<p>Session #84: Big Data Analytics - Vendor Perspective II (Invited) Grand Ballroom 13/14 Chair: Birgit Braun Co-Chair: Chaitanya Khare</p> <p>Early-Stage Digital Transformation, a Case Study <i>Tim Diller</i></p> <p>Integrated Technical Computing for Process Engineering <i>James Cross III</i></p> <p>Tony Starck Needs Jarvis to Run Iron Man. What's the Future in AI for Continuous Process Industries? <i>Laurent Laporte</i></p>
11:45 AM	<p>AICHE Spring Meeting and GCPS Joint Luncheon & 20th WIC Anniversary Celebration with Speaker: Delia Contreras, VP of Engineering – ES, Global Supply Chain, NALCO Champion an Ecolab Company Cypress Ballroom 3</p> <p>"Doing Better Together – Transforming Business Sustainability"</p>		

Tuesday, April 24th (continued)				
	Computing and Systems Technology	Sustainable Engineering	Big Data Analytics	Big Data Analytics
1:30 PM – 3:00 PM	<p>Session #123: Process Modeling and Simulation Grand Ballroom 6 Chair: James Cross III Co-Chair: Trevor Rice</p> <p>Hybrid Simulation of a Dynamic System <i>James Cross III</i></p> <p>Optimising EDC Cracker Operation to Enhance VCM Plant Economics <i>Sreekumar Maroor</i></p> <p>Single & Multi-Objective Optimizations Using Parallelized Process Simulators <i>Trevor Rice</i></p>	<p>Session #116: Industrial Strategies for Sustainability Chicago Chair: Siphon C. Ndlele</p> <p>Justifying Energy Savings in Ethylene Crackers in a Low Energy Price Environment <i>Abdullah Alqahtani</i></p> <p>Retrospective Health Impact Assessment for Pm 2.5 Pollution in Mexico City 1990-2015 <i>Yousif Alhammad</i></p> <p>Sustainability Analytics - the Critical Link between Sustainability and Business Strategy for Actionable Insights <i>Raghavan Ramanan</i></p> <p>The Reaction Mechanism and Kinetics of Magnesium Oxide for CO₂ Immobilization <i>Yifei Zhang Sr</i></p>	<p>Session #118: Industry 4.0 for Process Manufacturers Grand Ballroom 12 Chair: Kevin McDunn Co-Chair: Leo H. Chiang</p> <p>A Digital Vision for U.S. Manufacturing <i>Kevin McDunn</i></p> <p>Strategic Analysis of Smart Manufacturing Applications <i>Diane J. Graziano</i></p> <p>Realizing the Digital Enterprise <i>Doug Fish</i></p>	<p>Session #119: Invited Tutorial Session - Approaches in Big Data Analytics I Grand Ballroom 13/14 Chair: Leo H. Chiang Co-Chair: Aditya Tulsyan</p> <p>Moving Towards the Smart Factory Leveraging Big Data Advancements <i>James Moyne</i></p> <p>Future of Latent Variable Methods for Big Data Analytics in the Process Industry 4.0 <i>Alberto Ferrer</i></p>
3:00 PM	<p>Coffee and Networking Break Cypress Ballroom 12</p>			

Tuesday, April 24th (continued)

	Computing and Systems Technology	Cybersecurity	Big Data Analytics	Big Data Analytics
	<p>*No programming at this time.</p>	<p>Session #135: Cybersecurity Safety Panel Grand Ballroom 9/10 Chair: J. Wayne Chastain Co-Chair: Kimberly Mullins</p> <p>Panel Discussion with Invited Panelists</p>	<p>Session #137: Data and Operations Grand Ballroom 1 Chair: Tim Olsen Co-Chairs: Deval Pandya and Lluvia M. Ochoa-Estopier</p> <p>Advances in Utilizing Data to Improve Operations <i>Tim Olsen</i></p> <p>Adaptive Anomaly Detection and Its Application to Online Asset Monitoring <i>Tim Butters</i></p> <p>Dynamic Data Analysis of Large Scale Data to Monitor Fouling in Heat Exchanger Networks <i>Francesco Coletti</i></p>	<p>Session #142: Invited Tutorial Session - Approaches in Big Data Analytics II Grand Ballroom 13/14 Chair: Leo H. Chiang Co-Chair: Aditya Tulsyan</p> <p>Machine Learning Collective Variable Discovery for Materials Design and Engineering <i>Andrew Ferguson</i></p> <p>Big Data Analytics for Upstream Processes <i>Biao Huang</i></p>
3:30 PM – 5:00 PM				

Wednesday, April 25th			
	Computing and Systems Technology Division	Hydrogen	Big Data Analytics
8:00 AM – 9:30 AM	<p>Session #161: Modeling Tools and Techniques for Process R&D Boston</p> <p>Chair: Gaurav Arora Co-Chair: Honglin Ou</p> <p>Integration of Computational Dynamics, Data Analysis Tools and Process Simulation for Modeling of Waste Water Treatment Plants <i>Komal Rathore</i></p> <p>Comparative Process Analysis Techniques Applied to Four Propylene Oxide Manufacturing Routes <i>John C. Prindle</i></p> <p>Application and Challenges of Numerical Simulations in Modeling and Scale-up of Circulating Fluidized Bed Reactors <i>Enad Abbasi</i></p>	<p>Session #155: H2@Scale – The Creation of a Renewable National Energy System Miami</p> <p>Chair: Scott McWhorter</p> <p>DOE Overview of H2@Scale and Influence of Regional Demand Analysis <i>Max Lyubovskiy</i>, ORISE Fellow, DOE Fuel Cell Technologies Office</p> <p>Regional Fuel Cell Perspective – Community Hydrogen <i>Jim Fenton</i>, Director of the Florida Solar Energy Center, University of Central Florida</p> <p>Industry Perspective – Gas Producer <i>Joe Powell</i>, Chief Scientist and Chemical Engineer, Shell Chemicals</p> <p>Industry Perspective – Fertilizers Q & A</p>	<p>Session #169: Application of Big Data Analytics in Ethylene Production Royal</p> <p>Chair: Birgit Braun Co-Chair: Sasha Vragolic</p> <p>Enterprise Manufacturing Intelligence in Hydrocarbons <i>Chaitanya Khare</i></p> <p>Big Data Analytics for Improved Overall Asset Effectiveness of Ethylene Plants <i>Pratap Nair</i></p> <p>Machine Learning Techniques to Monitor Catalyst Health in an Ethylene Oxide Reactor <i>Tim Diller</i></p>
9:30 AM	<p>Coffee and Networking Break Cypress Ballroom 1/2</p> <p>*No programming at this time</p>		
10:15 AM – 11:45 AM	<p>Session #169: Application of Big Data Analytics in Ethylene Production Royal</p> <p>Chair: Birgit Braun Co-Chair: Sasha Vragolic</p> <p>Incorporating Model-Based Technology with Big Data Concepts for Monitoring Ethylene Production <i>Peter Le</i></p> <p>Improving Ethylene Furnace Performance with Big Data Analytics <i>James Brigman</i></p> <p>Start Listening to Your Heat Exchanger - Smart Data Application Enables Insight into Process Equipment <i>Joerg Weidenfeller</i></p>	<p>Session #177: Big Data Analytics - Industry Perspective II Grand Ballroom 13/14</p> <p>Chair: Alix Schmidt Co-Chair: Deval Pandya</p> <p>Obtaining Parsimonious Regression Models with Large Datasets <i>Ivan Castillo and Alix Schmidt</i></p> <p>Utilizing Deep Reinforcement Learning for Supply Chain Materials Planning <i>Christian D. Hubbs</i></p> <p>Equipment Health Monitoring to Improve Reliability and Plant Performance through Application of Data Analytics and Predictive Modeling Techniques <i>Sameer Thorat</i></p>	
11:45 AM	<p>AICHE Spring Meeting and GCPS Joint Luncheon with Speaker: Jun Mutoh, Representative Director, Executive Vice President, JXTG Holdings, Inc. Cypress Ballroom 3</p> <p>"Beyond Operations Management Systems – Establishing a Solid Safety Culture"</p>		

Wednesday, April 25th (continued)

	Big Data Analytics	Big Data Analytics
	<p>Session #199: Emerging Technologies in Data Analytics Grand Ballroom 12</p> <p>Chair: James Cross III Co-Chair: Ameya Dhaygude</p> <p>Image Classification in Manufacturing Analytics: Improving a Pellet Classification System with Deep Neural Networks <i>Ricardo Rendall and Ivan Castillo</i></p> <p>Immersive Introduction to IoT <i>Joel Berg</i></p> <p>Comparing Several Methods for Product Properties Prediction <i>Benoit Celse</i></p>	<p>Session #196: Invited Tutorial Session - Approaches in Big Data Analytics III Grand Ballroom 13/14</p> <p>Chair: Leo Chaing Co-Chair: Aditya Tulsyan</p> <p>Deep Reinforcement Learning for Model Predictive Control <i>Bhushan Gopaluni</i></p> <p>Powerful and Novel Multivariate Statistical Approaches in Big Data Sets and in Data Mining with Applications to Bio-, Medical-, and Material-Informatics <i>Derrick K. Rollins Sr.</i></p>
1:30 PM – 3:00 PM	<p>Session #210: Big Data Analytics - Vendor Perspective III (Session Speakers Invited) Grand Ballroom 13/14</p> <p>Chair: Birgit Braun Co-Chair: Chaitanya Khare</p> <p>Big Data to Support Operators in Chemical Plants <i>Zied Ouertani</i></p> <p>Finding a Needle in an Ocean of Data with Digital Twins: An Oil & Gas Perspective on Analytics <i>Arun K. Subramanijan</i></p> <p>Approaches to Multiblock Modeling and Dimension Reduction for Combining Disparate Data Types <i>Heather Brooke</i></p>	*No programming at this time
3:30 PM – 5:00 PM		

2018 AIChE® SPRING MEETING & 14TH GLOBAL CONGRESS ON PROCESS SAFETY

ORLANDO WORLD CENTER MARRIOTT

DAY	TIME	SESSION/EVENT	LOCATION
Monday, April 23	11:00am-12:15pm	RAPID Governing Board Meeting <i>(By Invitation Only)</i>	Atlanta/Boston
	12:15pm-1:15pm	Joint RAPID Governing Board/Technical Advisory Board Luncheon <i>(By Invitation Only)</i>	Anaheim
	1:15pm-3:00pm	RAPID Technical Advisory Board Meeting <i>(By Invitation Only)</i>	San Antonio
	3:30pm-4:30pm	RAPID Informational Session & Meet and Greet <i>Members of RAPID - Consider bringing your non-member colleagues to this session.</i>	Anaheim
Tuesday, April 24	8:00am-9:30am	 PI Topical Conference: Initiatives in Process Intensification and Modular Chemical Processing	Anaheim
	10:15am-11:45am	 PI Topical Conference: Opportunities in Process Intensification - Industrial Perspective	Anaheim
	1:30pm-3:00pm	 PI Topical Conference: Advanced Process Concepts - Heat & Mass Transfer	Anaheim
	3:30pm-5:00pm	 PI Topical Conference: Advanced Process Concepts - Heat & Mass Transfer	Anaheim
Wednesday, April 25	8:00am-9:30am	 PI Topical Conference: Process Intensification in Solids Handling/Processing	Anaheim
	10:15am-11:45am	 PI Topical Conference: Advanced Process Concepts - Reactors and Reactive Separation	Anaheim
	12:00pm-1:15pm	RAPID Education & Workforce Development Committee Lunch & Meeting <i>(Committee Members Only)</i>	Chicago
	1:30pm-3:00pm	 PI Topical Conference: Advances in Manufacturing Enabling PI and MCPI	Anaheim
	3:30pm-5:00pm	 PI Topical Conference: Education and Workforce Development Challenges in PI and Modular Processing	Anaheim
	6:30pm-8:30pm	RAPID Members Council Networking Dinner <i>(Cost to attend; RAPID Members Only)</i>	Hawk's Landing
Thursday, April 26	7:00am – 8:00am	RAPID Members Council Networking Breakfast <i>(RAPID Members Only)</i>	Anaheim/Atlanta/ Boston
	8:00am – 12:00pm	RAPID Members Council Meeting <i>(RAPID Members Only)</i>	Anaheim/Atlanta/ Boston

Innovations in Process Intensification and Development & Related Programming Grid

Property Key
Location = Orlando World Center Marriott

Sunday, April 22nd	
6:00 PM – 7:30 PM	2018 AIChE Spring Meeting and 14th GCPS Opening Reception Cypress Ballroom 12
Monday, April 23rd	
7:00 AM	2018 AIChE Spring Meeting and 14th GCPS AGILE Keynote Continental Breakfast Cypress Ballroom 3
8:00 AM	2018 AIChE Spring Meeting and 14th GCPS Opening Plenary Session: Christine Seymour, AIChE President and June C. Wispelwey, AIChE Executive Director Cypress Ballroom 3
8:30 AM	AGILE Award Keynote Address Cypress Ballroom 3 Keynote Address: “Building a Winning Culture: Harnessing the Power of Values” Presented by Mark Vergnano , President and CEO, The Chemours Company
9:30 AM	Industry 4.0 Panel Discussion – “What is Industry 4.0?” Crystal Ballroom J2 Chair: Leo Chiang , The Dow Chemical Company Co-Chair: Scott McWhorter , Savannah River National Lab Panelists Include: Billy Bardin , Global Operations Technology Director, The Dow Chemical Company Rob Ivester , Deputy Director of the EERE Advanced Manufacturing Office, U.S. Department of Energy Hareesh Malkani , CTO, Clean Energy Smart Manufacturing Innovation Institute (CESMII) Adele Ratcliff , Director, IBAS (DoD MIBP) Moderated by Jim Davis , Vice Provost - IT/Chief Academic Technology Officer, UCLA
12:00 PM	AIChE Spring Meeting and GCPS Joint Luncheon with Speaker: Andrew Lenzen , Special Agent, Federal Bureau of Investigation Cypress Ballroom 3 “Cyber Threat Landscape”

Monday, April 23rd (continued)			
	Process Development	Process Intensification	Emerging Technologies in Clean Energy
1:30 PM – 3:00 PM	<p>Session #20: Division Plenary Session (Invited Talks) Atlanta Chair: Bill Hollar</p> <p>Best Practices for Accelerating Process Development with External R&D Partners <i>Jack Dever</i></p> <p>The Need for Pilot Plant Specific Standards <i>Richard Palluzzi</i></p> <p>Innovation in Packaging to Address Market Needs <i>Ayush A. Bafna</i></p> <p>Upgrading a ZINC OXIDE Process to Continuous Vacuum Filtration from Batch Filter Presses <i>Barry A. Perlmutter</i></p>	<p>*No programming at this time.</p>	<p>Session #28: Redox Flow Battery Technologies for Energy Storage I (Invited Talk) St. Louis Chair: Ravindra Aglave Co-Chair: Jason Morgan</p> <p>Review on Vanadium Redox Flow Battery Technologies: Current Trends and Future Directions <i>Thomas Rabbow</i></p> <p>Optical Techniques to Illuminate Improvements in Aqueous Organic Redox Flow Batteries <i>Andrew Wong</i></p> <p>Commercial Perfluorosulfonic Acid Membranes for Vanadium Redox Flow Battery <i>Jiri Vrana</i></p>
3:00 PM	Coffee and Networking Break Cypress Ballroom 1/2		

GIVEAWAYS AT SPRING & GCPS EXPO!

Stop by Exhibitors to pick up your raffle ticket to win:

...Home Electronics...Headphones...Tablets...and more...

Location: Cypress Ballroom 1/2

Be sure to drop off your raffle ticket at the AIChE Booth #200!

Winners Announced:

Monday Poster Sessions & Networking Reception @6:00 PM*

Tuesday Happy Hour @5:45 PM*

*Winners must be present to claim prize.



Amazon® Echo

Bose®
Headphones

GoPro Hero5

Amazon® Show

Monday, April 23rd (continued)			
	Process Development	Process Intensification	Emerging Technologies in Clean Energy
	<p>Session #39: Challenges in Process Scale Up Atlanta</p> <p>Chair: Hsiang Yee Lai Co-Chair: Robert Browne</p> <p>Data-Driven, Model-Based Approaches to the Scale-up, Transfer and Alignment of Processes <i>John MacGregor</i></p> <p>How to Successfully Scale-up Batch Reactors <i>Benjamin Wincore</i></p> <p>How Proper Startup and Shutdown Procedures Are Critical in Operating the Laboratory Fixed Bed Reactors <i>Anil Mehta</i></p>	<p>Session #34: RAPID Information Session and Meet & Greet Anaheim</p> <p>Chair: James Bielenberg Co-Chair: Ashley Smith-Schoettker</p> <p>Learn more about Rapid Advancement for Process Intensification Deployment (RAPID) Institute's technical projects as well as its efforts around education and workforce development and engage with RAPID's Leadership Team.</p>	<p>Session #47: Redox Flow Battery Technologies for Energy Storage II St. Louis</p> <p>Chair: Jason Morgan</p> <p>Role of Hydrogen Evolution Reaction during Zinc Electrodeposition from Flowing Alkaline Zincate Solutions <i>Jan Dundalek</i></p> <p>Graphite Felt Electrodes for Vanadium Redox Flow Battery: Long-Term Stability and Hydrogen Evolution Reaction <i>Jiri Vrana</i></p> <p>Negative Electrolyte Additive and Heteroatom Co-Doping of Positive Electrode for Improving Electrical Performance of Vanadium Redox Flow Battery <i>Kothandaraman Ramanujam</i></p>
3:30 PM – 5:00 PM			
	<p>Session #51-58: AIChE Spring Meeting & GCPS Poster Sessions and Networking Reception (Includes electronic presentations of select posters) Cypress Ballroom 1/2</p> <p>Chair: Walter S. Postula</p>		
5:00 PM – 7:00 PM			

Tuesday, April 24th				
	Process Development	Process Development	Process Intensification	Emerging Technologies in Clean Energy
8:00 AM – 9:30 AM	<p>Session #71: Pilot Plant and Laboratory Safety I Atlanta Chair: Shyamal K. Bej Co-Chair: Jeyarathan Arjunan</p> <p>“We Have That Covered”: The Ten Most Common Mistakes in Pilot Plant and Laboratory Hazard Analysis <i>Richard Palluzzi</i></p> <p>New Software Tools for Managing Change in a Laboratory Environment <i>Steven M. Bischof</i></p> <p>Developing a Pilot Plant Safety Culture within an Historically Laboratory Focused Work Force <i>Rob Nunley</i></p> <p>Relief Design for Laboratory and Pilot Plants <i>Michael Trainor</i></p>	<p>Session #59: Advances in Product/Process Design & Development I Boston Chair: Anil Krishna Jammula Co-Chairs: Anand N. Vennavelli, Sravanthi Vupputuri and Arvind Sreeram</p> <p>Rapid Development of New Product Formulations through the Efficient Utilization of Company Data <i>John MacGregor</i></p> <p>Innovating Innovation Processes for Chemical R&D By Treating As Metaphorical Chemical Processes <i>Darrell Velegol</i></p> <p>An Experimental and Computational Study of the Four Blade Loop Impeller for Liquid Dispersion during Suspension Polymerization <i>Sarat Chandra Kuchibhatla</i></p> <p>DIFREX® Nexgen Expands and Advances Reactor & Technology Solutions <i>Stephen C. Arnold</i></p>	<p>Session #68: Initiatives in Process Intensification and Modular Chemical Processing Anahelm Chair: Jim Bielenberg</p> <p>Perspectives on Process Intensification and Modular Manufacturing <i>Melissa Klembara</i></p> <p>Modular Systems for Clean Coal <i>Bhima Sastri</i></p> <p>NSF Funding Opportunities for Fundamental Research on Modular Chemical Process Systems <i>T. J. Mountziaris</i></p> <p>Chemical and Thermal Process Intensification at ARPA-E <i>Addison K. Stark</i></p>	<p>Session #60: Alternative Fuels including Biofuels, Hydrogen, Renewable Hydrogen, and Syngas I St. Louis Chair: Haider Al-Rubaye Co-Chairs: Jason Morgan and Cory Jensen</p> <p>Solar Thermochemical CO₂ Splitting Using Ni-Based Ferrite Materials <i>Rahul Bhosale</i></p> <p>Recovering Hydrogen Biofuel from Wet-Biowaste <i>Robin Z. Parker</i></p> <p>Zinc Carbonate Modification of Methanol Synthesis Catalyst for Single-Stage DME Production <i>Lujie Ye</i></p>
9:30 AM	<p>Coffee and Networking Break Cypress Ballroom 1/2</p>			

Tuesday, April 24th (continued)				
	Process Development	Process Development	Process Development	Emerging Technologies in Clean Energy
	<p>Session #95: Pilot Plant and Laboratory Safety II Atlanta</p> <p>Chair: Shyamal K. Bej Co-Chair: Jeyarathan Arjuna</p>	<p>Session #81: Advances in Product/Process Design & Development II Boston</p> <p>Chair: Anil Krishna Jammula Co-Chairs: Anand N. Vennavelli, Sravanthi Vupputuri and Arvind Sreeram</p>	<p>Session #100: Smart Manufacturing I Grand Ballroom 4</p> <p>Chair: Minghua Ye Co-Chairs: Francesco Coletti and William Hollar</p>	<p>Session #93: Opportunities in Process Intensification - Industrial Perspective Anaheim</p> <p>Chair: Shawn D. Feist Co-Chair: Jason Morgan</p>
11:15 AM – 11:45 AM	<p>Best Practices and Case Studies of Managing Process and Operational Safety in Process Development from Laboratory to Pilot <i>Joseph B. Powell</i></p> <p>Implementing Laboratory Safety at Third-Party Laboratories <i>Blake Branson</i></p> <p>Systematic Approaches to Mitigate Hazards in the Design and Operation of Experimental Systems <i>Andrew Kasick</i></p> <p>Where Does Laboratory Safety Start? <i>Jacob H. Arredondo</i></p> <p>Process Safety and Scale-up Strategy for Coating Polymers <i>David N. Nare</i></p>	<p>Computational Tools for Designing Innovative Chemical Products <i>Kevin G. Joback</i></p> <p>The Effect of Feed Composition Variations from Upstream Plants on the Downstream Design Configuration of Natural Gas Liquid (NGL) Recovery Processes <i>Mesfin Getu</i></p> <p>Modeling and Simulation of Diesel Hydrotreaters for ULSD Production: Selection of an Optimal Catalyst Composition <i>Pedro Rojas</i></p> <p>Optimal Reaction Design of Alkoxy Silane Copolymers Using Design of Experiment Methods <i>Elham Tavakoli</i></p>	<p>Integration of Smart Manufacturing in the Advancement of Polymer Processing <i>Efstathios N. Pistikopoulos</i></p> <p>Smart Manufacturing: A Must to Remain Competitive <i>Munawar Saudagar</i></p> <p>Development of an Advanced Control Philosophy for Dry Gas Combined Steam Reforming, to Operate the Plant Efficiently during Feed Composition Changes <i>Jagan Mohan Rallapalli</i></p>	<p>Metal Oxide Based Solar-Driven Two-Step CH₄ Reforming and H₂O/CO₂ Splitting Cycle <i>Rahul Bhosale</i></p> <p>Biogas Production and Hydrogen Gas Injection Effect in Expanded Granular Sludge Bed Reactor Under Thermophilic Temperature Range <i>Haider Al-Rubaye</i></p>
11:45 AM	<p>AICHE Spring Meeting and GCPS Joint Luncheon & 20th WIC Anniversary Celebration with Speaker: Delia Contreras, VP of Engineering – ES, Global Supply Chain, NALCO Champion an Ecolab Company Cypress Ballroom 3</p> <p>“Doing Better Together – Transforming Business Sustainability”</p>			

INNOVATIONS IN PROCESS INTENSIFICATION AND DEVELOPMENT & RELATED PROGRAMMING GRID

Tuesday, April 24th (continued)					
	Process Development	Process Development	Process Intensification	Emerging Technologies in Clean Energy	Emerging Technologies in Clean Energy
	<p>Session #107: Advances in Product/ Process Design & Development III Boston</p> <p>Chair: Anil Krishna Jammula Co-Chairs: Anand N. Vennavelli, Sravanthi Vupputuri and Arvind Sreeram</p>	<p>Session #125: Smart Manufacturing II Grand Ballroom 4</p> <p>Chair: Minghua Ye Co-Chairs: Francesco Coletti and William Hollar</p>	<p>Session #106: Advance Process Concepts - Heat & Mass Transfer I Anaheim</p> <p>Chair: Quinta Nwanosike-Warren Co-Chairs: Kirtan K. Trivedi and Virginia Sommer</p>	<p>Session #121: Novel Hydrogen Generation Technologies St. Louis</p> <p>Chair: Jason Morgan</p>	<p>Session #108: Biomass Energy Technologies I San Francisco</p> <p>Chair: Ravindra Aglave Co-Chairs: Haider Al-Rubaye, Jason Morgan and Cory Jensen</p>
<p>1:30 PM – 3:00 PM</p>	<p>A Kinetic Analysis of the Shipp Synthesis of 2,2',4,4',6,6'-Hexanitrostilbene from 2,4,6-Trinitrotoluene <i>Toni Kirkes</i></p> <p>Halloysite Nanotube Nanocomposite: Processing and Characterizations <i>Bahareh Baheri</i></p> <p>The Development of a Novel Method Using Cryogenic Grinding to Produce Chitin Nanofibers for Blending with Biodegradable Polymers <i>Amy L. Lindenberger</i></p>	<p>Smart Systems for the Process Industries <i>Samvith Rao</i></p> <p>Smart Damper Design Provides Better Control of Fired Heaters <i>Ashutosh Garg</i></p> <p>Application Centralized Information Technology in Process Design Package Development <i>Minghua Ye</i></p>	<p>cMIST Compact Inline Gas Treating Technology <i>Shwetha Ramkumar</i></p> <p>Novel Cryogenic CO₂ Removal- Operating Conditions and Economic Analysis <i>Farhad Fazlollahi</i></p> <p>Dynamic Intensification of Separation Processes <i>Lingqing Yan</i></p> <p>Top Dividing Wall Columns in Process Intensification <i>Manish Bhargava</i></p>	<p>Co-Production of Ethylene and Hydrogen Via Electrochemical Non-Oxidative Deprotonation of Ethane: A Low-Thermal-Budget and Low-Carbon-Footprint Approach <i>Dang Ding</i></p> <p>Synthesis and Electrochemical Properties of Ni-Doped TiO₂ Nanotubes for Enhancing Visible Light Absorption <i>Joaquin Tirano</i></p> <p>Manganese Oxide/Manganese Sulfate Based Solar Thermochemical Water Splitting Cycle <i>Rahul Bhosale</i></p>	<p>Low Temperature Electrochemical Methods for the Conversion of Bio-Oils to Fuel Intermediates <i>Asanga B Padmaperuma</i></p> <p>Effect of Biomass Type, Heating Rate, and Sample Size on Microwave Enhanced Fast Pyrolysis Product Yields and Qualities <i>Tyler L. Westover</i></p> <p>Co-Gasification Characteristics of Biomass Palm Oil By-Products and Coal <i>Ha-Na Jang</i></p>
<p>3:00 PM</p>	<p>Coffee and Networking Break Cypress Ballroom 1/2</p>				

Tuesday, April 24th (continued)					
	Process Development	Process Development	Process Intensification	Emerging Technologies in Clean Energy	Emerging Technologies in Clean Energy
3:30 PM – 5:00 PM	<p>Session #146: Pilot Plant Success Stories Atlanta</p> <p>Chair: Michael Trainor Co-Chairs: Vinod Kumar Venkatakrishnan</p> <p>Overcoming Foreseen and Unforeseen Problems with Oldershaw Column Designs in a Pilot Plant <i>Rob Nunley</i></p> <p>Pilot Plant Success Stories from Xerox Research Centre of Canada <i>Tom Enright</i></p> <p>Piloting to Prevent Failure <i>Paul F. Martin</i></p> <p>The US DoE's Abpdu: Enabling Commercialization in the Bioeconomy through Rapid Process Prototyping and Piloting <i>Akash Narani</i></p>	<p>*No programming at this time.</p>	<p>Session #131: Advance Process Concepts - Heat & Mass Transfer II Anaheim</p> <p>Chair: Quinta Nwanosike-Warren Co-Chair: Kirtan K. Trivedi</p> <p>Use of Dividing Wall Technology to Increase Throughput and Improve Product Specifications in Two-Diameter Columns <i>Manish Bhargava</i></p> <p>Process Intensification of Distillation Using a Microwave Technology Platform <i>Ward E. Tegrotenhuis</i></p> <p>Improving Plant Economics By Upgrading Low Value Hydrocarbon Stream By Enrichment of C9+ Compounds Using Divided Wall Distillation Columns <i>Mahesh Kumar Srinivas</i></p>	<p>Session #133: Biomass Energy Technologies II San Francisco</p> <p>Chair: Haider Al-Rubaye Co-Chair: Jason Morgan</p> <p>Sustainable Energy Production from Renewable Resources through Anaerobic Digestion Process: Nigerian Experience <i>Oliyemi Adetule</i></p> <p>Transportation Fuels from Renewable Biomass Sources: Opportunities and Challenges <i>Asanga B. Padmaperuma</i></p> <p>Thermal Characterization of Microalgal Biomass and Lipids Extracted Residual for Biofuel Production <i>Shaikh Razzak</i></p>	<p>Session #141: Fuel Cell Technologies San Francisco</p> <p>Chair: Jason Morgan Co-Chair: Cory Jensen</p> <p>Influence of Carbon Dioxide and Carbonate on the Electrode Reactions in Alkaline Direct Methanol Fuel Cells <i>Carsten Cremers</i></p> <p>Water Management Strategies for PEM Fuel Cells - A Review <i>Harshit Bajpai</i></p> <p>PEM Fuel Cell Design Exploration Chris Lueth</p> <p>Synthesis of Vertically Oriented Titanium Dioxide Nanostructures By Electrochemical Anodization <i>Joaquin Tirano</i></p>

Wednesday, April 25th				
	Process Development	Process Development	Process Intensification	Emerging Technologies in Clean Energy
	<p>Session #164: Pilot Plant Separations Atlanta Chair: Rob Nunley Co-Chair: Jacob H. Arredondo</p>	<p>Session #161: Modeling Tools and Techniques for Process R&D Innovations in Process Intensification Boston Chair: Gaurav Arora Co-Chair: Honglin Qu</p>	<p>Session #163: PI in Solids Handling/Processing Anaheim Chair: Jim Bielenberg</p>	<p>*No programming at this time.</p>
<p>8:00 AM – 9:30 AM</p>	<p>Simulation of Intermediate Boilers in Distillation for Piloting and Scale-up <i>Mark Nunley</i></p> <p>Adsorption: The Forgotten Unit Operation <i>Jacob H. Arredondo</i></p> <p>Process Intensification of Multiple Separations in a Pilot Plant Process Via the Implementation of a Nutsche Filter <i>Anika Coolbaugh</i></p>	<p>Integration of Computational Dynamics, Data Analysis Tools and Process Simulation for Modeling of Waste Water Treatment Plants <i>Komal Rathore</i></p> <p>Comparative Process Analysis Techniques Applied to Four Propylene Oxide Manufacturing Routes <i>John C. Prindle</i></p> <p>Application and Challenges of Numerical Simulations in Modeling and Scale-up of Circulating Fluidized Bed Reactors <i>Emad Abbasi</i></p>	<p>Intensified-By-Design (IbD): Creating a Platform for Facilitating Process Intensification in Solids Handling Applications <i>Kamela Boodhoo</i></p> <p>Rapid, In-line Characterization to Support Process Intensification Concepts <i>Tyler L. Westover</i></p> <p>Hybrid Heat Pipe Screw Dryer: A Novel, Continuous and Highly Energy-Efficient Drying Technology <i>Ahmad Mustaffar</i></p> <p>Process Intensification and Cost Reduction for in-Plant Biomass Preprocessing Equipment <i>Michael J. Blaise</i></p>	
<p>9:30 AM</p>	<p>Coffee and Networking Break Cypress Ballroom 1/2</p>			

Wednesday, April 25th (continued)

	Process Development	Process Development	Process Intensification	Emerging Technologies in Clean Energy
<p>10:15 AM – 11:45 AM</p>	<p>Session #184: Modeling Tools and Techniques for Process R&D II Boston Chair: Gaurav Arora Co-Chair: Honglin Qu</p> <p>Thermodynamic Modeling for CO₂ Absorption in Aqueous Potassium Carbonate Solution with Electrolyte NRTL Model <i>Harnoor Kaur</i></p> <p>Single and Multi-Objective Optimizations Using Parallelized Process Simulators <i>Trevor Rice</i></p> <p>Thermodynamic Modeling of the LiCl-LiBr-LiNO₃-LiH₂O System with the Electrolyte NRTL Model <i>Toni Kirkes</i></p>	<p>*No programming at this time.</p>	<p>Session #173: Advance Process Concepts - Reactors and Reactive Separation Anaheim Chair: Jim Bielenberg</p> <p>A Comparative Study of Homogeneous Base Catalysts and Process Conditions for High Biodiesel Conversions from High Free Fatty Acid Rapeseed Oil Using a Mesoscale Oscillatory Baffled Reactor <i>Luma Al-saadi</i></p> <p>INL/CMS's Modular, Process Intensified, Oxidative Dehydrogenation of Ethane to Ethylene with an Integrated Membrane Purification Step for Production of Polymer Grade Ethylene <i>Anne Garffney</i></p> <p>Overcoming Heat Transfer Bottlenecks in Non-Equilibrium Chemical Processes through Autothermal Operation <i>Robert C. Brown</i></p> <p>Reverse Flow Reactors: Process Intensification for High Temperature Chemistries <i>Dhaval Bhandari</i></p>	<p>Session #186: Techno-Economic Analyses of Sustainable Energy Systems St. Louis Chair: Santhosh Shankar Co-Chair: Jason Morgan</p> <p>Techno-Economic Analysis of Renewable Transportation Fuel from Wastewater Treatment Sludge <i>Lesley J. Snowden-Swan</i></p> <p>An Integrated Techno-Economic and Life Cycle Analysis of Northeastern Willow Biomass As a Bioenergy Feedstock <i>Tristan Brown</i></p>
<p>11:45 AM</p>	<p>AICHE Spring Meeting and GCPS Joint Luncheon with Speaker: Jun Mutoh, Representative Director, Executive Vice President, JXTG Holdings, Inc. Cypress Ballroom 3 "Beyond Operations Management Systems – Establishing a Solid Safety Culture"</p>			

Wednesday, April 25th (continued)				
	Process Development	Process Development	Process Intensification	Emerging Technologies in Clean Energy
	<p>Session #191: Biomass Conversion to Valuable Products I Atlanta</p> <p>Chair: Vinod Kumar Venkatakrishnan Co-Chair: Fuyue Stephanie Li</p>	<p>Session #195: Modeling Tools and Techniques for Process R&D III Boston</p> <p>Chair: Gaurav Arora Co-Chair: Honglin Qu</p>	<p>Session #190: Advances in Manufacturing Enabling PI and MCPI Anaheim</p> <p>Chair: Ward E. Tegrotenhuis Co-Chair: Brian Paul</p>	<p>Session #193: Experimental, Theoretical, and Numerical Analysis of Transport Processes in Flow Reactors St. Louis</p> <p>Chair: Ravindra Aglave Co-Chair: Jason Morgan</p>
<p>1:30 PM – 3:00 PM</p>	<p>Development of a Two-Stage Thermal Deoxygenation Process for Fuels and Chemicals from Biomass <i>M. Clayton Wheeler</i></p> <p>Aiding the Development of Molecular-Level Kinetic Mega Models through Parallelization <i>Juan Lucio-Vega</i></p> <p>Development of Green Pathways for the Extraction of Medically Active Components from Grape Waste <i>Kyle Cogswell</i></p> <p>Optimum Utilization of Biomass for the Production of Power and Fuels Using Gasification <i>Ahmed AlNouss</i></p>	<p>Efficient Numerical Optimization of an Aerated Mixing Vessel for Fermentation <i>Thomas Eppinger</i></p> <p>Multi-Oil Product Pipeline Scheduling with Appropriate Handling of Oil Mixing Interface <i>Li Yu</i></p> <p>Advanced Model-Based Dynamics Optimization of a Commercial Natural Gas Recovery Unit <i>Abdallah S. Berrouk</i></p> <p>CFD Simulation of Gas-Liquid Flow in Monolith Channels <i>Yuan Zhou</i></p>	<p>Building with Blocks <i>Greg Theunick</i></p> <p>Invited Presentation <i>Mark Gaalswyck</i></p> <p>Critical Factors and Criteria for the Development and Deployment of Modular Chemical Processes <i>Paul S. Dimick</i></p> <p>Continuous Processing of Specialty Chemicals Opportunities with MCPI <i>Oleg Pajalic</i></p>	<p>Precise Determination of the Main Transition Velocities in a Bubble Column Based on New Identification Methods Applied to Ultrafast X-Ray Tomographic Data <i>Stoyan Nedelchev</i></p> <p>Bubbletree: A Rigorous Algorithm for Lagrangian Tracking and Statistical Analysis of Bubble or Cluster Motion and Flux within 3D Fluid Bed Simulations <i>Kyle Buchheit</i></p> <p>CFD Modeling of Oxy-Natural Gas Furnace Using Detailed Kinetic Modeling with and without the Use of Chemistry Acceleration <i>Niveditha Krishnamoorthy</i></p>

Wednesday, April 25th (continued)

	Process Development	Process Development	Process Intensification	Emerging Technologies in Clean Energy
	<p>Session #204: Biomass Conversion to Valuable Products II Atlanta</p> <p>Chair: Vinod Kumar Venkatakrishnan Co-Chair: Fuyue Stephanie Li</p> <p>Comparison of Several Indirect Liquefaction Pathways to Fuels and Co-Products Via Biomass Gasification and Synthesis <i>Steven D. Phillips</i></p> <p>Techno-Economic and Environmental Life Cycle Assessment (LCA) of Biodiesel Production Process from Waste Cooking Oil Via Supercritical Transesterification <i>Prashant Nagapurkar</i></p> <p>Continuous Cultivation of Microalga Nannochloropsis Oculata to Extract and Characterize Polar Lipids for Cosmetic Applications <i>Ahmet Y. Manisali</i></p> <p>Synergistic Utilization of Coal Ash and Biomass Ash Rice Husk Ash for Zeolite and Sorbent Production <i>Maoqi Feng</i></p> <p>Conversion of Syngas into Liquid Hydrocarbons <i>Girish Srinivas</i></p> <p>Hydrogen Production from Biomass <i>Anh Phan</i></p>	<p>Session #207: Process Research and Development for Industrial Sustainability Boston</p> <p>Chair: Qiang Xu Co-Chair: Jialin Xu</p> <p>Model-Based Development of High-Purity Hydrogen Production Unit for Hydrogen Refueling Stations <i>Woahyun Kim</i></p> <p>Designing for Innovation: Process and Technology Configurations for Oil Sands Production <i>Evar C. Umeozor</i></p> <p>Model-Guided Optimization of Industrial Azeotrope Distillation Column <i>Prasanna Pathath</i></p> <p>Knowledge Transfer and Support of New Technology Acquisitions <i>Joseph Peters</i></p> <p>Optimal Selection and Design of a Methanol Process with Enhanced CO₂ Utilization <i>Abdulrahman Alsuhaibani</i></p>	<p>Session #205: Challenges in Education and Workforce Development for Process Intensification and Modular Processing Anaheim</p> <p>Chair: Ashley Smith-Schoettker</p> <p>RAPID Activities in Education & Workforce Development <i>Ashley Smith-Schoettker</i></p> <p>Challenges in PI & MCPI Education & WFD for Modeling & Simulation <i>Benjamin Wilhite</i></p> <p>Education & WFD Needs for Advancing MCPI within Module Manufacturing <i>Brian Paul</i></p> <p>Challenges in PI & MCPI Education & WFD for Intensified Process Fundamentals <i>Jim Ritter</i></p> <p>Roundtable Discussion</p>	<p>Session #206: CO₂ Capture, Utilization, and Disposal: Key to Clean Energy Production St. Louis</p> <p>Chair: Yangchuan Xing Co-Chairs: Jason Morgan and Santhosh Shankar</p> <p>Computer-Aided Designing High-Performance Solid Sorbents for CO₂ Capture Application <i>Yuhua Duan</i></p> <p>Ocean Thermal Energy for Abatement of Global CO₂ Emissions <i>C. B. Panchal</i></p> <p>Utilization of Captured CO₂ for Manufacturing Alkyl Carbonates <i>C. B. Panchal</i></p> <p>Transition Metal Doped Ceria for Solar Thermochemical Fuel Production <i>Rahul Bhosale</i></p> <p>Effect of Adsorption of CO₂ and H₂ on Methanation Reaction By Ni/Al₂O₃ <i>Reyad Shawabkeh</i></p> <p>Investigating Aerosol Formation in Flue Gas from Post Combustion CO₂ Capture Plants Using Molecular Dynamics Simulation <i>Mehdi Amaei Torkmahalleh</i></p>
3:30 PM – 5:00 PM				

INNOVATIONS IN PROCESS INTENSIFICATION AND DEVELOPMENT & RELATED PROGRAMMING GRID

Chemical Engineers Impacting Society Events

You're invited to attend the following events advancing Diversity & Inclusion and showcasing chemical engineers' contributions to our global society.

ChemEs with Disabilities + Allies Reception/Forum

Monday, April 23 | 6:00 PM - 7:00 PM | Grand Ballroom 3

- Christopher Pope, *Independent Researcher/Consultant*

Disability Unity Community Convocation

Tuesday, April 24 | 1:30 PM - 3:00 PM | Los Angeles

- Christopher Pope, *Independent Researcher/Consultant*
- Keri Gray, *USBLN (U.S. Business Leadership Network)*
- John J. Johnston, *USDA Food Safety & Inspection Service*
- Greg Pollock, *The Dow Chemical Company*
- Sandy Reyes, *Esquire, State of Delaware*

Workshop: Understanding Unconscious Bias in the Workplace

Co-sponsored by WIC and MAC

Tuesday, April 24 | 8:00 AM - 9:30 AM | Miami

Co-Chairs:

- Sindia Rivera-Jimenez, *University of Florida*
- Bindu Krishnan, *The Dow Chemical Company*

All events funded by AIChE Foundation's Doing a World of Good Campaign

Panel Discussion: Real Stories of Unconscious Bias in the Workplace

Co-sponsored by WIC and MAC

Tuesday, April 24 | 10:15 AM - 11:45 AM | Miami

Featured Panelists:

- Cynthia Murphy-Ortega, *Chevron*
- Kevin J. Edwards, *Bechtel Infrastructure*
- Bill Byers, *CH2M HILL*
- LaRuth McAfee, *University of Wisconsin, Madison*



Bill Byers



Keri Gray



John J. Johnston



Bindu Krishnan



LaRuth McAfee



Cynthia
Murphy-Ortega



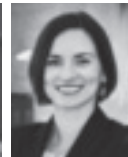
Greg Pollock



Christopher Pope



Sandy Reyes



Sindia
Rivera-Jimenez

You Too, Can Make An Impact We're in it together.



Have a topic or idea for a diversity & inclusion event or other session featuring chemical engineers doing a world of good? We would love to hear from you! Send us a note at giving@aiche.org and your suggestion may become a reality at a future AIChE conference or other event.



Join the cause of making the world a better place through the safe and responsible practice of chemical engineering. Simply share your name and email address and we'll add you to the tally at DoingWorldofGood.org/AllforGood

Let's show the world how chemical engineers are Doing a World of Good.

#AllforGood | www.DoingaWorldofGood.org

Management & Leadership Development Programming Grid

Property Key
Location = Orlando World Center Marriott

Sunday, April 22nd	
6:00 PM – 7:30 PM	2018 AIChE Spring Meeting and 14th GCPS Opening Reception Cypress Ballroom 1/2
Monday, April 23rd	
7:00 AM	2018 AIChE Spring Meeting and 14th GCPS AGILE Keynote Continental Breakfast Cypress Ballroom 3
8:00 AM	2018 AIChE Spring Meeting and 14th GCPS Opening Plenary Session: Christine Seymour, AIChE President and June C. Wispelwey, AIChE Executive Director Cypress Ballroom 3
8:30 AM	AGILE Award Keynote Address Cypress Ballroom 3 Keynote Address: “Building a Winning Culture: Harnessing the Power of Values” Presented by Mark Vergnano , President and CEO, The Chemours Company
9:30 AM	Industry 4.0 Panel Discussion – What is Industry 4.0? Crystal Ballroom J2 Chair: Leo Chiang , The Dow Chemical Company Co-Chair: Scott McWhorter , Savannah River National Lab Panelists Include: Billy Bardin , Global Operations Technology Director, The Dow Chemical Company Rob Ivester , Deputy Director of the EERE Advanced Manufacturing Office, U.S. Department of Energy Hareesh Malkani , CTO, Clean Energy Smart Manufacturing Innovation Institute (CESMII) Adele Ratcliff , Director, IBAS (DoD MIBP) Moderated by Jim Davis , Vice Provost - IT/Chief Academic Technology Officer, UCLA
12:00 PM	AIChE Spring Meeting and GCPS Joint Luncheon with Speaker: Andrew Lenzen , Special Agent, Federal Bureau of Investigation Cypress Ballroom 3 “Cyber Threat Landscape”
	Management Division
	*No programming at this time.
1:30 PM – 3:00 PM	Leadership Development – Professional Skills to Catalyze Your Career Session #23: How to Perfect Your Elevator Speech Miami Chair: Lori McDowell Interactive Elevator Speech <i>Meagan Lewis</i> Workshop on Elevator Speeches
3:00 PM	Coffee and Networking Break Cypress Ballroom 1/2

Monday, April 23rd (continued)	
	Management Division
	<p style="text-align: center;">Leadership Development – Professional Skills to Catalyze Your Career</p> <p>Session #50: You are Born with 2 Ears and 1 Mouth for a Reason Miami Chair: Laura Dietsche</p> <p>“You were born with Two Ears and One Mouth for a Reason ...”: The Art of Listening for Understanding (A GROW University Workshop) <i>Laura Dietsche</i></p>
3:30 PM – 5:00 PM	
5:00 PM – 7:00 PM	<p>Session #51-58: AIChE Spring Meeting & GCPS Poster Sessions and Networking Reception (Includes electronic presentations of select posters) Cypress Ballroom 1/2 Chair: Walter S. Postula</p>
Tuesday, April 24th	
	Management Division
	<p style="text-align: center;">Leadership Development – Professional Skills to Catalyze Your Career</p> <p>Session #76: Workshop: Understanding Unconscious Bias in the Workplace Miami Chair: Cynthia Murphy-Ortega Co-Chair: Sindia Rivera-Jimenez</p> <p>Introductory Remarks <i>Cynthia Murphy-Ortega</i> Workshop Facilitation</p>
8:00 AM – 9:30 AM	<p>Role of Qualitative Risk Assessments in Managing Project Start-Ups <i>Robinson Sharon</i></p> <p>Commissioning Planning - the Key to a Successful Project Startup <i>Peter Kalish</i></p> <p>3 Superpowers to Boost Your Career <i>Aaron Crews</i></p>
9:30 AM	<p>Coffee and Networking Break Cypress Ballroom 1/2</p>
	<p style="text-align: center;">Leadership Development – Professional Skills to Catalyze Your Career</p> <p>Session #94: Panel Discussion: Real Stories of Unconscious Bias in the Workplace Miami Chair: Sindia Rivera-Jimenez</p> <p>Panelists Include: <i>Cynthia Murphy-Ortega, Chevron</i> <i>Kevin J Edwards, Bechtel Infrastructure</i> <i>Bill Byers, CH2M HILL</i> <i>LaRuth McAfee, University of Wisconsin, Madison</i> <i>Jeremy A. Magruder Waisome, University of Florida</i></p> <p>Panel Discussion, Moderated by <i>Sindia Rivera Jimenez, University of Florida</i></p>
10:15 AM – 11:45 AM	<p>Ethics As the Underpinning of Safety and Process Safety <i>Deborah Grubbe</i></p> <p>Multiple Ways to Failure - How Harassment Hurts the Engineering Profession <i>Deborah Grubbe</i></p> <p>Remarks on Ethics in Patenting <i>Charles Collins-Chase</i></p> <p>Ethical Issues Panel Discussion</p>
11:45 AM	<p>AIChE Spring Meeting and GCPS Joint Luncheon & 20th WIC Anniversary Celebration with Speaker: Delia Contreras, VP of Engineering – ES, Global Supply Chain, NALCO Champion an Ecolab Company Cypress Ballroom 3</p> <p>“Doing Better Together – Transforming Business Sustainability”</p>

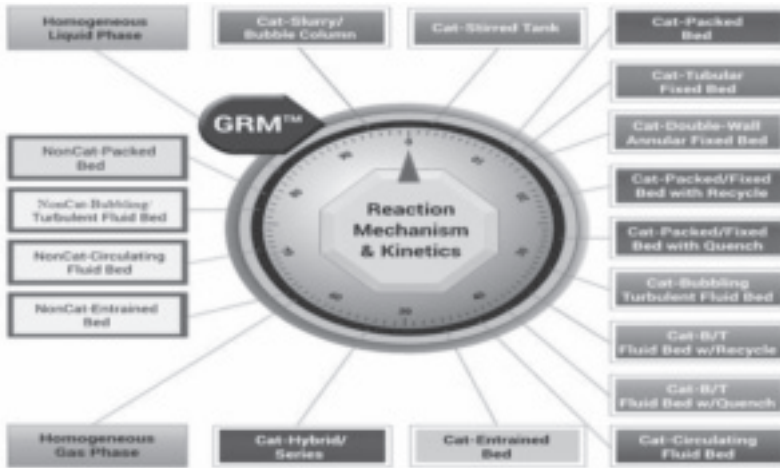
Tuesday, April 24th (continued)		Management Division	Leadership Development – Professional Skills to Catalyze Your Career
1:30 PM – 3:00 PM	<p>Session #115: How Young Managers Can Successfully Manage Experienced Employees Tampa</p> <p>Chair: Brandon Harding</p> <p>Young Managers with Experienced Employees <i>Brandon Harding</i></p> <p>The Sartomer Success System (3S): Achieving Operational Excellence <i>Rene Neron</i></p> <p>1st Year Experience of a Young Manager in a Chemical Manufacturing Unit <i>Donna Bryant</i></p>	<p>Session #112: Disability Unity Community Convocation Los Angeles</p> <p>Chair: Christopher Pope</p> <p>Disability Unity Community Convocation <i>Keri Gray, USBLN</i></p> <p>Hiring People with Disabilities: Competitive Advantage for the Savvy Manager <i>John J. Johnston, USDA Food Safety & Inspection Service</i></p> <p>Diversity & Inclusion <i>Greg Pollock, The Dow Chemical Company</i></p> <p>Navigating the ADA <i>Sandra Reyes, EEO/AA/Diversity and Employee Relations Administrator for the State of Delaware</i></p> <p>Panel Discussion: Moderated by <i>Chris Pope</i>, Independent Researcher/Consultant in Chemical Engineering</p>	
3:00 PM	<p>Coffee and Networking Break Cypress Ballroom 1/2</p>		
3:30 PM – 5:00 PM	<p>Session #144: Managing Yourself: Reinventing Yourself for Your Next Role Tampa</p> <p>Chair: Quinta Warren</p> <p>Listen to the Operators, They Know the Process <i>Martin K. Kimani</i></p> <p>An Engineer's Guide to Marketing Yourself Professionally <i>Meha Jha</i></p> <p>Leadership By Engineers and Scientists <i>Dennis W. Hess</i></p>	*No programming at this time.	
Wednesday, April 25th			
9:30 AM	<p>Coffee and Networking Break Cypress Ballroom 1/2</p>		
11:45 AM	<p>AIChE Spring Meeting and GCPS Joint Luncheon with Speaker: Jun Mutoh, Representative Director, Executive Vice President, JXTG Holdings, Inc. Marriott, Cypress Ballroom 3</p> <p>"Beyond Operations Management Systems – Establishing a Solid Safety Culture"</p>		



Faster Path to Better Reactor and Technology Solutions

WE STAND BY YOU WITH YOUR REACTOR

The heart of your business that drives your growth and profit



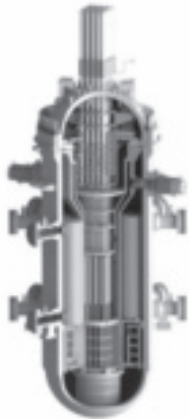
and many more

What is the best Reactor of Choice (ROC)? Now determine the ROC together with COC/MOC* (Catalyst/Material of choice).

Design, development and revamp made easy. Now take full control of it all yourself or with us, armed with the new GRM™ software (to be released) – from concept to commercial.

Now establish robust process kinetics promptly and from minimum information for successful design & scale-up.

SERVICES INCLUDE:



- Consulting
- Evaluation
- Development
- Model Integration and Custom Model Development
- Experimental Validation
- Design
- Critical Review
- Operating Advice and Optimization
- Debottlenecking, Retrofit/ Revamp
- Emergency Response

Debottleneck, retrofit/revamp, optimize, service, monitor, control YOUR CURRENT REACTOR/TECHNOLOGY

**Analyze, model, develop, scale-up, design, optimize, catalyze, innovate
A NEW REACTOR/TECHNOLOGY/IDEA**

**Make reactor another unit operation in your plant design and operation
FOR EXISTING OR NEW VENTURE**



**VISIT OUR EXHIBIT AT BOOTH 405.
ALSO:**

**Presenting paper on
“DIFREX Nexgen Expands and Advances
Reactor and Technology Solutions”
Boston Room, April 24, 9:06 AM**

**Presenting paper at 8th World Congress on Particle Technology
“DIFREX Reactor and Technology Solutions for Many Particle Types and
Sizes in Catalytic and Non-Catalytic Systems”
Crystal Ballroom M, April 26, 8:15 AM**



Environmental, Sustainability Engineering & Related Programming Grid

Property Key
Location = Orlando World Center Marriott

Sunday, April 22nd	
6:00 PM – 7:30 PM	2018 AIChE Spring Meeting and 14th GCPS Opening Reception Cypress Ballroom 1/2
Monday, April 23rd	
7:00 AM	2018 AIChE Spring Meeting and 14th GCPS AGILE Keynote Continental Breakfast Cypress Ballroom 3
8:00 AM	2018 AIChE Spring Meeting and 14th GCPS Opening Plenary Session: Christine Seymour, AIChE President and June C. Wispelwey, AIChE Executive Director Cypress Ballroom 3
8:30 AM	AGILE Award Keynote Address Cypress Ballroom 3 Keynote Address: “Building a Winning Culture: Harnessing the Power of Values” Presented by Mark Vergnano , President and CEO, The Chemours Company
9:30 AM	Industry 4.0 Panel Discussion – “What is Industry 4.0?” Crystal Ballroom J2 Chair: Leo Chiang , The Dow Chemical Company Co-Chair: Scott McWhorter , Savannah River National Lab Panelists Include: Billy Bardin , Global Operations Technology Director, The Dow Chemical Company Rob Ivester , Deputy Director of the EERE Advanced Manufacturing Office, U.S. Department of Energy Hareesh Malkani , CTO, Clean Energy Smart Manufacturing Innovation Institute (CESMII) Adele Ratcliff , Director, IBAS (DoD MIBP) Moderated by Jim Davis , Vice Provost - IT/Chief Academic Technology Officer, UCLA
12:00 PM	AIChE Spring Meeting and GCPS Joint Luncheon with Speaker: Andrew Lenzen , Special Agent, Federal Bureau of Investigation Cypress Ballroom 3 “Cyber Threat Landscape”
3:00 PM	Coffee and Networking Break Cypress Ballroom 1/2

Monday, April 23rd (continued)				
	Environmental	Sustainable Engineering	6th International Conference on Upstream Engineering and Flow Assurance	Chemical Engineering & the Law
	*No programming at this time.	Session #44: Identifying Opportunities for Sustainability in Chemical Processes I Tampa Chair: Quinta Nwanosike-Warren	*No programming at this time.	*No programming at this time.
3:30 PM – 5:00 PM		Designing Carbon-Based Materials for Efficient Hydrocarbon Synthesis <i>Samira Siahrostami</i> Leveraging Separations to Improve Sustainability of Chemical Processes <i>Michael A. Schultz</i> Soot Generation of Olefin and Alkane Flares <i>Anan Wang</i> Modular Coal Gasification Systems: A Fit for Future of Power Generation? <i>Quinta Warren</i>		
5:00 PM – 7:00 PM	Session #51-58: AIChE Spring Meeting & GCPS Poster Sessions and Networking Reception (Includes electronic presentations of select posters) Cypress Ballroom 1/2 Chair: Walter S. Postula			
Tuesday, April 24th				
	Environmental	Sustainable Engineering	6th International Conference on Upstream Engineering and Flow Assurance	Chemical Engineering & the Law
	*No programming at this time.	Session #67: Identifying Opportunities for Sustainability in Chemical Processes II Chicago Chair: Quinta Nwanosike-Warren	Session #66: Gas Hydrates, Wax and Asphaltenes I Denver Chair: Michael P. Hoepfner	*No programming at this time.
8:00 AM – 9:30 AM		Optimization of Extraction Condition for Phytic Acid from Defatted Peanut Meal By Response Surface Methodology <i>Hong Ren</i> Improvement of Calcium Ammonium Nitrate Prill Quality <i>Shadab Anjum Sr.</i> Influences of Geometric Factors on a Solar Thermochemical Reactor for Two-Step CO ₂ Splitting <i>Han Zhang</i>	Investigation on the Nature of Asphaltene Floccs <i>Jairo A. Duran</i> Viscosity Modeling of Visbroken Heavy Oils <i>Andres Marquez Socorro</i> Application of Aggregation Thermodynamics and Molecular Characterization to Study Asphaltene Precipitation of Bituminous Crude Oils <i>Yifan Hao</i> Ultra Small-Angle X-Ray Scattering (USAXS) Assessment of Asphaltene Precipitation and Inhibitor Effectiveness <i>Michael P. Hoepfner</i>	

Tuesday, April 24th (continued)					
9:30 AM	Coffee and Networking Break Cypress Ballroom 1/2	Environmental	Sustainable Engineering Session #87: Distributed Chemical and Energy Processes for Sustainability Chicago Chair: Paul E. Yelvington	6th International Conference on Upstream Engineering and Flow Assurance Session #90: Innovative Solutions for Unconventional Resources Denver Chair: Kiran Gawas	Chemical Engineering & the Law
10:15 AM – 11:45 AM	*No programming at this time.		Holistic Analysis of Emissions from a Small, Modular Fast Pyrolysis System for Conversion of Biomass and Mixed Waste <i>Nicholas R. Schwartz</i> Modular System for Converting Lignocellulose into Pyrolytic Sugars and Phenolic Oil <i>Robert C. Brown</i> Anaerobic Treatment of High Strength Industrial Wastes By Moving Bed Bioreactors (MBBR) <i>Somnath Basu</i>	Using Temperature Measurements from Production Logging/Downhole Sensors to Diagnose Multistage Fractured Well Flow Profile <i>Ding Zhu</i> A New Two Part Friction Reducer System Enables Lower FR Concentration and Allows up to 100% Reuse of Produced Water “Mechanisms and Case Study from the Marcellus Shale <i>Liang Xu</i> Mobility Improvement Using Water Soluble Polymers: Role of Chemical Structure and Anionicity <i>Muhammad Shahzad Kamal</i> Effect of Crude Oil on the Reaction Kinetics of Diesel Emulsified Acid with Calcite at High-Pressure and High-Temperature HPHT <i>Abdullah S. Sultan</i> Performance of Miscible Gas Injection Patterns in Ultralow-Permeability Reservoirs <i>Robello Samuel</i>	*No programming at this time.
11:45 AM	AICHE Spring Meeting and GCPS Joint Luncheon & 20th WIC Anniversary Celebration with Speaker: Delia Contreras, VP of Engineering – ES, Global Supply Chain, NALCO Champion an Ecolab Company Cypress Ballroom 3 “Doing Better Together – Transforming Business Sustainability”				

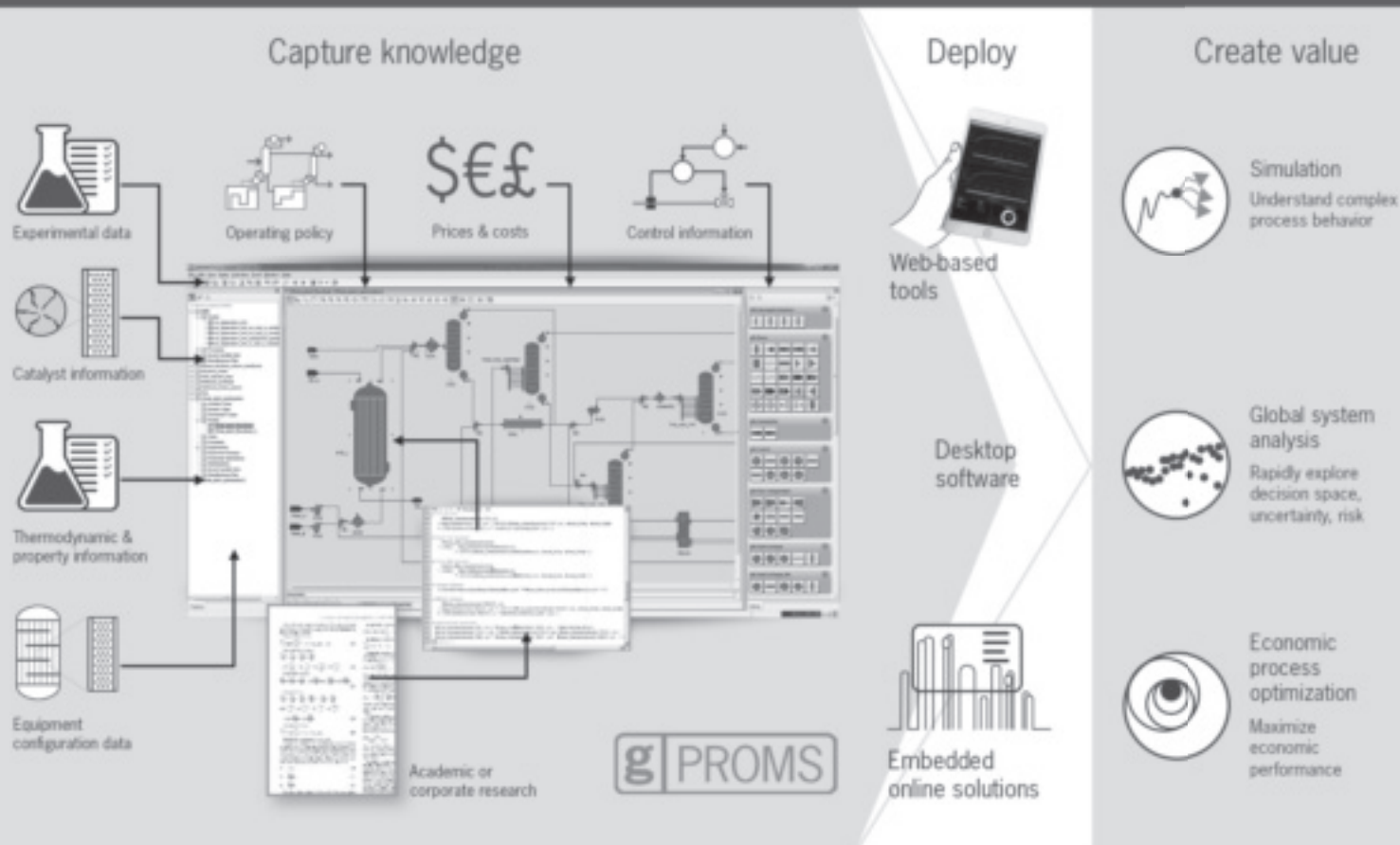
Tuesday, April 24th (continued)				
	Environmental	Sustainable Engineering	6th International Conference on Upstream Engineering and Flow Assurance	Chemical Engineering & the Law
1:30 PM – 3:00 PM	<p>Session #105: Advanced Technologies for Reduction of Atmospheric Emissions in the Petrochemical and Refining Industries I San Antonio Chair: Vikas Khanna</p> <p>Flameless Oxidation for the Heating of Ethylene Furnaces <i>Sebastian Muschelknautz</i></p> <p>Simultaneous Desulfurization and Denitrification of Flue Gas with Haloalkaliphilic Bacteria <i>Jianmin Xing</i></p> <p>A Case Study on Building Safety: The Coupling of Indoor and Outdoor Air Quality Modeling for Addressing Nearby Terrorist Chemical Attacks on Building Safety <i>William Jones</i></p>	<p>Session #116: Industrial Strategies for Sustainability Chicago Chair: Siphon C. Ndlela</p> <p>Justifying Energy Savings in Ethylene Crackers in a Low Energy Price Environment <i>Abdullah Alqahtani</i></p> <p>Retrospective Health Impact Assessment for Pm 2.5 Pollution in Mexico City 1990-2015 <i>Yousif Alhammad</i></p> <p>Sustainability Analytics - the Critical Link between Sustainability and Business Strategy for Actionable Insights <i>Raghavan Ramanan</i></p> <p>The Reaction Mechanism and Kinetics of Magnesium Oxide for CO₂ Immobilization <i>Yifei Zhang Sr.</i></p>	<p>Session #212: Gas Hydrates, Wax and Asphaltene II Denver Chair: Michael P. Hoepfner</p> <p>A Critical Overview of Cause and Detection of Pipeline Blockages <i>Lu Yang</i></p> <p>Kinetic Precipitation of Asphaltenes with the Presence of Inorganic Solids <i>Michael P. Hoepfner</i></p> <p>Probing the Effect of Stirring on Natural Gas Hydrate Formation-a Future Energy Fuel <i>M. Fahed Qureshi</i></p> <p>Inhibitory Action of Cost-Effective Ionic Liquids Methane Hydrates <i>Tausif Altamash</i></p>	*No programming at this time.
3:00 PM	<p>Coffee and Networking Break Cypress Ballroom 1/2</p>			
3:30 PM – 5:00 PM	<p>Session #130: Advanced Technologies for Reduction of Atmospheric Emissions in the Petrochemical and Refining Industries II San Antonio Chair: Vikas Khanna</p> <p>Wsa Technology - A Competitive Solution for Refinery Sulfur Management <i>Livia Sierra Lorens</i></p> <p>Model Predictive Control for Ethylene Oxide Plant Startup <i>Albert Odell III</i></p> <p>Research on Gas-Liquid Coalescence Filtration Performance of Electrospun Polyacrylonitrile Nanofiber Composite Filters <i>Feng Chen</i></p> <p>Dynamic Simulation and Optimization of Turnaround Operations Among Multiple Olefin Plants for Flare Minimization <i>Yiling Xu</i></p>			*No programming at this time.

Wednesday, April 25th		Environmental	Chemical Engineering & the Law
8:00 AM – 9:30 AM	<p>Session #168: YP Tutorial: Environmental Issues and Controls in Select Industrial Sectors San Antonio</p> <p>Chair: Joseph Cramer</p> <p>Pollution, Control Status and Strategy of Volatile Organic Compounds in China's Petrochemical and Refining Industries <i>Jia Ke</i></p> <p>A Look inside a Chemical Plant Waste Water Treatment Unit <i>Donna Bryant</i></p>	<p>Session #157: Intellectual Property Law Panel Session Tampa</p> <p>Chair: Charles Collins-Chase</p> <p>Kaboom!: Examples of Recent Misadventures in the Patent World <i>Gerard Reinhardt</i></p> <p>Think like a Startup - Idea Protection <i>David Holt</i></p> <p>Clearing the Way: Using Post-Grant Proceedings to Invalidate Patents Blocking Your Freedom to Operate <i>Charles Collins-Chase and Leythem Wall</i></p>	
9:30 AM	<p>Coffee and Networking Break Cypress Ballroom 1/2</p>		
10:15 AM – 11:45 AM	<p>Session #179: Greenhouse Gas Reduction Technologies I San Antonio</p> <p>Chair: Joseph Cramer Co-Chair: Sunil Hangal</p> <p>Combined Experimental and Theoretical Thermophysical Properties Investigation of Deep Eutectic Solvents for Gas Capture Applications <i>Mert Atilhan</i></p> <p>Synthesis, Characterization and Evaluation of (Ce, Y, Zn)-Ion-Exchanged Silicalite-1 Supported Ni Catalyst Structures for CO₂ Capturing By Methane Dry Reforming <i>Zuhair Maibari</i></p> <p>Development of Carbon Capture & Storage Technology By Oxy-Combustion of Sewage Sludge and Biomass <i>Ha-Na Jang</i></p>	<p>*No programming at this time.</p>	
11:45 AM	<p>AIChE Spring Meeting and GCPS Joint Luncheon with Speaker: Jun Mutoh, Representative Director, Executive Vice President, JXTG Holdings, Inc. Cypress Ballroom 3</p> <p>“Beyond Operations Management Systems – Establishing a Solid Safety Culture”</p>		

Wednesday, April 25th (continued)	
	Environmental
	<p>Session #194: Greenhouse Gas Reduction Technologies II Grand Ballroom 3</p> <p>Chair: Sunil Hangal Co-Chair: Jeffrey Seay</p> <p>Molecular Dynamic Simulation Study of Water Desalination across Carbon Nanotube Membrane <i>Shaghayegh Agah</i></p> <p>Inorganic Salts Removal from Hydraulic Fracturing Flowback Water By Cooling <i>Maoqi Feng</i></p> <p>Metal-Hexacyanoferrate Based Nanoadsorbents for the Removal of Radioactive Cesium from Seawater <i>Hee-Man Yang</i></p> <p>*No programming at this time.</p>
1:30 PM – 3:00 PM	<p>Session #208: Water Solutions Grand Ballroom 3</p> <p>Chair: Quan Yuan Co-Chairs: Eberhard Lucke and Ted Heron</p> <p>Effects of Fossil Fuel Emissions and Seawater Absorption on Atmospheric Carbon Dioxide Concentrations <i>Frank J. Elvin</i></p> <p>Operating Flexibility and Controllability of CO₂ Post-Combustion Capture Process with Different Amines <i>Sijje Ge</i></p> <p>Operating Condition Optimization of a Full-Scale Stirred Tank for Biofuel Production <i>Thomas Eppinger</i></p>
3:00 PM – 5:00 PM	<p>Session #208: Water Solutions Grand Ballroom 3</p> <p>Chair: Quan Yuan Co-Chairs: Eberhard Lucke and Ted Heron</p> <p>A Computational Model to Simulate Performance of Industrial Clarifiers <i>Shankhadeep Das</i></p> <p>CFD Modeling of Honeywell-UOP Xceed™ Wastewater Bioreactor <i>Azita Ahmadzadeh</i></p> <p>Optimization of Water Demand Growth Fulfillment in Seawater Thermal Desalination System <i>Hassan Bazaqel</i></p>

FROM R&D TO DIGITAL OPERATION

Deploying models across the organization to create value



PSE's gPROMS® is the first process modeling environment that lets you capture fundamental research in model form easily and efficiently, and then derive value from it across the process lifecycle.

You can capture R&D in first-principles custom models and combine these with PSE's world-leading library models. Advanced model validation techniques allow you to determine empirical constants from experimental and plant data to create truly predictive models.

You can then apply these in many different ways to explore the process design and operational decision space rapidly and effectively, to maximize value and minimize technology risk.



The Advanced Process Modeling Company

psenterprise.com

Operations in UK, USA, Japan, Korea, China, Taiwan and Thailand.

PSE Inc.
t: +1 973 290 9559
e: info@psenterprise.com

THE POWER TO BE CERTAIN



CCPS PROCESS SAFETY
PROFESSIONAL CERTIFICATION



CCPSC - the Professional Designation for Process Safety Professionals:

CCPS™ PROCESS SAFETY PROFESSIONAL CERTIFICATION

When you become a CCPS™ Certified (CCPSC) Process Safety Professional you assure your company and colleagues that you are thoroughly versed in process safety. The rigorous certification process verifies that you have the depth and breadth of experience to qualify as a CCPS Process Safety Professional. Show the world you have what it takes to get certified in Process Safety by CCPS.

LEARN HOW TO GET CERTIFIED NOW.
www.aiche.org/ccps-certified



14th Global Congress on Process Safety Programming Grid

Property Key
Location = Orlando World Center Marriott

Monday, April 23rd	
7:00 AM	2018 AIChE Spring Meeting and 14th GCPS AGILE Keynote Continental Breakfast Cypress Ballroom 3
8:00 AM	Session #1: 2018 AIChE Spring Meeting and 14th GCPS AGILE Award Keynote Address Cypress Ballroom 3 Welcome and Introductions Presented by Christine B. Seymour , AIChE President, and June C. Wispelwey , AIChE Executive Director AGILE Award Keynote Address: "Building a Winning Culture: Harnessing the Power of Values" Presented by Mark Vergnano , President and CEO, The Chemours Company
9:00 AM	Coffee and Networking Break Cypress Ballroom 1/2
9:30 AM – 10:20 AM	Session #2: 14th GCPS Welcoming Plenary Session Cypress Ballroom 3 14th GCPS Introduction and Welcome: Shakeel Kadri (Executive Director, CCPS) and Kathy Shell (GCPS Chair) Plenary Keynote Address: "Process Safety for a Sustainable World" Presented by Michael J. Graff , Chairman, CEO and President of American Air Liquide and Executive Vice President of Air Liquide Group



Reinforce the Process Safety Culture at Your Plant

Bring the process safety message to your colleagues each month by registering for the Process Safety Beacon — the free, monthly process safety update for operating and manufacturing personnel.

Register for the Process Safety Beacon today at www.aiche.org/beacon

Monday, April 23rd (continued)						
	33rd Center for Chemical Process Safety International Conference (CCPS)	52nd Annual Loss Prevention Symposium (LPS)	20th Process Plant Safety Symposium (PPSS)	7th Process Safety Management Mentoring (PSMM)	Process Safety Spotlights	Perspectives on Process Safety from Around the World
	<p>Session #7: Doing More With Less Grand Ballroom 8A</p> <p>Co-Chairs: Dave Moore, John Wincek</p>	<p>Session #8: Extreme Weather and Other External Events Grand Ballroom 7A</p> <p>Co-Chairs: Derek Miller, Henry Dwight</p>	<p>Session #9: PPSS 20th Anniversary "Best of the Best" I Grand Ballroom 7B</p> <p>Co-Chairs: Philip M. Myers, John W. Champion</p>	<p>Session #12: Tutorials in Process Safety – LPS I Grand Ballroom 8B</p> <p>Co-Chairs: Trey Morrison, Faraz Khan</p>	<p>Session #10: Pressure Relief Design Normative Application – In Honor of Ron Darby Grand Ballroom 9/10</p> <p>Co-Chairs: George Melhem, Nirupama Gopaldaswami</p>	<p>Session #11: Spanish Session: Compartiendo Conocimientos y Experiencias Sobre Seguridad de Procesos – Manejo del Riesgo I Grand Ballroom 11</p> <p>Co-Chairs: Sergio Fernandez, Wolfram Jahn Von Arnswaldt, Felipe Muñoz</p>
10:30 AM	<p>Non-Intrusive Internal Inspections of Pressure Vessels in HHC Service <i>Russ Davis</i></p>	<p>Resilience Against External Events Using Vulnerability Assessment and QRA <i>Paul Amico</i></p>	<p>The Process Plant Safety Symposium – Past, Present, and Future <i>Victor Edwards & Karen Study</i></p>	<p>Evaluating Reactive Chemical Hazards <i>Pete Local</i></p>	<p>Overpressure Protection of a Pressure Vessel by System Design through the Application of ASME VIII UG-140 in Lieu of a Relief Device by Appropriate Choice of MAWP and/or by Safety Instrumented System <i>Dilip Das</i></p>	<p>Preparación de informes de seguridad usando la metodología Bowtie <i>Fidel Ilizastigui</i></p>
11:00 AM	<p>Optimizing Your Remote HAZOP/LOPA Experience <i>Steven T. Maher</i></p>	<p>Neighboring Risk Assessment for Integrated Gasification-ASU Plant, <i>Edward Cialkowski</i></p>	<p>CSB Investigation Reports and the Hierarchy of Controls: Round 2 <i>Paul R. Amyotte</i></p>	<p>Testing Reactive Chemical Hazards <i>Amy Theis</i></p>	<p>Purpose Expectations and Benefits of Non-Mandatory Appendix M <i>Kerry McBride</i></p>	<p>HAZOP/ What if? Herramientas de liderazgo y compromiso dentro de las organizaciones <i>Oswaldo Mata & Juan Chow</i></p>
11:30 AM	<p>Methodology to Prioritize Process Safety Action Items <i>Humbert J Howard</i></p>	<p>Managing the Risk Associated with Severe Wind and Flood Events in the Chemical Processing Industries <i>Patrick Mahan</i></p>	<p>Analysis of Spring Operated Pressure Relief Valve Proof Test Data: Findings and Implications <i>Julia V. Bukowski</i></p>	<p>Learning from Reactive Chemistry Incidents <i>Ron Willey</i></p>	<p>Pressure Relief Sizing Using Area to Charge Scaling Method and Automatic Pressure Tracking <i>Surendra Singh</i></p>	<p>Cuando se reduce el riesgo en el papel pero se mantiene o incrementa en la planta <i>John Rueda</i></p>
12:00 PM	<p>AICHe Spring Meeting and GCPS Joint Luncheon with Speaker: Andrew Lenzen, Special Agent, Federal Bureau of Investigation Cypress Ballroom 3</p> <p>“Cyber Threat Landscape”</p>					

Monday, April 23rd (continued)

	33rd Center for Chemical Process Safety International Conference (CCPS)	52nd Annual Loss Prevention Symposium (LPS)	20th Process Plant Safety Symposium (PPSS)	7th Process Safety Management Mentoring (PSMM)	Process Safety Spotlights	Perspectives on Process Safety from Around the World
	<p>Session #18: Contractors as Operators – Panel Grand Ballroom 8A Co-Chairs: Scott Berger, Megan Murray</p>	<p>Session #22: Facility Siting, Consequence Analysis and Risk Assessment I Grand Ballroom 7A Co-Chairs: Sam Rodgers, Walt Frank</p>	<p>Session #26: PPSS 20th Anniversary “Best of the Best” II Grand Ballroom 7B Co-Chairs: Philip M. Myers, John W. Champion</p>	<p>Session #30: Tutorials in Process Safety – PPSS I Grand Ballroom 8B Co-Chairs: Sandipan Laskar, Mike Hazzan</p>	<p>Session #27: Pressure Relief Design Modeling – In Honor of Ron Darby Grand Ballroom 9/10 Co-Chairs: Sam Wang, Sihar Maganti</p>	<p>Session #29: Spanish Session: Compartiendo Conocimientos y Experiencias Sobre Seguridad de Procesos – Manejo del Riesgo II Grand Ballroom 11 Co-Chairs: Sergio Fernandez, Wolfram Jahn Von Arnswaldt, Felipe Muñoz</p>
1:30 PM	<p>Manufacturer’s View: Managing Process Safety Risks of Contract Personnel in a Global Agriculture Company <i>Elliot Wolf</i></p>	<p>Advanced QRA Methodology – Quantifying Risk Reduction Measures to Minimize Economic Investment <i>Jordi Dunjó</i></p>	<p>Our Process Safety Journey Continues: Operational Discipline Today <i>Bruce K. Vaughan</i></p>	<p>California’s 2017 Process Safety Regulations for Oil Refineries - the Future of U.S. PSM Regulations? <i>Mike Wilson</i></p>	<p>Good Engineering Practice in Protecting Low Pressure Tanks <i>David Moncalvo</i></p>	<p>Como enfrentar el reto del crecimiento poblacional alrededor de instalaciones industriales de petróleo y gas <i>María Trillos & William Gutiérrez</i></p>
2:00 PM	<p>Contractor’s View: Ownership is the Secret of Success <i>Lauren Madden</i></p>	<p>Radiant Heat Flux Impact Criteria for API RP 752 Building Siting Studies <i>Jeffrey D. Marx</i></p>	<p>Don’t Walk the Line – Dance It! <i>Jerry J. Forest</i></p>	<p>Jurisdictional Boundaries in Midstream - Where Is the Line? <i>Lauren Mercer</i></p>	<p>Selecting the Proper Gas Compressibility Z for Relief Valve Sizing <i>Freeman Self</i></p>	<p>Gestión del conocimiento en el complejo industrial Plaza Huincul de YPF. Disciplina Operativa <i>Juan M. Fernández</i></p>
2:30 PM	<p>Legal View: Legal Implications of Using Contractors as Operators <i>Michael Taylor</i></p>	<p>Getting It Right for Projects in Early Design Phase: Advanced Techniques to Ensure Accurate Explosion Assessments <i>Derek Botwinick</i></p>	<p>Corrosion Under Insulation Revisited – Aren’t we about to Finish that Project? <i>Andrew Morey</i></p>	<p>Game Based Learning: Reinforcing Process Safety <i>James Sreiddon</i></p>	<p>Properly Size Two-Phase PRV – Easier than API 520 HDI Method <i>Guofu Chen</i></p>	<p>Nueva estructura legislativa colombiana para el Programa de Prevención de Accidentes Mayores <i>Felipe Muñoz</i></p>
3:00 PM	Coffee and Networking Break Cypress Ballroom 1/2					

Monday, April 23rd (continued)						
	33rd Center for Chemical Process Safety International Conference (CCPS)	52nd Annual Loss Prevention Symposium (LPS)	20th Process Plant Safety Symposium (PPSS)	7th Process Safety Management Mentoring (PSMM)	Process Safety Spotlights	Perspectives on Process Safety from Around the World
	<p>Session #43: Human Performance Grand Ballroom 8A</p> <p>Co-Chairs: Eric Freiburger, Samantha Scruggs</p>	<p>Session #41: Facility Siting, Consequence Analysis and Risk Assessment II Grand Ballroom 7A</p> <p>Co-Chairs: Sam Rodgers, Walt Frank</p>	<p>Session #46: Process Safety Culture – Let's Get Real Grand Ballroom 7B</p> <p>Co-Chairs: Katherine Prem, Ian S. Mylenbusch</p>	<p>Session #49: Tutorials in Process Safety – CCPS I Grand Ballroom 8B</p> <p>Co-Chairs: John Wincek, David Drabish</p>	<p>Session #45: Pressure Relief Design Learned from Practice – In Honor of Ron Darby Grand Ballroom 9/10</p> <p>Co-Chairs: Davide Moncalvo, Freeman Self</p>	<p>Session #48: Spanish Session: Compartiendo Conocimientos y Experiencias Sobre Seguridad de Procesos – Manejo del Riesgo III Grand Ballroom 11</p> <p>Co-Chairs: Sergio Fernandez, Wolfram Jahn Von Arnswaldt, Felipe Muñoz</p>
3:30 PM	<p><i>Human Factors in Real Life Applications - A Scuba Example</i> <i>Trish Kerin</i></p>	<p>New Criteria for Safety Distances during Pneumatic Pressure Testing of Vessels and Piping <i>Derek Miller</i></p>	<p>Case Studies and Lessons from Process Safety Culture Improvement Initiatives <i>Rick Curtis</i></p>	<p>The PSM-Road Map, the Technical Tool to Implement RBPS <i>Cesar Augusto Puma</i></p>	<p>Test Based Good Engineering Practice in Avoiding Relief Valve Chatter on Cryogenic Low Pressure Storage Tanks <i>Michael Davies</i></p>	<p>Culpar o aprender: Desafío de la seguridad de proceso <i>Nestor H. Sposito</i></p>
4:00 PM	<p>Do Not Investigate. Learn. Ask How! <i>Sahika Korkmaz & Jill Donnelly</i></p>	<p>"Fit-for-Purpose" Consequence Analysis as Demonstrated by Anhydrous Ammonia and Aqueous Ammonia <i>Keith Lennon</i></p>	<p>Contact Energy Process Safety - "Our Story": How Leadership and Staff Engagement Ensured That "Safe to Run" Was a Fundamental Culture Change Supported By System and Process Changes <i>Brendan Bleasdale</i></p>	<p>The Uses and Users of PHA/HAZOP Results <i>Jeff Thomas</i></p>	<p>Pressure Relief Design for Reactive Systems <i>Michelle Murphy</i></p>	<p>Observaciones de seguridad de procesos – Identificación de precursores de incidentes <i>Juan M. Lopez</i></p>
4:30 PM	<p>Helping Humans Get it Right <i>Lindsey Miller & Cheryl Grounds</i></p>	<p>Modeling Reactive Mixtures: Case Study for Spills of Formaldehyde Solutions <i>David W. Drew</i></p>	<p>Recommendations and the Broken KPI <i>Allison De Man</i></p>	<p>Practical Application of Bowties Analysis; Enhancing Traditional PHA <i>James Sneedon</i></p>	<p>A Structured Data Collection Approach to Improve Pressure Relief Analysis (PRA) Efficiency and Keep Process Safety Information (PSI) Documentation Ever-Greening <i>Pengchong Zhang</i></p>	<p>Disciplina operacional una necesidad para la seguridad de procesos <i>Jose Villarreal</i></p>
5:00 PM	<p>Session #51-58: AIChE Spring Meeting & GCPS Poster Session and Cocktail Reception (Includes electronic presentations of select posters) Cypress Ballroom 1/2</p> <p>Co-Chairs: Marabeth Holsinger, Lauren Moyer, and Jeff Stawicki</p>					

Tuesday, April 24th

	33rd Center for Chemical Process Safety International Conference (CCPS)	52nd Annual Loss Prevention Symposium (LPS)	20th Process Plant Safety Symposium (PPSS)	7th Process Safety Management Mentoring (PSMM)	Process Safety Spotlights	Perspectives on Process Safety from Around the World
	<p>Session #73: Process Safety Competency of Management Grand Ballroom 8A Co-Chairs: Rainer Hoff, Tim Murphy</p>	<p>Session #65: Fires, Explosions and Reactive Chemicals I Grand Ballroom 7A Co-Chairs: Kathy Pearson, Seshu Dharmavaram</p>	<p>Session #61: Best Practices in Process Safety and Risk Management Grand Ballroom 7B Co-Chairs: Karen Study, Laura Ankrom</p>	<p>Session #75: The Day PSM Hit Home I Grand Ballroom 8B Co-Chairs: Lisa Long, Michael Morris</p>	<p>Session #69: Glnstrumented Protective Systems I Grand Ballroom 9/10 Co-Chairs: Jim Garrison, Chris Iles</p>	<p>Session #72: Process Safety Activities in China I Grand Ballroom 11 Co-Chairs: Zhao Dong Feng, Liu Yi</p>
8:00 AM	<p>Balance in Technical and Human Competencies to Create a High-Performance Process Safety Culture <i>Coen van Driel</i></p>	<p>A Simplified Approach to Gas Explosion Vent Sizing <i>C. Regis L. Bauwens</i></p>	<p>Rare but Conceivable: Determining the Likelihood of Meteors and Other Infrequent Events <i>Michael S. Schmidt</i></p>	<p>Why I am Passionate About Process Safety <i>Louisa Nara</i></p>	<p>Applying Process Safety Time Concepts in Process Plant Applications <i>Tab Vestal</i></p>	<p>Current Situation and Outlook of Urban Refineries in China <i>Yifei Meng</i></p>
8:30 AM	<p>Corporate Governance and Leadership Related to Major Hazard Scenarios Is Leader Responsibility and Each Employee Commitment and Responsibility <i>América Diniz</i></p>	<p>Hot Work Safety Zones – What if there is a Leak? <i>Trey Morrison</i></p>	<p>Concept Risk Comparison of Transportation Means <i>Cynthia Spitzenberger</i></p>	<p>That Can't Happen <i>Ken Tague</i></p>	<p>Choosing HIPS over PRV – It's More than Risk Reduction <i>Angela E. Summers</i></p>	<p>China's PSM Development and Global Cooperative Vision I <i>Haoshui Wang</i></p>
9:00 AM	<p>Case Study in Organizational Risk Profiling - Bridging the Gap Between Risk and Decision Making <i>Nathan Turner</i></p>	<p>Relief and Flare System Design Mitigation Options <i>Neil Prophet</i></p>	<p>AFPM/API Advancing Process Safety - Practical Tools for Process Safety Performance Improvement <i>Lara Swett</i></p>	<p>The HDAY-4 Unit Catastrophic Fire. Three Decades of Asset Integrity Opportunities <i>Rixio Medina</i></p>	<p>Pump BLEVE Protection Initiator Determination <i>Tab Vestal</i></p>	<p>China's PSM Development and Global Cooperative Vision II <i>Haoshui Wang</i></p>
9:30 AM	<p>Coffee and Networking Break Cypress Ballroom 1/2</p>					

Tuesday, April 24th (continued)						
	33rd Center for Chemical Process Safety International Conference (CCPS)	52nd Annual Loss Prevention Symposium (LPS)	20th Process Plant Safety Symposium (PPSS)	7th Process Safety Management Mentoring (PSMM)	Process Safety Spotlights	Perspectives on Process Safety from Around the World
	<p>Session #98: Process Safety Competency Grand Ballroom 8A</p> <p>Co-Chairs: Jim Klein, Bernard Groce</p>	<p>Session #88: Fires, Explosions and Reactive Chemicals II Grand Ballroom 7A</p> <p>Co-Chairs: Kathy Pearson, Seshu Dharmavaram</p>	<p>Session #89: Improving Human Performance and Process Safety Effectiveness Grand Ballroom 7B</p> <p>Co-Chairs: Rahul Raman, Victor Edwards</p>	<p>Session #101: The Day PSM Hit Home II Grand Ballroom 8B</p> <p>Co-Chairs: Dan Miller, Cynthia Spitzenberger</p>	<p>Session #91: Instrumented Protective Systems II Grand Ballroom 9/10</p> <p>Co-Chairs: Susan Behr, Tab Vestal</p>	<p>Session #97: Process Safety Activities in China II Grand Ballroom 11</p> <p>Co-Chairs: Zhao Dong Feng, Liu Yi</p>
10:15 AM	<p>Competency Requirements in Process Safety <i>Iwan van Beurden</i></p>	<p>Don't Believe the Hype: Using Case Studies and Experimental Evidence to Show why the HSE is Wrong about DDTs <i>Scott Davis</i></p>	<p>"Fast Food PHAs" - They're Fast and Cheap but Are They Good for You? <i>Philip M. Myers</i></p>	<p>When the House was A-Rockin – Process Safety Came A-Knockin <i>Elliot Wolf and Florine Vincik</i></p>	<p>A Hierarchical Bayesian Approach to IEC 61511 Prior Use <i>Stephen Thomas</i></p>	<p>Process Safety Management in SINOPEC <i>Yutai Wang</i></p>
10:45 AM	<p>Building Competency in Internal PHA Leaders - Lessons Learned in 40 Years of Doing So <i>William Bridges</i></p>	<p>Vented Hydrogen DDTs <i>Brad Horn</i></p>	<p>Internal Auditing – Improving Human Performance <i>Patti Jones</i></p>	<p>The Day a 3-Mile Island Event did not Occur <i>Daniel Wilczyński</i></p>	<p>Analysis of a Complex Protection Scheme with Component Sharing between Protection Layers <i>Robert J. Stack</i></p>	<p>Current Situation and Prospect of Rotating Equipment Status Monitoring and Fault Diagnosis on Big Data <i>Niu Yun</i></p>
11:15 AM	<p>Catalytic Processes - Process Safety Requirements <i>Geert Vercruyse</i></p>	<p>Reaction Effluent Analysis Using Adiabatic Calorimetric Experiments <i>Katie Mulligan</i></p>	<p>Impact of Human Performance on Process Safety Management <i>Vivek Bichave</i></p>	<p>Why Are the New People Making the Same Mistakes That the Old-Timers Made 25 Years Ago? Managing Organizational Change <i>Art Dowell III</i></p>	<p>Going Full Life Cycle with Process Safety Data <i>Kate Hildenbrandt</i></p>	<p>Research and Application of Internet of Things Technology in Field Safety and Accident Prevention and Control <i>Huitao Ma</i></p>
11:45 AM	<p>AIChE Spring Meeting and GCPS Joint Luncheon with Speaker: Delia Contreras, VP of Engineering – ES, Global Supply Chain, NALCO Champion An Ecolab Company Cypress Ballroom 3</p> <p>"Doing Better Together – Transforming Business Sustainability"</p>					

Tuesday, April 24th (continued)

	33rd Center for Chemical Process Safety International Conference (CCPS)	52nd Annual Loss Prevention Symposium (LPS)	20th Process Plant Safety Symposium (PPSS)	7th Process Safety Management Mentoring (PSMM)	Process Safety Spotlights	Perspectives on Process Safety from Around the World
	<p>Session #110: CCPS Spotlight Grand Ballroom 8A Co-Chairs: Fred Henselwood, Andrew Goddard</p>	<p>Session #111: Combustible Dust Hazards and Their Mitigation I Grand Ballroom 7A Co-Chairs: Jérôme Taveau, Susan Bershad</p>	<p>Session #120: Learning from Experience Grand Ballroom 7B Co-Chairs: Steven D. Emerson, Josh Moyers</p>	<p>Session #109: Careers in PSM Panel Grand Ballroom 8B Co-Chairs: Brian Dickson, Ray Qi</p>	<p>Session #113: Facility Security Grand Ballroom 9/10 Co-Chairs: Terry Waldrop, Paul Rostick</p>	<p>Session #126: Spanish Session: Compartiendo Conocimientos y Experiencias Sobre Seguridad de Procesos – Alarmas y SIS Grand Ballroom 11 Co-Chairs: Sergio Fernandez, Wolfram Jahn Von Arnswaldt</p>
1:30 PM	<p>The Roundabout Way to Disaster: Recognizing and Responding to Normalization of Deviance <i>Jennifer Mize</i></p>	<p>How to Conduct a Dust Hazards Analysis (DHA) <i>Michelle Murphy</i></p>	<p>Perceived Low Risk Processes Can be Important - Lessons to a Regulator: Based on a Nuclear Fuel Facility Process Event <i>Donnie Harrison</i></p>	<p>Q&A on Developing your Career in Process Safety <i>Steve Cutchen CSB</i></p>	<p>Cyber Security Consideration in Process Hazard Analysis <i>Christopher Ng & Addie Cormier</i></p>	<p>Seguridad de procesos en el upstream: Operación basada en riesgo en Vaca Muerta <i>Victor Cabanne</i></p>
2:00 PM	<p>CCPS Ever Green Process Safety Metric Project <i>Eric Freiburger</i></p>	<p>Combustible Dust Management Screening: Methodology and Tool Development <i>Sean Classen</i></p>	<p>Flag on the Play: Delay of Game <i>John Herber</i></p>	<p><i>Lisa Long OSHA</i> <i>Samantha Scruggs BP</i> <i>John Wincek DEKRA</i></p>	<p>If It Isn't Secure, It Isn't Safe: Incorporating Cybersecurity into Process Safety <i>John Cusimano</i></p>	<p>Medición de la efectividad del SIS en campo ¿Concuerda con las suposiciones del análisis de riesgo? <i>Alejandro Esparza</i></p>
2:30 PM	<p>Essential Practices for Developing, Strengthening and Implementing Process Safety Culture and Leadership <i>Scott Berger</i></p>	<p>Risk-Based Dust Hazard Analysis (DHA) <i>Fuman Zhao</i></p>	<p>Never Again - How to Remember Lessons Learned <i>Jack McCavit</i></p>	<p>Chemical Facility Anti-Terrorism Standards (CFATS) Implementation at Tennessee Eastman Chemical Company <i>David Skelton</i></p>	<p>Application práctica de un Functional Safety Pre-Assessment según la normativa IEC 61511-1 <i>Romel Rodríguez & Eliana Berroteran</i></p>	
3:00 PM	<p>Coffee and Networking Break Cypress Ballroom 1/2</p>					

Tuesday, April 24th (continued)						
	33rd Center for Chemical Process Safety International Conference (CCPS)	52nd Annual Loss Prevention Symposium (LPS)	20th Process Plant Safety Symposium (PPSS)	7th Process Safety Management Mentoring (PSMM)	Process Safety Spotlights	Perspectives on Process Safety from Around the World
	<p>Session #145: Operating Discipline Grand Ballroom 8A</p> <p>Co-Chairs: John Champion, Bill Bradshaw</p>	<p>Session #134: Combustible Dust Hazards and Their Mitigation II Grand Ballroom 7A</p> <p>Co-Chairs: Jérôme Taveau, Susan Bershad</p>	<p>Session #132: Application of Risk Assessment Methods and Tools Grand Ballroom 7B</p> <p>Co-Chairs: Sean P. Lapekas, Jack Chosnek</p>	<p>Session #150: Tutorials in Process Safety – CCPS II Grand Ballroom 8B</p> <p>Co-Chairs: Myron Carlson, Bill Mosier</p>	<p>Session #135: Cybersecurity Safety Panel Grand Ballroom 9/10</p> <p>Co-Chairs: Wayne Chastain, Kimberly Mullins</p>	<p>Session #147: Portuguese Session: Compartilhando Conhecimentos e Experiências de Segurança de Processos Grand Ballroom 11</p> <p>Co-Chairs: Eduardo M. Francisco, Nestor Sposito</p>
3:30 PM	<p>Risk Awareness: The Key to Operational Discipline <i>Alfonsius Ariawan</i></p>	<p>Metal Powder and Nanoparticles: Combustible Dust Safety Challenges? <i>Gerd Mayer</i></p>	<p>Applying an Enterprise Risk Management Framework to Process Safety <i>Muhammad Mushahid Qureshi</i></p>	<p>Tutorial in Fire Safety & Emergency Management <i>Keith Farmer and Joe Chew</i></p>		<p>Risk Approach for Urban Planning Around Chemical Plants <i>Elizabeth Alves</i></p>
4:00 PM	<p>Know Your Limits <i>Jerry Forest</i></p>	<p>Electrostatic Hazards during Pneumatic Conveying of Combustible Dusts in Flexible Hoses <i>Michael Stern</i></p>	<p>What is the Safest Way to Move LNG? <i>Ryan J. Hart</i></p>	<p>Tutorial in Hazardous Materials Response / Emergency Management <i>Tom Keefer and Barry Lindley</i></p>	<p>Panel Discussion Featuring Invited Speakers</p>	<p>Developments of an Effective Training on Operational Discipline in Latin America <i>Eduardo M. Francisco</i></p>
4:30 PM	<p>Human Factors in Barrier Management <i>Kyle Wingate</i></p>	<p>Investigation of the Lower Explosion Limit of Hybrid Mixtures <i>Emmanuel Addai</i></p>	<p>Beyond HAZOP: Analyzing Common Cause and System Scenarios <i>Eloise Roche</i></p>	<p>Tutorial in Mechanical Integrity / Quality Assurance <i>Scott Dean</i></p>		<p>Sound and Fury: How Clean is Your Alarm System? <i>Monica Hochleitner</i></p>

Wednesday, April 25th

	33rd Center for Chemical Process Safety International Conference (CCPS)	52nd Annual Loss Prevention Symposium (LPS)	20th Process Plant Safety Symposium (PPSS)	7th Process Safety Management Mentoring (PSMM)	Process Safety Spotlights	Perspectives on Process Safety from Around the World
8:00 AM	<p>Session #152: Assuring/Verifying Barriers I Grand Ballroom 8A Co-Chairs: San Burnett, Seshu Dharmavaram</p> <p>Are Your Barriers Ready for Action? Are You Sure? <i>Christopher Rank</i></p>	<p>Session #154: Emerging Topics and Technologies Grand Ballroom 7A Co-Chairs: Elliot Wolf, Pete Lodai</p> <p>Unmanned Aircraft Systems (UAS): Case Studies that Highlight Challenges and Opportunities <i>Florine Vincik</i></p>	<p>Session #159: MOC's Gone Wild –Essential but Challenging to Get Right Grand Ballroom 7B Co-Chairs: Colin S. Howat III, Neha Suresh Rajan</p> <p>Auditing MOC: A Target-Rich Environment <i>Charles Foshee</i></p>	<p>Session #167: Tutorials in Process Safety – PPSS II Grand Ballroom 8B Co-Chairs: Rao Akula, Eric Peterson</p> <p>Process Safety Aviation Series: And... Who is the Pilot? Ignacio Alonso and <i>Mike Broadribb</i></p>	<p>Session #156: Inherently Safer Design I Grand Ballroom 9/10 Co-Chairs: Nirupama Gopalswami, Brad Newman</p> <p>Inherent Safety and the Elements of PSM / RBPS Programs <i>Michael Hazzan</i></p>	<p>Session #158: Japan's Process Safety Progress – Lessons Learned from Past Accidents to Reduce Future Losses Grand Ballroom 11 Co-Chairs: Masaki Nakagawa, Ana Maria Cruz</p> <p>Learning from Lubes Plant Fire – Importance of Hazard Identification and Preparation <i>Masaki Iguchi</i></p>
8:30 AM	<p>Making Everyone a Barrier Guardian <i>Steve Arendt</i></p>	<p>Composite Intermediate Bulk Containers (CIBCs): Understanding Risks & Emerging Fire Code Issues <i>Michael Snyder</i></p>	<p>Managing the Risk of MOC <i>Jack Chosnek</i></p>	<p>Preparing for a Successful HAZOP/LOPA (Making or Breaking Quality & Efficiency) <i>Steven T. Maher</i></p>	<p>Encouraging the Use of Inherent Safety <i>David Moore</i></p>	<p>Tsunami-Induced Oil Spill Fire Simulation in the Vicinity of Petroleum Industries in Japan <i>Tomooki Nishino</i></p>
9:00 AM	<p>Maintaining the Integrity of Safety Barriers - A Challenge <i>Rajender Dahiya</i></p>	<p>Enabling Real-Time Hazard Assessment at the Workplace <i>Nastassja Lewinski</i></p>	<p>The "Projectness" of MOC <i>Rainer Hoff</i></p>	<p>Understanding the Interrelationships between the PSM Elements for Effective Implementation <i>Revonda Tew</i></p>	<p>Application of a Property-Based Inherent Safety Quantification Framework for Integrating Risk Assessment into the Process Safety Life Cycle <i>Monzure-Khoda Kazi</i></p>	<p>Business Continuity Plan for the Next Large Scale Earthquake "Nankai-Trough" at the Refinery in Japan <i>Hayato Abe</i></p>
9:30 AM	<p>Coffee and Networking Break Cypress Ballroom 1/2</p>					

Wednesday, April 25th (continued)						
	33rd Center for Chemical Process Safety International Conference (CCPS)	52nd Annual Loss Prevention Symposium (LPS)	20th Process Plant Safety Symposium (PPSS)	7th Process Safety Management Mentoring (PSMM)	Process Safety Spotlights	Perspectives on Process Safety from Around the World
	Session #176: Assuring/Verifying Barriers II Grand Ballroom 8A Co-Chairs: Chris Israni, Dan Rathgeber	Session #175: Asset Integrity and Reliability Grand Ballroom 7A Co-Chairs: Mike Moosemiller, John Murphy	Session #187: Technology Impact on Process Safety Grand Ballroom 7B Co-Chairs: Rainer Hoff, Jerry J. Forest	Session #188: Tutorials in Process Safety – LPS II Grand Ballroom 8B Co-Chairs: David Moore, Daniel Wilczynski	Session #181: Inherently Safer Design II Grand Ballroom 9/10 Co-Chairs: Ray Mentzer, David Skelton	Session #182: Japan's Process Safety Progress – Technical Considerations in Process Safety Grand Ballroom 11 Co-Chairs: Neil Concibido, Atsumi Miyake
10:15 AM	Functional Safety Practices for Operations and Maintenance <i>Denise Chastain-Knight</i>	From Availability to Integrity <i>David Hanning</i>	Using Connected Systems to Improve Process Safety <i>Scott M. Wozniak</i>	Dust Explosion Propagation and Isolation <i>Jérôme Taveau</i>	Evaluating Inherently Safer Design with Multi-Attribute Utility Theory <i>Sean Dee</i>	A Study of Vent Sizing for Chemical Reaction Runaway <i>Yuto Mizuta</i>
10:45 AM	Understanding IPL Boundaries Art Dowell III	Understanding the Impact of Acoustic Induced Vibration on Piping Systems Josh Kolenc	Technology Impact on Process Safety through the Cloud Annam Srivastava	Analysis of Dust Concentration Measurements Taken during the Filling Process of a Silo Pablo Garcia Triñanes	Inherently Safer Process Design: Assessing the Thermal Stability of Common Peptide Coupling Reagents Jeffrey Sperry	Applying Comprehensive Societal Risk Framework to Hydrogen Station Atsumi Miyake
11:15 AM	Use Process Historian Data to Understand and Assure Barriers <i>Anthony Downes</i>	Creating an Effective Asset Integrity Management Program <i>Lauren Moyer & Matthew Hedlund</i>	Data Mining and Analysis for Alarm Management <i>Pankaj Goel</i>	The Design and Operation of Multi-Point Dust Collection Systems <i>Yi Fan & Karl Jacob</i>	Development of a Risk Based Inherent Safety Index Using an Integrated Approach <i>Bin Zhang</i>	Combustion of Lubricating Oil Penetrated into the Heat Insulator <i>Yuji Tsuchiya</i>
11:45 AM	AIChE Spring Meeting and GCPS Joint Luncheon with Speaker: Jun Mutoh , Representative Director, Executive Vice President, JXTG Holdings, Inc. Cypress Ballroom 3 "Beyond Operations Management Systems – Establishing a Solid Safety Culture"					
	Session #198: Case Histories and Lessons Learned – GCPS Joint Session Grand Ballroom 7A/B Co-Chairs: Fred Gregory, Jennifer Mize, and Morgan Reed					
1:30 PM	Presentation of the William H. Doyle Award for LPS Best Paper Award, PPSS Best Paper Award, and CCPS Best Paper Award					
1:45 PM	20 Years of Chemical Safety and the Changing Environment— <i>Vanessa Sutherland</i>					
2:30 PM	Bonded, Grounded, and Burned to a Crisp: Electrostatic Ignition of Flammable Gases— <i>Brenton L. Cox</i>					
3:00 PM	Break					
3:15 PM	Expect the Unexpected: A Tragic Outcome to a Hydrogen Sulfide Exposure during Troubleshooting— <i>Kathy Pearson</i>					
3:45 PM	Importance of Properly Designing Dust Explosion Protection Systems: Case Study: 2014 Georgia Pacific Corrigan Facility Fire and Explosion— <i>Scott G. Davis</i>					
4:15 PM	Deflagration Incident in an Organic Peroxide Solution Tank— <i>Ben McDavid</i>					
4:45 PM	GCPS Concluding Remarks					

Risktec Solutions, Inc.

Helping to manage
process safety,
asset integrity and
environmental risk.



- Process safety management
- Asset integrity management
- Industrial inspection
- PHA and facility siting
- Functional safety certification
- Bowtie analysis
- RAM modelling
- QRA
- Training and education
- Game-based learning

Come and see us at our booth!

CONTACT US

Risktec Solutions Inc.
1110 NASA Parkway, Suite 203
Houston, TX 77058 USA
Tel: +1 (281) 333 5080
enquiries@risktec.tuv.com
www.risktec.tuv.com

OTHER OFFICE LOCATIONS

Canada, UK, Netherlands,
Oman, and UAE



TÜVRheinland®
Risktec

The AIChE® Foundation Congratulates



Mark Vergnano

President and CEO, The Chemours Company

2018 AIChE Government and Industry Leaders (AGILE) Award Recipient

Monday, April 23 • 8:00 AM - 9:15 AM
Cypress Ballroom 3, Orlando World Center Marriott

Mark Vergnano will deliver the 2018 AIChE Spring Meeting
and 14th GCPS AGILE Keynote Address



SUNDAY, APRIL 22nd

Ethylene Producers' Conference Reception

5:00 PM – 6:00 PM

Central Atrium & Courtyard Terrace

2018 Spring Meeting and 14th GCPS Opening Reception

6:00 PM – 7:30 PM

Cypress Ballroom 1/2

Catch up with friends, network with colleagues, and meet Institute and industry leaders while enjoying a variety of hot and cold appetizers. A cash bar will offer cocktails and other beverages.

MONDAY, APRIL 23rd

2018 AIChE Spring Meeting and 14th GCPS AGILE Keynote Continental Breakfast

7:00 AM – 8:00 AM

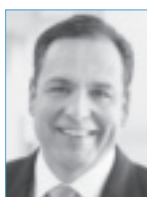
Cypress 1–3 Foyer

AGILE Keynote Address

8:00 AM – 9:00 AM

Cypress Ballroom 3

Welcome and Introductions by **Christine Seymour**, AIChE President and **June C. Wispelwey**, AIChE Executive Director



“Building a Winning Culture: Harnessing the Power of Values”

Presented by **Mark Vergnano**, President and CEO, The Chemours Company

2018 AGILE Award Winner

What is Industry 4.0? Panel Discussion

9:30 AM – 11:00 AM

Crystal Ballroom J2

This panel session brings together world-class experts to set the Industry 4.0 vision, share success stories, provide industrial implementation experiences, and highlight U.S. Government programs to accelerate Industry 4.0.

Panelists Include:

Billy Bardin, Global Operations Technology Director, The Dow Chemical Company

Rob Ivester, Deputy Director of the EERE Advanced Manufacturing Office, U.S. Department of Energy

Haresh Malkani, CTO, Clean Energy Smart Manufacturing Innovation Institute (CESMII)

Adele Ratcliff, Director, IBAS (DoD MIBP)

Panel Discussion moderated by Jim Davis, Vice Provost – IT/Chief Academic Technology Officer, UCLA

MONDAY, APRIL 23rd (Continued)

14th GCPS Welcome Plenary Session

9:30 AM – 10:20 AM

Cypress Ballroom 3

Welcome and Introductions by **Kathy Shell**, GCPS Chair and **Shakeel Kadri**, CCPS Executive Director.



"Process Safety for a Sustainable World"

Presented by **Michael J. Graff**, Chairman, CEO and President of American Air Liquide and Executive Vice President of Air Liquide Group

Fuels and Petrochemicals Division Welcome Session and Keynote

Coffee and Refreshments

10:45 AM – 11:00 AM

New Orleans / New York

Welcome Session and Keynote

11:00 AM – 12:00 PM

New Orleans / New York



"A View Toward 2035: Challenges for Refining and Petrochemicals in a Changing Energy Mix"

Presented by **Jim Rekoske**, Vice President and Chief Technology Officer, Honeywell UOP

2018 AIChE Spring Meeting and 14th Global Congress on Process Safety Joint Luncheon

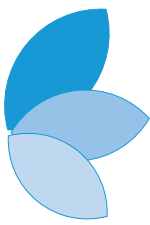
12:00 PM – 1:30 PM

Cypress Ballroom 3

(This is an event only available to attendees who selected a Spring Meeting or Global Congress on Process Safety Bundle or purchased a luncheon ticket.)

"Cyber Threat Landscape"

Presented by **Andrew Lenzen**, Special Agent, Federal Bureau of Investigation



Educating the Chemical Engineering Workforce on Cybersecurity Panel Discussion

1:30 PM – 3:00 PM

Chicago / Denver

This panel will describe how the need for chemical engineers and technicians to have a working knowledge of cybersecurity has grown in recent years, as plants use digital and wireless technologies to automate their processes. The reasons for this will be discussed. Government, academic, and industry resources available to educate the chemical engineering workforce will be described.

Panel Moderator:

Panelists Include:



Dave Teumim
Teumim Technical, LLC



Hoda Mehrpouyan
Boise State



Danielle Santos
National Initiative
for Cybersecurity
Education (NICE)

Ethylene Plant Rotating Equipment Panel Discussion

2:00 PM – 5:00 PM

Royal

This panel, sponsored by the rotating equipment subcommittee, will feature a discussion of subject matter experts discussing issues related to reliability and operability of rotating equipment in ethylene plants, and addressing audience questions.

Panelists Include:

Shane Harvey, Elliott Group Engineering

Sergio Ghezzi, BHGE

Ronald Josefczyk, Elliott Group Engineering

Daniel Jones, Elliott Group Engineering

Satoru Yoshida, Mitsubishi Heavy Industries Compressor International

Torben Hoefel, Linde Engineering

Panel Discussion moderated by **Brian Wadas**, GE Oil & Gas.

Spring Meeting and GCPS Poster Sessions and Networking Reception

5:00 PM – 7:00 PM

Cypress Ballroom 1/2

This year's poster session is presented in a dual format. It will feature over 100 high-quality traditional paper posters, as well as electronic presentation of select posters presented on two stages. Hors d'oeuvres will be available for all attendees, as well as a cash bar.

2018 AIChE® ANNUAL GALA INSPIRING & EMPOWERING WOMEN IN ENGINEERING

Funds raised at this year's Gala will underwrite the expansion of women's leadership programs, improve pre-college STEM education for girls and advance retention programs for women engineering undergraduates, graduate students, and young professionals.

The Gala will be held in the late fall.

For more information, visit www.iche.org/gala

Join us to celebrate women in engineering at the below featured sessions.

SESSION CHAIRS:

Sindia Rivera-Jimenez, *University of Florida*
Bindu Krishnan, *The Dow Chemical Company*

WORKSHOP: UNDERSTANDING UNCONSCIOUS BIAS IN THE WORKPLACE

Co-sponsored by WIC and MAC
Tuesday, April 24 • 8:00 AM - 9:30 AM • Miami

PANEL DISCUSSION: REAL STORIES OF UNCONSCIOUS BIAS IN THE WORKPLACE

Co-sponsored by WIC and MAC
Tuesday, April 24 • 10:15 AM - 11:45 AM • Miami

Featured Panelists:

- Cynthia Murphy-Ortega, *Chevron*
- Kevin J. Edwards, *Bechtel Corporation*
- Bill Byers, *CH2M HILL*
- LaRuth McAfee, *University of Wisconsin, Madison*

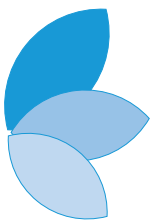
TUESDAY LUNCHEON "MANAGING PROCESS SAFETY RISK IN A BUSINESS GROWTH ENVIRONMENT"

[Ticketed Event - available to bundle registrants only]
Tuesday, April 24 • 11:45 AM - 1:30 PM
Cypress Ballroom 3

Delia Contreras, *VP of Engineering – ES, Global Supply Chain NALCO Champion An Ecolab Company*

AIChE 
The Global Home of Chemical Engineers





TUESDAY, APRIL 24th

Fuels & Petrochemicals Division Panel —Shale Gas/Oil Impact on N. America

8:00 AM – 9:30 AM

New Orleans / New York

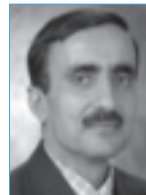
From the period of 2012 to 2014 various groups issued reports on the promise of shale gas and oil in North America. The promise was sold that the US would become a net energy exporter and projects would be built or return to the United States. Since then, oil and gas prices have fallen, but US production remains high. As a result, the shale gas and oil in North America has made a significant impact on the global O&G market.

During this panel, we will look at projects that have been proposed, built and/or become operational to assess the historical predictions. We will also look at any new and updated forecasts for projects and production in N. America and the impact of these projects and production may have on the global market and prices.

Panelists Include:



Lee Nichols
Hydrocarbon Process-
ing and Gas Processing



Sanjeev Kapur
Apex PetroConsultants

Not Pictured: **Paul Durand**, ExxonMobil

Workshop: Understanding Unconscious Bias in the Workplace

8:00 AM – 9:30 AM

Miami

Unconscious bias (or implicit bias) refers to unconscious beliefs or stereotypes that influence our actions and decisions when interacting with other people. The participants of this active-learning workshop will learn the concept of unconscious bias, examine resources on how to identify their own biases, raise awareness of how unconscious biases work, and how they can influence interactions in the workplace. ■

Wifi



You spoke and we listened...

Internet is now available throughout the whole meeting space. Connect to check emails, text, and browse the web. To access, simply use...

SSID: **AICHe Meeting**
Password: **AICHe2018**

TUESDAY, APRIL 24th (Continued)

Panel Discussion: Real Stories of Unconscious Bias in the Workplace

10:15 AM – 11:45 AM
Miami

Unconscious bias (or implicit bias) refers to unconscious beliefs or stereotypes that influence our actions and decisions when interacting with other people. Come hear from professionals across the discipline share their perspectives on this important topic. ■

Panelists Include:



Panel Moderator:
SIndia Rivera Jimenez
University of Florida



Cynthia Murphy-Ortega
Chevron



Bill Byers
CH2M HILL



LaRuth McAfee
University of Wisconsin, Madison

Not Pictured:
Kevin J Edwards, Bechtel Infrastructure
Jeremy A. Magruder Waisome, University of Florida

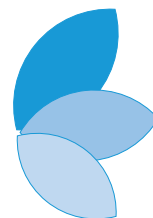
2018 AIChE Spring Meeting and 14th Global Congress on Process Safety Joint Luncheon

11:45 AM – 1:30 PM
Cypress Ballroom 3

This celebrates the 20th year anniversary of the Women’s Initiatives Committee.
(This is an event only available to attendees who selected a Spring Meeting or Global Congress on Process Safety Bundle or purchased a luncheon ticket.)



“Doing Better Together – Transforming Business Sustainability”
Presented by **Delia Contreras**, VP of Engineering – ES, Global Supply Chain, NALCO Champion An Ecolab Company



Disability Unity Community Convocation

1:30 PM – 3:00 PM

Los Angeles

The Disability Unity Community Convocation (DUCC) provides the AIChE community the opportunity to learn about the capabilities of its members with a history of a disability. Among the least-known attributes of those who have experience adapting to and often recovering from a condition which limits one or more major life activities is that besides demonstrating resilience and flexibility they also often acquire new skills based on those adaptations. There are plenty of reasons to more fully include professionals with such rare abilities into all corners of the chemical engineering profession. This particular DUCC session -- the first at an AIChE Spring Meeting -- deals with employment issues such as recruitment, retention, and re-entry related to professionals with a disability in the past or present. ■

Panelists Include:



Panel Discussion
Moderated by **Chris Pope**,
Independent Researcher
/ Consultant in Chemical
Engineering, Chair of
AIChE's ChemE's with
Disabilities Taskforce



Greg Pollock,
The Dow Chemical
Company



Keri Gray,
USBLN
(U.S. Business
Leadership
Network)



John J. Johnston,
USDA Food Safety &
Inspection Service



Sandy Reyes, Esquire,
EEO/AA/Diversity and
Employee Relations
Administrator for the
State of Delaware

Industry 4.0 for Process Manufacturers

1:30 PM – 3:00 PM

Grand Ballroom 12

Process manufacturers have digitized their operations and been consumers of data for many years, but now Industry 4.0 has emerged as a hot, new thing. This session will help industry professional understand what is meant by Industry 4.0, extract lessons learned from the discrete manufacturing sector and plot their own digital manufacturing journey.

Programmed by **Kevin McDunn**, CTO, UI LABS.

Minimize Costs without Compromising Safety – AspenTech Sponsored Technology Workshop

1:30 PM – 2:45 PM

Atlanta



Reduce CAPEX and engineering time by accurately sizing pressure relief devices while still meeting all process safety requirements. In this workshop, you'll learn to use the expert-trusted calculations and guided workflows within Aspen HYSYS® and Aspen Plus® to maximize your confidence in design decisions. This is how Technip reduced its PSV sizing time by 90 percent for a supercritical fire case — without the loss of safety considerations.

WEDNESDAY, APRIL 25th

Debottleneck and Troubleshoot Distillation – AspenTech Sponsored Technology Workshop

8:00 AM – 9:15 AM

Los Angeles



Distillation columns are both capital and energy intensive therefore columns need to run at optimal conditions to ensure high separation efficiency and product quality. Rigorous modeling of columns with hydraulics can greatly improve energy utilization and reduce capital costs. In this workshop, you'll learn to leverage hydraulic plots and guided workflows to interactively design, rate and troubleshoot distillation columns in Aspen Plus®. This is how Braskem achieved a 12% aromatic yield improvement leveraging distillation column modeling.

Application of Big Data Analytics in Ethylene Production

8:00 AM – 9:30 AM

Royal

The production of ethylene and other olefins via steam cracking from various feedstocks is an established process, yielding the largest volume of an industrially produced organic chemical in excess of 145 million tons per year. Maximizing production and profitability of established and future assets is a key focus, and in addition to technological advances, the potential value from the large and diverse data streams available in continuously operated crackers has gained increasing attention in the past years. In the era of Big Data and Digitization, data-driven optimization of operations and process safety as well as business insights are more achievable and enable further advancement of the industry. This session highlights successes at the intersection of Big Data and Ethylene Production.

2018 AIChE Spring Meeting and 14th Global Congress on Process Safety Joint Luncheon

11:45 AM – 1:30 PM

Cypress Ballroom 3

(This is an event only available to attendees who selected a Spring Meeting or Global Congress on Process Safety Bundle or purchased a luncheon ticket.)



“Beyond Operations Management Systems – Establishing a Solid Safety Culture”

Presented by **Jun Mutoh**, Representative Director, Executive Vice President, JXTG Holdings, Inc.

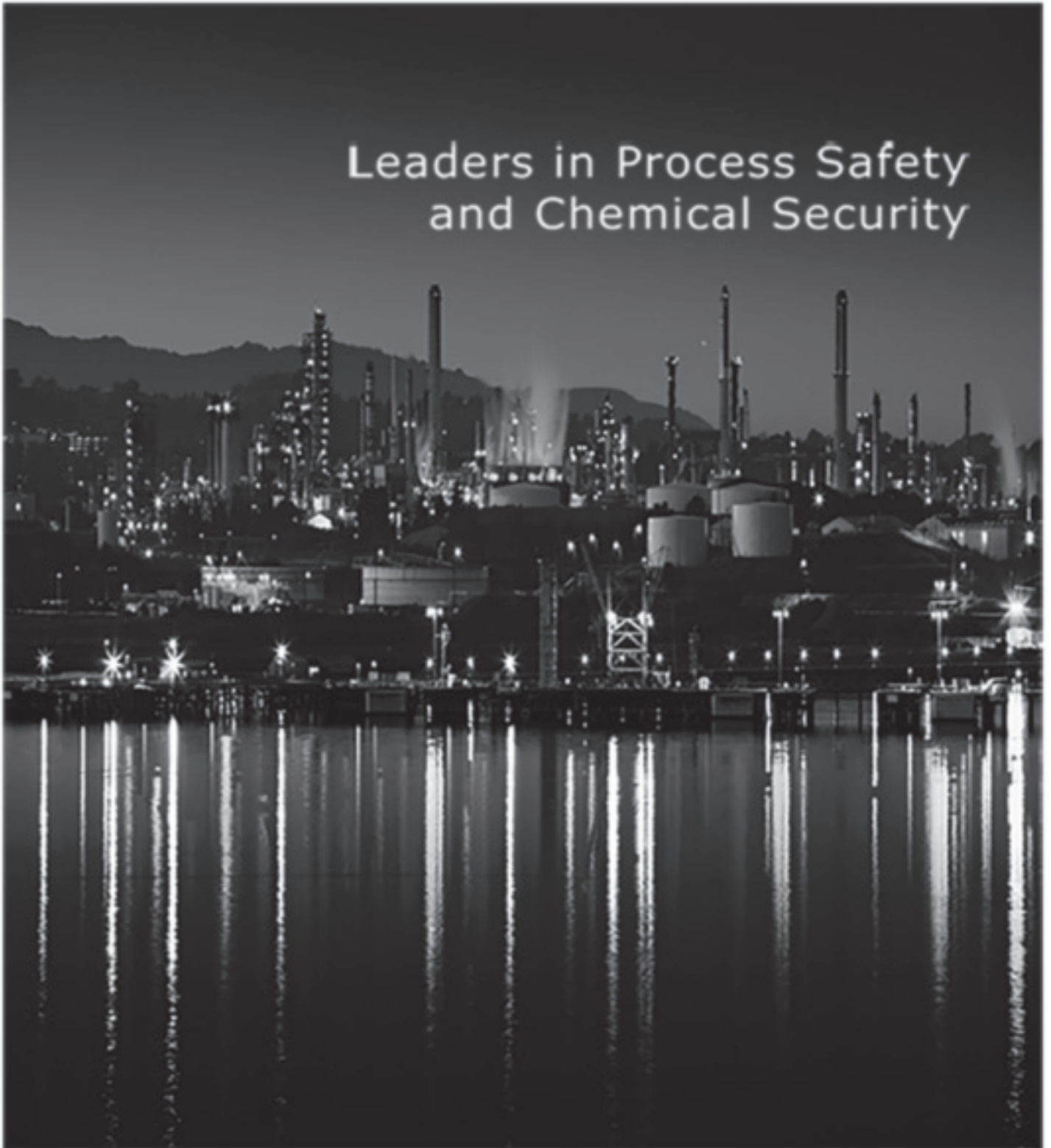
Case Histories and Lessons Learned

1:30 PM – 5:00 PM

Grand Ballroom 7A/7B

This is a joint session that concludes the GCPS by reviewing significant incidents with invited papers to help understand the causes and lessons learned.

Leaders in Process Safety and Chemical Security



Washington D.C. | Houston | Philadelphia
Dubai | Shanghai | Mumbai

Calling All Young Professionals (YPs) and Graduate Students: Check out these Sessions & Events

Recommended by the AIChE® Young Professionals Committee

Date/Title	Sponsor	Other Co-Sponsor (s)
SUNDAY, APRIL 22, 2018		
Young Professionals Mixer 8:00 PM - 10:00 PM • Orlando World Center Marriott	Young Professionals Committee	
MONDAY, APRIL 23, 2018		
How to Perfect Your Elevator Speech 1:30 PM - 3:00 PM • Marriott, Miami	Topical B: Leadership Development - Professional Skills to Catalyze your Career	Management Division (05)
YP Tutorial: Separation Process Fundamentals 1:30 PM - 4:30 PM • Marriott, Grand Ballroom 6	Separations Division	
Developments in Bio-Petrochemicals 3:30 PM - 5:00 PM • Marriott, Grand Ballroom 4	Fuels and Petrochemicals Division	
You are Born with 2 Ears and 1 Mouth for a Reason 3:30 PM - 5:00 PM • Marriott, Miami	Topical B: Leadership Development - Professional Skills to Catalyze your Career	Management Division (05), Minority Affairs Committee (MAC) (18I)
Young Professionals General Meeting 4:00 PM - 5:30 PM • Marriott, Los Angeles	Young Professionals Committee	
TUESDAY, APRIL 24, 2018		
Best Practices in Process Safety and Risk Management 8:00 AM - 9:30 AM • Marriott, Grand Ballroom 7B	20th Process Plant Safety Symposium (PPSS)	Sustainable Engineering Forum (T2)
Young Professionals Panel 8:00 AM - 9:30 AM • Marriott, Los Angeles	Young Professionals Committee	
Workshop: Understanding Unconscious Bias in the Workplace 8:00 AM - 9:30 AM • Marriott, Miami	Topical B: Leadership Development - Professional Skills to Catalyze your Career	Management Division (05)
Revamps, Operability, and Reliability 10:15 AM - 11:45 AM • Marriott, Grand Ballroom 3	Topical 7: 21st Topical on Refinery Processing	
Decision-Making for Industrial Process Systems 10:15 AM - 11:45 AM • Marriott, Grand Ballroom 6	Computing Systems and Technology Division	
YP Professional Development Workshop 10:15 AM - 11:45 AM • Marriott, Los Angeles	Young Professionals Committee	
Panel Discussion: Real Stories of Unconscious Bias in the Workplace 10:15 AM - 11:45 AM • Marriott, Miami	Topical B: Leadership Development - Professional Skills to Catalyze your Career	Management Division (05)

Date/Title	Sponsor	Other Co-Sponsor (s)
TUESDAY, APRIL 24, 2018 (Continued)		
Contemporary Ethical Issues (Chemical Engineering and Business Focus) 10:15 AM - 11:45 AM • Marriott, Tampa	Management Division	
Advances in Product/Process Design & Development III 1:30 PM - 3:00 PM • Marriott, Boston	Product Design	Process Development Division (12)
Careers in Process Safety - Invited Panel 1:30 PM - 3:00 PM • Marriott, Grand Ballroom 8B	7th Process Safety Management Mentoring (PSMM) Forum	
Disability Unity Community Convocation 1:30 PM - 3:00 PM • Marriott, Los Angeles	Topical B: Leadership Development - Professional Skills to Catalyze your Career	Management Division (05)
WEDNESDAY, APRIL 25, 2018		
Emerging Topics and Technologies 8:00 AM - 9:30 AM • Marriott, Grand Ballroom 7A	52nd Annual Loss Prevention Symposium (LPS)	
YP Tutorial: Environmental Issues and Controls in Select Industrial Sectors 8:00 AM - 9:30 AM • Marriott, San Antonio	Environmental Division	Sustainable Engineering Forum (T2)
Advances in Distillation Technology I 8:30 AM - 12:00 PM • Marriott, Canary 1/2	Topical 8: Distillation Symposium	
Modeling Tools and Techniques for Process R&D II 10:15 AM - 11:45 AM • Marriott, Boston	Process Research and Innovation	Computing Systems and Technology Division (10), Process Development Division (12)
Emerging Technologies in Data Analytics 1:30 PM - 5:00 PM • Marriott, Grand Ballroom 12	4th Big Data Analytics	Sustainable Engineering Forum (T2)

For more information on each session, please use the Conference App or refer to the Meeting Program Book.

Booth #504

Explosion Consulting
Dust Explosion Consulting
Large Loss Investigations
Atmospheric Dispersion Consulting
LNG Consulting
Offshore Explosion Safety
QRAs
Software Solutions



Gexcon US is a leading company in the field of safety and risk management, advanced dispersion, explosion and fire modeling. Our experience arises from detailed knowledge of explosion phenomena built up throughout years of extensive research projects, carrying out safety assessments, performing accident investigations, R&D studies and physical testing.

Safety Studies and Risk Assessments

Fire and Explosion Risk Analyses
QRAs for Onshore and Offshore Facilities
Explosion and Blast Modeling

Accident Investigation

Incident Site Management
Litigation Support - Advanced Explosion Modeling

Facility Siting

API 752 and 753 | NFPA 59A
LNG Spills, Jetting, and Flashing

R&D, Testing, and Training

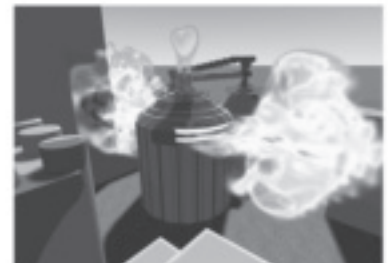
Lab-scale and Large-scale Testing
Dust Hazard Analyses
On-site Customized Training Courses

Software Solutions

3D FLACS CFD | 2D FRED Consequence Models
3D FLACS Risk | 2D Shepherd Risk



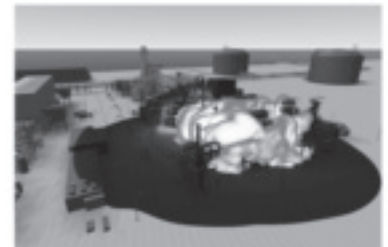
Accident Investigation | Oil Refinery



Dust Hazard Analyses



R&D Large Scale Experimental Testing



FLACS Explosion Modeling

Contact

Phone: (301) 915-9940
E-mail: gexconus@gexcon.com

Gexcon US

4833 Rugby Avenue, Ste 100
Bethesda, MD 20814

11757 Katy Freeway, Ste 1300
Houston, TX 77079

Technical Sessions

(1) 2018 AIChE Spring Meeting and 14th GCPS AGILE Award Keynote Address

Monday, Apr 23, 8:00 AM

Orlando World Center Marriott, Cypress Ballroom 3

Sponsored by: 2018 AIChE Spring Meeting & 14th Global Congress on Process Safety

8:00 Paper 1a: Building a Winning Culture: Harnessing the Power of Values — Mark Vergnano*
President & CEO, The Chemours Company

(2) 14th GCPS Welcome Plenary Keynote

Monday, Apr 23, 9:30 AM

Orlando World Center Marriott, Cypress Ballroom 3

Kathy Shell, Chair

aeSolutions

Robert W. Johnson, Co-Chair

Unwin Company

Sponsored by: 14th Global Congress on Process Safety

9:45 Paper 2a: Process Safety for a Sustainable World — Michael J. Graff*
CEO and President of American Air Liquide and Executive Vice President, Air Liquide Group

(3) What Is Industry 4.0? Panel Discussion

Monday, Apr 23, 9:30 AM

Orlando World Center Marriott, Crystal Ballroom J2

Sponsored by: 2018 AIChE Spring Meeting

(4) Ethylene Plant Process Control

Monday, Apr 23, 9:30 AM

Orlando World Center Marriott, Sago

Sasha Vragolic, Chair

Flint Hills Resources

Eddy Fontenot, Co-Chair

Aspen Technology, Inc.

Sponsored by: Topical 4: The 30th Ethylene Producers' Conference

9:30 Welcoming Remarks

9:35 Paper 4a: Plant-Wide Optimization for High-Value-Added Products: A Steam Cracking Case Study — Kevin M. Van Geem* (1), Guy B. Marin (1), Andres E. Muñoz G. (2), Yu Zhang (3), Wenli Du (3), Feng Qian (3)
(1) Ghent University
(2) AVGI
(3) East China University of Science and Technology

9:58 Paper 4b: MINLP Optimization Approach for Managing Integrated Petrochemical Business Planning —

Jesus Alejandro Ortiz-Cruz Sr., Sandra Angelica Cardoso-Palmeri Sr.*, Janet Carreno-Zamora Sr., Griselda Chavez-Segura Jr. Braskem Idesa*

10:21 Break

10:41 Paper 4c: Control System Migration Program for Dow's Hydrocarbons Facilities — Eddy Yap*, Marinus Van Roosmalen
The Dow Chemical Company

11:04 Concluding Remarks

(5) Reliability and Operability of Rotating Equipment in Ethylene Plants

Monday, Apr 23, 9:30 AM

Orlando World Center Marriott, Royal

Brian Wadas, Chair

GE Oil & Gas

Shane Harvey, Co-Chair

Elliott Group

Sponsored by: Topical 4: The 30th Ethylene Producers' Conference
9:30 Welcoming Remarks

9:35 Paper 5a: Modernization of Existing Ethylene Crackers (Compressor & Turbine Footprint Replacement Options in Brownfield Locations) — Yuji Kuramoto* (1), Bryan Barrington (2), Todd Monroe (2)
(1) Mitsubishi Heavy Industries Compressor International
(2) LyondellBasell

9:50 Paper 5b: Footprint Installation of a Condensing Steam Turbine During a Shutdown —

*Bryan Barrington**
LyondellBasell

10:05 Paper 5c: Compressor Wash Oil Impact on Process Gas Compressor Efficiency and Vibration — Michael Player*, Marie Conrad, David Dutschmann
ExxonMobil Chemical Company

10:20 Break

10:40 Paper 5d: The Soft-Side of the Control Valve: A New Approach for Control Valve Diagnostics — Ricardo Castaneda*
Baker Hughes

11:00 Paper 5e: Mitigating Fouling in Process Gas Compressors — Anahita Khanlari*, Debby Rossana, Theodore C. Arnst
Nalco Champion

11:20 Concluding Remarks

(6) In Honor of Andrew Sloley

Monday, Apr 23, 9:30 AM

Orlando World Center Marriott,

Canary 1/2

Daniel R. Summers, Chair

Sulzer Chemtech USA, Inc.

Andrew W. Sloley, Co-Chair

Advisian (WorleyParsons Group)

Sponsored by: Topical 8: Distillation Symposium

9:30 Welcoming Remarks

9:32 Paper 6a: Distillation Column Dynamics —

Anand N. Vennavelli, Tony J. Cai, Ken C. McCarley*
Fractionation Research, Inc.

10:02 Paper 6b: A New Pilot-Scale Facility for Testing High-Pressure Cryogenic Distillation in LNG Applications —

Philip Hazewinkel (1), Valerie Sage (1), Martin Khamphasith (2), Nick Burke (1), Eric F. May (2)*
(1) Commonwealth Scientific and Industrial Research Organisation
(2) University of Western Australia

10:32 Paper 6c: Process Equipment Imaging by Tomographic Gamma Scan —

Marcio Issamu Haraguchi (1), Hae Yong Kim (2), Wilson A. P. Calvo (3)*
(1) Tricom Tecnologia
(2) Universidade de São Paulo
(3) National Nuclear Energy Commission

11:02 Paper 6d: Debottlenecking of a Large Industrial Deethanizer by Gravity-Driven Two-Phase Flow Analysis —

Antonio Garcia (1), Brian Ballance (2), Joe B. Hatfield (2)*
(1) AMACS
(2) Targa Resources

11:32 Paper 6e: Loss of Float Valves Causing Flood —

Matthew Olsson, Henry Z. Kister*
Fluor Corporation

12:02 Concluding Remarks

(7) Doing More with Less

Monday, Apr 23, 10:30 AM

Orlando World Center Marriott, Grand Ballroom 8A

David A. Moore, Chair

AcuTech Group, Inc.

John Wincek, Co-Chair

DEKRA

Sponsored by: 33rd Center for Chemical Process Safety (CCPS) International Conference

10:30 Paper 7a: Non-Intrusive Internal Inspections of Pressure Vessels in HHC Service —

*Russ Davis**
Mistras Group

11:00 Paper 7b: Optimizing Your Remote HAZOP/LOPA Experience —

*Steven T. Maher**
Risk Management Professionals

11:30 Paper 7c: Methodology to Prioritize Process Safety Action Items —

*Humbert J. Howard III**
SACHEM, Inc.

(8) Extreme Weather and Other External Events

Monday, Apr 23, 10:30 AM

Orlando World Center Marriott, Grand Ballroom 7A

Derek Miller, Chair

Air Products and Chemicals, Inc.

Henry Dwight, Co-Chair

BP

Sponsored by: 52nd Annual Loss Prevention Symposium (LPS)

10:30 Paper 8a: Resilience Against External Events Using Vulnerability Assessment and QRA —

Paul Amico, Peter A. McKnight, Bijan Najafi*
Jensen Hughes

11:00 Paper 8b: Neighboring Risk Assessment for Integrated Gasification-ASU Plant — Edward Cialkowski*, Li Yuqiang
Air Products and Chemicals, Inc.

11:30 Paper 8c: Managing the Risk Associated with Severe Wind and Flood Events in the Chemical Processing Industries —

*Frank F. Liserio Jr., Patrick Mahan**
FM Global

(9) PPSS 20th Anniversary "Best of the Best" I

Monday, Apr 23, 10:30 AM

Orlando World Center Marriott, Grand Ballroom 7B

Philip M. Myers, Chair

Advantage Risk Solutions, Inc.

John W. Champion, Co-Chair

The Dow Chemical Company

Sponsored by: 20th Process Plant Safety Symposium (PPSS)

10:30 Paper 9a: The Process Plant Safety Symposium: Past, Present, and Future —

Victor Edwards (1), Karen Study* (2)*
(1) VHE Technical Analysis
(2) The Dow Chemical Company

11:00 Paper 9b: CSB Investigation Reports and the Hierarchy of Controls: Round 2 — Paul R. Amyotte* (1), Yene Irvine (1), Faisal I. Khan (2)
(1) Dalhousie University
(2) Memorial University

11:30 Paper 9c: Analysis of Spring-Operated Pressure Relief Valve Proof Test Data: Findings and Implications — Julia V. Bukowski* (1), William M. Goble (2), Robert E. Gross (3), Stephen P. Harris (4)
(1) Villanova University
(2) Exida Consulting LLC
(3) Savannah River Nuclear Solutions, LLC
(4) Savannah River National Laboratory

(10) Pressure Relief Design Normative Application — In Honor of Ron Darby
Monday, Apr 23, 10:30 AM
Orlando World Center Marriott, Grand Ballroom 9/10
Georges Melhem, Chair
ioMosaic
Nirupama Gopalaswami, Co-Chair
Honeywell Process Solutions

Sponsored by: Process Safety Spotlights

10:30 Paper 10a: Overpressure Protection of a Pressure Vessel by System Design Through the Application of ASME VIII UG-140 in Lieu of a Relief Device by an Appropriate Choice of MAWP and/or by Safety Instrumented System — Dilip Das*
ioMosaic

11:00 Paper 10b: Purpose, Expectations, and Benefits of Non-Mandatory Appendix M — Kerry McBride* (1), Scott Tipler (2)
(1) Hunt, Guillot, & Associates
(2) The Dow Chemical Company

11:30 Paper 10c: Pressure Relief Sizing Using Area to Charge Scaling Method and Automatic Pressure Tracking — Surendra Singh* (1), Dona Chakra (2), Connor Barrett (1)
(1) ioKinetic
(2) ioMosaic

(11) Spanish Session: Compartiendo Conocimientos y Experiencias Sobre Seguridad de Procesos: Manejo del Riesgo I
Monday, Apr 23, 10:30 AM
Orlando World Center Marriott, Grand Ballroom 11
Sergio Fernandez Sr., Chair
Pan American Energy
Wolfram Jahn von Arnswaldt, Co-Chair
Pontificia Universidad Católica de Chile

Felipe Muñoz, Co-Chair
Universidad de los Andes

Sponsored by: Perspectives on Process Safety from Around the World

10:30 Paper 11a: Preparación de Informes de Seguridad Usando la Metodología Bowtie — Fidel Ilizastigui Sr.*
Risquest

11:00 Paper 11b: HAZOP/What If? Herramientas de Liderazgo y Compromiso Dentro de las Organizaciones — Oswaldo Mata Sr.*, Juan Chaw Sr.*
Solteching

11:30 Paper 11c: Cuando se Reduce el Riesgo en el Papel Pero se Mantiene o Incrementa en la Planta — John Rueda*
Equión Energía

(12) Tutorials in Process Safety — LPS I
Monday, Apr 23, 10:30 AM
Orlando World Center Marriott, Grand Ballroom 8B

Trey Morrison, Chair
Exponent, Inc.
Faraz Khan, Co-Chair
Siemens Oil & Gas

Sponsored by: 7th Process Safety Management Mentoring (PSMM) Forum

10:30 Paper 12a: Evaluating Reactive Chemical Hazards — Peter N. Lodal*
Eastman Chemical Company

11:00 Paper 12b: Testing Reactive Chemical Hazards — Amy Theis*
Fauske & Associates, LLC

11:30 Paper 12c: Learning from Reactive Chemistry Incidents — Ronald J. Willey*
Northeastern University

(13) Fuels & Petrochemicals Division Welcome Session and Keynote
Monday, Apr 23, 11:00 AM
Orlando World Center Marriott, New Orleans/New York

Sponsored by: Fuels and Petrochemicals Division

Co-Sponsored by: Topical 6: 18th Topical Conference on Gas Utilization, Topical 7: 21st Topical on Refinery Processing

11:00 Paper 13a: A View Toward 2035: Challenges for Refining and Petrochemicals in a Changing Energy Mix — Jim Rekoske, Vice President and Chief Technology Officer, Honeywell UOP

(14) 2018 AIChE Spring Meeting & 14th GCPS Monday Luncheon
Monday, Apr 23, 12:00 PM
Orlando World Center Marriott, Cypress Ballroom 3

Sponsored by: 2018 AIChE Spring Meeting & 14th Global Congress on Process Safety

(15) Advanced Process Control and Optimization I
Monday, Apr 23, 1:30 PM
Orlando World Center Marriott, Grand Ballroom 1

Mark Darby, Chair
CMiD Solutions
M. Nazmul Karim, Co-Chair
Texas A&M University

Sponsored by: Topical 7: 21st Topical on Refinery Processing

1:30 Paper 15a: Plant-Wide Scheduling for Profitable Emission Reduction in Petroleum Refineries — Jialin Xu*, Jian Zhang, Sujing Wang, Qiang Xu
Lamar University

2:00 Paper 15b: Using Advanced Process Control (APC) to Solve LPG Quality Issues While Optimizing the Product Distribution — Randy J. Cernik*, Kent H. Rasmussen, Askhat M. Mergenbayev, Togzhan K. Abdeshova, Dennis L. Cima
Tengizchevroil

2:30 Paper 15c: Model Predictive Control on a Vacuum Column — Will McBride* (1), Dustin Beebe* (2)
(1) Calumet Specialty Products Partners
(2) Emerson Automation Solutions

(16) Advances in Gas Processing Design, Purification, and Separation I
Monday, Apr 23, 1:30 PM
Orlando World Center Marriott, Grand Ballroom 5

Mahdi Nouri, Chair
CH2M
Fuyue Stephanie Li, Co-Chair
Honeywell UOP

Sponsored by: Topical 6: 18th Topical Conference on Gas Utilization

1:30 Paper 16a: Adsorbents for Trace Sulfur Removal for Gas Processing — Stephen Caskey*, Shain Doong, Jay Gorawara
Honeywell UOP

2:00 Paper 16b: Tailoring Amine-Based Solvents for Reactive CO₂ Absorption Using Structure-Property Relationships — Elmar Kessler* (1), Luciana Ninni Schäfer (1), Benjamin Willy (2), Rolf Schneider (2), Muhammad Irfan (2), Jörn Rolker (2), Erik von Harbou (1), Hans Hasse (1)

(1) University of Kaiserslautern
(2) Evonik Industries

2:30 Paper 16c: Adsorptive Removal of CO₂ from Natural Gas — Hyung Chul Yoon*, Phani B. S. Rallapalli, Sang-Sup Han, Kanghee Cho, Hee-Tae Beum, Dong-Woo Cho, Sun Hyung Kim, Jong-Nam Kim
Korea Institute of Energy Research

3:00 Paper 16d: Meeting Additional Plant Capacity Requirements Without Adding Additional Vessels — Gene Eberhardt*
Woven Metal Products

(17) Big Data Analytics Plenary
Monday, Apr 23, 1:30 PM
Orlando World Center Marriott, Grand Ballroom 13/14

Ivan Castillo, Chair
The Dow Chemical Company
Leo H. Chiang, Co-Chair
The Dow Chemical Company

Sponsored by: 4th Big Data Analytics

Co-Sponsored by: Sustainable Engineering Forum

1:30 Paper 17a: Digitalization Strategies in an Age of Rapid Change — Lloyd Colegrove*, Erika McBride*
The Dow Chemical Company

2:15 Paper 17b: Big Data Drives Amazon Fulfillment Network — Andrew G. Bruce*
Amazon

(18) Contractors as Operators — Panel
Monday, Apr 23, 1:30 PM
Orlando World Center Marriott, Grand Ballroom 8A

Scott Berger, Chair
Scott Berger and Associates LLC
Megan Murray, Co-Chair
BP

Sponsored by: 33rd Center for Chemical Process Safety (CCPS) International Conference

1:30 Paper 18a: Manufacturer's View: Managing Process Safety Risks of Contract Personnel in a Global Agriculture Company — Elliot Wolf*, Ana Davis
Syngenta

2:00 Paper 18b: Contractor's View: Ownership Is the Secret of Success — Lauren Madden* (1), Tom Zimmer (2)
(1) IMCO General Construction
(2) Rio Tinto

2:30 Paper 18c: Legal View: Legal Implications of Using Contractors as Operators — *Michael Taylor**
Greenberg Traurig

(19) Developments in C3-C5 Petrochemicals I

Monday, Apr 23, 1:30 PM
Orlando World Center Marriott, Grand Ballroom 4

Clayton Sadler, Chair
Honeywell UOP

Shyamal K. Bej, Co-Chair
University of Michigan

Sponsored by: Fuels and Petrochemicals Division

1:30 Paper 19a: Overview of Honeywell UOP Oleflex™ — *Christopher DiGiulio**
Honeywell UOP

2:15 Paper 19b: Propane Aromatization Using Sulfated Zirconia-Supported Mo Catalysts — *Swarom Kanitkar*, Ashraf Abedin, Srikar Bhattachar, James J. Spivey*
Louisiana State University

3:00 Paper 19c: Oxydehydrogenation of Paraffins to Olefins Using Co5MgAlO Catalyst — *Nampe Majoe* Cornelius Mduuzi Masuku, Joshua Gorimbo*
University of South Africa

(20) Division Plenary Session (Invited Talks)

Monday, Apr 23, 1:30 PM
Orlando World Center Marriott, Atlanta

William Hollar, Chair
SABIC Innovative Plastics

Sponsored by: Process Development Division

1:30 Paper 20a: Best Practices for Accelerating Process Development with External R&D Partners — *Jack Dever**
Mid-Atlantic Technology, Research & Innovation Center (MATRIC)

1:53 Paper 20b: The Need for Pilot Plant-Specific Standards — *Richard Palluzi**
Richard P. Palluzi LLC

2:16 Paper 20c: Innovation in Packaging to Address Market Needs — *Ayush A. Bafna*, Rajen M. Patel*
The Dow Chemical Company

2:39 Paper 20d: Upgrading a Zinc Oxide Process to Continuous Vacuum Filtration from Batch Filter Presses — *Barry A. Perlmutter**
BHS Filtration

(21) Educating the Chemical Engineering Workforce on Cybersecurity

Monday, Apr 23, 1:30 PM
Orlando World Center Marriott, Chicago / Denver

Dave Teumim, Chair
Teumim Technical, LLC

Sponsored by: Cybersecurity

1:30 Welcoming Remarks

1:35 Panelist: *Hoda Mehrpouyan,*
Boise State

1:45 Panelist: *Danielle Santos,*
National Initiative for Cybersecurity Education (NICE)

1:55 Panel Discussion Moderated by Dave Teumim, Teumim Technical, LLC

2:57 Concluding Remarks

(22) Facility Siting, Consequence Analysis and Risk Assessment I

Monday, Apr 23, 1:30 PM
Orlando World Center Marriott, Grand Ballroom 7A

Samuel A. Rodgers, Chair
Honeywell Specialty Materials
Walter L. Frank, Co-Chair
Frank Risk Solutions, Inc.

Sponsored by: 52nd Annual Loss Prevention Symposium (LPS)

1:30 Paper 22a: Advanced QRA Methodology-Quantifying Risk-Reduction Measures to Minimize Economic Investment — *Jordi Dunjó*, Marcel Amoros, Neil Prophet, Gene Gorski*
ioMosaic Corporation

2:00 Paper 22b: Radiant Heat Flux Impact Criteria for API RP 752 Building Siting Studies —

Jeffrey D. Marx (1), Benjamin Ishii (1), James Wesevich (2), Sepehr Dara (2)*
(1) Quest Consultants Inc.
(2) Thornton Tomasetti

2:30 Paper 22c: Getting It Right for Projects in Early Design Phase: Advanced Techniques to Ensure Accurate Explosion Assessments — *Drew Botwinick*, Scott G. Davis, Derek M. Engel, Kees van Wingerden*
GexCon

(23) How to Perfect Your Elevator Speech

Monday, Apr 23, 1:30 PM
Orlando World Center Marriott, Miami

Lori McDowell, Chair
Matheson

Sponsored by: Topical B: Leadership Development — Professional Skills to Catalyze Your Career

Co-Sponsored by: Management Division, Young Professionals Committee (YPC), Minority Affairs Committee (MAC)

1:30 Paper 23a: Interactive Elevator Speech — *Meagan Lewis**
Honeywell UOP

(25) Operational Excellence in Refinery Distillation

Monday, Apr 23, 1:30 PM
Orlando World Center Marriott, Grand Ballroom 2

Andrew W. Soley, Chair
Advisian (WorleyParsons Group)
Daniel R. Summers, Co-Chair
Sulzer Chemtech USA, Inc.

Sponsored by: Topical 7: 21st Topical on Refinery Processing

Co-Sponsored by: Topical 8: Distillation Symposium

1:30 Welcoming Remarks

1:33 Paper 25a: Operational Excellence in Refinery Distillation: Better Decisions, Faster — *Tim Shire**
KBC Advanced Technologies Inc.

2:00 Paper 25b: Three Products with High-Purity BTX Dividing-Wall Columns in Operation — *Manish Bhargava*, Ashish Shah*
GTC Technology

2:30 Paper 25c: Operational Optimization of Crude Distillation Units with Unknown and Changing Crudes — *Xiao Yang*, Nan Zhang, Robin Smith*
University of Manchester

2:57 Concluding Remarks

(26) PPSS 20th Anniversary “Best of the Best” II

Monday, Apr 23, 1:30 PM
Orlando World Center Marriott, Grand Ballroom 7B

Philip M. Myers, Chair
Advantage Risk Solutions, Inc.
John W. Champion, Co-Chair
The Dow Chemical Company

Sponsored by: 20th Process Plant Safety Symposium (PPSS)

1:30 Paper 26a: Our Process Safety Journey Continues: Operational Discipline Today — *Bruce K. Vaughen* (1), James A. Klein (2), John W. Champion (3)*
(1) Process Safety Consultant
(2) ABSG Consulting Inc.
(3) The Dow Chemical Company

2:00 Paper 26b: Don't Walk the Line — Dance It! — *Jerry J. Forest**
Celanese

**2:30 Paper 26c: Corrosion Under Insulation Revisited: Aren't We About to Finish That Project? — Andrew Morey*
*The Dow Chemical Company***

(27) Pressure Relief Design Modeling — In Honor of Ron Darby

Monday, Apr 23, 1:30 PM
Orlando World Center Marriott, Grand Ballroom 9/10

Qingsheng Wang, Chair
Oklahoma State University
Srihari K. Maganti, Co-Chair
Midstream & Terminal Services

Sponsored by: Process Safety Spotlights

1:30 Paper 27a: Good Engineering Practice in Protecting Low-Pressure Tanks — *Davide Moncalvo*, Michael Davies*
Braunschweiger Flammenfilter GmbH

2:00 Paper 27b: Selecting the Proper Gas Compressibility Z for Relief Valve Sizing — *Freeman Self*, Satyajit Verma*
Bechtel OG&C

2:30 Paper 27c: Properly Size Two-Phase PRV: Easier Than API 520 HDI Method — *Guofu Chen**
Joule Processing

(28) Redox Flow Battery Technologies for Energy Storage I (Invited Talk)

Monday, Apr 23, 1:30 PM
Orlando World Center Marriott, St. Louis

Ravindra Aglave, Chair
Siemens PLM Software
Jason Morgan, Co-Chair
Worcester Polytechnic Institute

Sponsored by: Topical 5: Emerging Technologies in Clean Energy

1:30 Paper 28a: Review on Vanadium Redox Flow Battery Technologies: Current Trends and Future Directions — *Thomas Rabbow**
University of Bremen

1:55 Paper 28b: Optical Techniques to Illuminate Improvements in Aqueous Organic Redox Flow Batteries — *Andrew Wong*, David Kwabi, Liuchuan Tong, Shmuel Rubinstein, Michael J. Aziz*
Harvard University

2:20 Paper 28c: Commercial Perfluorosulfonic Acid Membranes for Vanadium Redox Flow Battery — *Jiri Vrana* (1), Jiri Charvat (2), Petr Mazur (1), Petr Bělský (1), Jan Dundalek (1), Jaromir Pocedic (1), Juraj Kosek (2)*
(1) University of West Bohemia

(2) University of Chemistry and Technology, Prague

**(29) Spanish Session:
Compartiendo Conocimientos y
Experiencias Sobre Seguridad de
Procesos: Manejo del Riesgo II
Monday, Apr 23, 1:30 PM**

Orlando World Center Marriott, Grand Ballroom 11

Sergio Fernandez Sr., Chair

Pan American Energy

**Wolfram Jahn von Arnswaldt,
Co-Chair**

Pontificia Universidad Católica de Chile

Felipe Muñoz, Co-Chair

Universidad de los Andes

Sponsored by: Perspectives on Process Safety from Around the World

1:30 Paper 29a: Como Enfrentar el Reto del Crecimiento Poblacional Alrededor de Instalaciones Industriales de Petróleo y Gas — Maria Trillos*, William Gutierrez Sr.* Pxyida Tech

2:00 Paper 29b: Gestión del Conocimiento en el Complejo Industrial Plaza Huincul de YPF: Disciplina Operativa — Juan M. Fernandez B.* YPF S.A.

2:30 Paper 29c: Nueva Estructura Legislativa Colombiana para el Programa de Prevención de Accidentes Mayores — Julian Enrique Mendez Alvarez (1), Felipe Muñoz Giraldo* (1), Gldys Puerto (2), Ana María Ocampo Gómez (2) (1) Universidad de los Andes (2) Ministry of Environment and Sustainable Development

(30) Tutorials in Process Safety — PPSS I

Monday, Apr 23, 1:30 PM

Orlando World Center Marriott, Grand Ballroom 8B

Sandipan Laskar, Chair

Occidental Oil and Gas Corporation

Michael Hazzan, Co-Chair

AcuTech Group, Inc.

Sponsored by: 7th Process Safety Management Mentoring (PSMM) Forum

1:30 Paper 30a: California's 2017 Process Safety Regulations for Oil Refineries: The Future of U.S. PSM Regulations? — Michael P. Wilson* (1), Donald Holmstrom (2) (1) BlueGreen Alliance (2) Chemical Safety Board (Retired)

2:00 Paper 30b: Jurisdictional Boundaries in Midstream: Where Is the Line? — Lauren Mercer* Provenance Consulting

2:30 Paper 30c: Game-Based Learning; Reinforcing Process Safety — James Sneddon*, Vinicius Simoes Risktec Solutions

(31) YP Tutorial: Separation Process Fundamentals

Monday, Apr 23, 1:30 PM

Orlando World Center Marriott, Grand Ballroom 6

Anand N. Vennavelli, Chair

Fractionation Research, Inc.

Anand Govindarajan, Co-Chair

Three Ten Initiative Technologies

Sravanthi Vupputuri, Co-Chair

Saint Luke's Health System

Sponsored by: Separations Division

Co-Sponsored by: Young Professionals Committee (YPC)

1:30 Paper 31a: Distillation 101: Theory to Practice — Daniel R. Summers* Sulzer Chemtech USA, Inc.

2:00 Paper 31b: Be Prepared for Column Inspections — Ken C. McCarley*, Anand N. Vennavelli, Tony Cai, Chao Wang Fractionation Research, Inc.

2:30 Paper 31c: Liquid Distributor Fundamentals — Simon Chambers* (1), Anand N. Vennavelli (2) (1) Norwood (2) Fractionation Research, Inc.

3:00 Break

3:30 Paper 31d: Acid Gas Absorption Fundamentals — Clint P. Aichele*, Michael R. Resetarits Oklahoma State University

4:00 Paper 31e: Using Radioisotope Techniques for Process Investigations — Lowell Pless*, Brian Davis, Andy Burleigh Tracerco

(32) Ethylene Plant Feedstock Contaminants

Monday, Apr 23, 2:00 PM

Orlando World Center Marriott, Sago

Mark Brayden, Chair

The Dow Chemical Company

Joe Lally, Co-Chair

Evonik Corporation

Sponsored by: Topical 4: The 30th Ethylene Producers' Conference

2:00 Welcoming Remarks

2:05 Paper 32a: Cold Box Fouling in a Cracker — Helene Launay*, Stefan Korf, Mark Brayden, Pieter Vijfhuizen, Bart Dervaux, Ron Bassie, Peter E. Feld The Dow Chemical Company

2:30 Paper 32b: Zero Waste/ Polymer Disposal from Caustic Tower Saves \$1MM/Year in Versalis Ethylene Unit — Patrick Lucas* (1), Fabrizio Lucchese (2), Oreste Vassillo* (1) (1) SUEZ Water Technologies & Solutions (2) Versalis S.p.A.

2:55 Paper 32c: CSTR Study of Aldol Polymerization Inhibition in Ethylene Plant Caustic Towers — Satheesh Sambandam*, Bassam Alnasleh, Debby Rossana Nalco Champion

3:20 Break

3:40 Paper 32d: How Much Is Too Much? Feed Contaminants and Their Consequences — Kandasamy M. Sundaram*, Barbara Stancato CB&I

4:05 Paper 32e: A New Technology for Reduction of Sulfur Contamination in Petrochemical Feed Stocks — Sai Reddy Pinappu*, Hua Mo Baker Hughes

4:30 Paper 32f: Carbon Dioxide: An Overview on Removal Technology — David Slim*, Phillip James, Joe Lally Evonik Corporation

4:55 Concluding Remarks

**(33) Ethylene Plant Rotating Equipment Panel Discussion
Monday, Apr 23, 2:00 PM**

Orlando World Center Marriott, Royal

Brian Wadas, Chair

GE Oil & Gas

Shane Harvey, Co-Chair

Elliott Group

Sponsored by: Topical 4: The 30th Ethylene Producers' Conference

2:00 Welcoming Remarks

2:05 Paper 33a: Refrigeration Compressors in Ethylene Plants — Shane Harvey* Elliott Group

2:30 Paper 33b: Highly Efficient and Compact Solutions for Next-Generation Turbocompressors in Ethylene Plant — Sergio Ghezzi*, Giuseppe Iurisci, Francesca Monti Baker Hughes

2:55 Paper 33c: Design Challenges to Apply Mixed-Flow Impeller Technology to 3000 KTA Ethane Cracker — Ronald Josefczyk* (1), Daniel Jones* (2) (1) Elliott Group (2) TechnipFMC Process Technology

3:20 Break

3:40 Paper 33d: Compressor Trial Design and Study with Super-High-Flow-Coefficient Impeller — Satoru Yoshida* Mitsubishi Heavy Industries Compressor International

4:05 Paper 33e: Supercritical Ethylene Export — Torben Hoefel*, Gunther Kracker, Martin Kamann Linde Engineering

4:30 Panel Discussion

5:00 Concluding Remarks

(34) RAPID Information Session and Meet & Greet

Monday, Apr 23, 3:30 PM

Orlando World Center Marriott, Anaheim

James Bielenberg, Chair

RAPID Manufacturing Institute

Sponsored by: Topical C: Process Intensification

(35) Advanced Process Control and Optimization II

Monday, Apr 23, 3:30 PM

Orlando World Center Marriott, Grand Ballroom 1

Mark Darby, Chair

CMiD Solutions

M. Nazmul Karim, Co-Chair

Texas A&M University

Sponsored by: Topical 7: 21st Topical on Refinery Processing

3:30 Paper 35a: Real-Time Calculation and Closed-Loop Control of Dewpoint and Salt Deposition Temperature at a CDU, Using an Online Analyzer — Sebastien Osta* Total Petrochemicals and Refining

4:00 Paper 35b: Data-Driven Real-Time Estimation and Optimization for Integrated Pre-Heat Exchange Trains and Distillate Cutpoints in Multiple Fractionation Columns — Brenno C. Menezes* (1), Cesar S. Ikarimoto (2), Jeffrey D. Kelly (3), Galo A. C. Le Roux (1) (1) University of São Paulo (2) Petrobras (3) Industrial Algorithms

4:30 Paper 35c: Increase Profitability with Global Optimization — Shashi Mistry* (1), Perry Nordh* (2) (1) Suncor Energy (2) Honeywell

5:00 Paper 35d: Decision Automation for Lubes and Asphalt Production Scheduling Using MILP with Sequence-Dependent Switchovers — Jeffrey D. Kelly (1), Brenno C. Menezes* (2)
(1) Industrial Algorithms
(2) University of São Paulo

(36) Advances in Gas Processing Design, Purification, and Separation II Monday, Apr 23, 3:30 PM

Orlando World Center Marriott, Grand Ballroom 5

Mahdi Nouri, Chair
CH2M

Fuyue Stephanie Li, Co-Chair
Honeywell UOP

Sponsored by: Topical 6: 18th Topical Conference on Gas Utilization

3:30 Paper 36a: Regeneration Peak Profiles of Temperature Swing Adsorption Processes — Shain Doong*
Honeywell UOP

3:55 Paper 36b: CFD Simulation of a Plunging Jet Down-Flow Bubble Column with Variable Free-Jet Length Using a Euler-Euler Method — Mutharasu LC* (1), Mayur Sathe (1), Geoffrey M. Evans (2), Krishnaswamy Nandakumar (1)
(1) Louisiana State University
(2) University of Newcastle

4:20 Paper 36c: Design and Analysis of Cryogenic Air Separation Processes Integrated with Liquefied Natural Gas Gasification — Ravinder Singh, Huilong Gai*, Helen Lou
Lamar University

(37) Big Data Analytics and Smart Manufacturing Monday, Apr 23, 3:30 PM

Orlando World Center Marriott, Grand Ballroom 13/14

Shekhar Viswanath, Chair
Eli Lilly and Company
Osvaldo Bascur, Co-Chair
OSIsoft, LLC

Sponsored by: 4th Big Data Analytics

Co-Sponsored by: Sustainable Engineering Forum

3:30 Paper 37a: Digital Twins for Predicting Early Onset of Failures in Flow Valves — Deval Pandya* (1), Bruce Lam (1), Sander Suursula (2), Peter Kwaspén (1)
(1) Shell
(2) Technische Universiteit Delft

4:00 Paper 37b: Accelerating Time to Value by Integrating Smart Technology and Business Operations — Peter Kalish*
O'Brien & Gere

4:30 Paper 37c: Challenges for Big Data Use of Production Process Data — James Sturmfeld*, Jonathan D. Mendenhall, Daniel W. Trahan, Fabio D'Ottaviano, Bo Shuang
The Dow Chemical Company

(38) Big Data Analytics and Statistics Monday, Apr 23, 3:30 PM

Orlando World Center Marriott, Grand Ballroom 12

Swee-Teng Chin, Chair
The Dow Chemical Company
James Cross III, Co-Chair
The MathWorks, Inc.

Sponsored by: 4th Big Data Analytics

Co-Sponsored by: Sustainable Engineering Forum

3:30 Paper 38a: Risk Analysis for Count Data — Marcus Webb, Swee-Teng Chin*, Ruben 't Lam
The Dow Chemical Company

4:00 Paper 38b: Dealing with Small Data in Biopharmaceutical Batch Process Monitoring: A Machine-Learning Approach — Aditya Tulsyan*, Chris Garvin, Cenk Undey
Amgen Inc.

4:30 Paper 38c: Analysing Big Data in Dairy Processing, by Throwing Most of It Away — Nick Depree* (1), Arrian Prince-Pike (1), Brent R. Young (1), David I. Wilson (2)
(1) University of Auckland
(2) Auckland University of Technology

(39) Challenges in Process Scale-Up Monday, Apr 23, 3:30 PM

Orlando World Center Marriott, Atlanta

Hsiang Yee Lai, Chair
Southwest Research Institute
Robert Browne, Co-Chair
Texas A&M University

Sponsored by: Pilot Plants

3:30 Paper 39a: Data-Driven, Model-Based Approaches to the Scale-Up, Transfer and Alignment of Processes — John MacGregor*, Marlene Cardin
ProSensus Inc.

3:55 Paper 39b: How to Successfully Scale Up Batch Reactors — Olivier Baudouin*, Stephane Dechelotte, Philippe Guittard, Rodolphe Sardeing, Benjamin Wincure
ProSim

4:20 Paper 39c: How Proper Startup and Shutdown Procedures Are Critical in Operating the Laboratory Fixed-Bed Reactors — Anil Mehta*
The Dow Chemical Company

(40) Developments in Bio-Petrochemicals Monday, Apr 23, 3:30 PM

Orlando World Center Marriott, Grand Ballroom 4

John Senetar, Chair
Honeywell UOP

Belma Demirel, Co-Chair
BP

Sponsored by: Fuels and Petrochemicals Division

Co-Sponsored by: Young Professionals Committee (YPC)

3:30 Paper 40a: Ethanol to Infrastructure-Compatible (Jet) Fuels via Ethanol Coupling Reactions — Karthikeyan K. Ramasamy*, Mond Guo, Senthil Subramaniam, Michel Gray
Pacific Northwest National Laboratory

4:00 Paper 40b: Purification of Tire Pyrolytic Oil (TPO) and Its Comparison with Diesel Fuel — Adeel Ahmad*, Srishti Mishra*
Delhi Technological University

(41) Facility Siting, Consequence Analysis and Risk Assessment II Monday, Apr 23, 3:30 PM

Orlando World Center Marriott, Grand Ballroom 7A

Samuel A. Rodgers, Chair
Honeywell
Walter L. Frank, Co-Chair
Frank Risk Solutions, Inc.

Sponsored by: 52nd Annual Loss Prevention Symposium (LPS)

3:30 Paper 41a: New Criteria for Safety Distances During Pneumatic Pressure Testing of Vessels and Pipes — Derek Miller* (1), Simon Jallais (2), Minh Pham-Huy (2), Jihui Geng (3)
(1) Air Products and Chemicals, Inc.
(2) Air Liquide
(3) Baker Engineering and Risk Consultants, Inc.

4:00 Paper 41b: "Fit-for-Purpose" Consequence Analysis as Demonstrated by Anhydrous Ammonia and Aqueous Ammonia — Keith Lennon*, Mike James
Eastman Chemical Company

4:30 Paper 41c: Modeling Reactive Mixtures: Case Study for Spills of Formaldehyde Solutions — David W. Drew* (1), Seshu Dharmavaram (2), Kevin L. Gilbert (2)
(1) DuPont (Retired)
(2) DuPont

(42) Fouling and Corrosion / Heat Exchangers Monday, Apr 23, 3:30 PM

Orlando World Center Marriott, Grand Ballroom 2

Francesco Coletti, Chair
Hexxcell Ltd.

Artur W. Krueger, Co-Chair
American European Consulting Company

Sponsored by: Topical 7: 21st Topical on Refinery Processing

3:30 Paper 42a: Automation Strategies for Crude Feedstock Optimization — Kjell Wold*, Tim Olsen
Emerson

4:00 Paper 42b: Improving Crude Oil Fouling Monitoring, Prediction and Mitigation Strategies in Refinery Preheat Trains — Emilio Diaz-Bejarano (1), Francesco Coletti* (1), Sandra Macchietto (2)
(1) Hexxcell Ltd.
(2) Imperial College London

4:30 Paper 42c: Improving the Crude Vacuum Heater — Andrew W. Sloley*
Advisian (WorleyParsons Group)

(43) Human Performance Monday, Apr 23, 3:30 PM

Orlando World Center Marriott, Grand Ballroom 8A

Eric Freiburger, Chair
Praxair, Inc.
Samantha Scruggs, Co-Chair
BP America

Sponsored by: 33rd Center for Chemical Process Safety (CCPS) International Conference

3:30 Paper 43a: Human Factors in Real-Life Applications: A SCUBA Example — Trish Kerin*
Institution of Chemical Engineers

4:00 Paper 43b: Do Not Investigate. Learn. Ask How! — Sahika Korkmaz* (1), Jill Donnelly* (2)
(1) Chevron Downstream and Chemicals
(2) Parkland

4:30 Paper 43c: Helping Humans Get It Right — Lindsey Miller* (1), Cheryl Grounds* (2)
(1) BP
(2) CCPS Emeritus

(44) Identifying Opportunities for Sustainability in Chemical Processes I

Monday, Apr 23, 3:30 PM

Orlando World Center Marriott, Chicago

Quinta Nwanosike-Warren, Chair

Engineering Research Consulting; US Department of Energy

Sponsored by: Sustainable Engineering Forum

Co-Sponsored by: Process Development Division, Process Research and Innovation, Process Safety Spotlights

3:30 Paper 44a: Designing Carbon-Based Materials for Efficient Hydrocarbon Synthesis

— *Samira Siahrostami* (1), Kun Jiang (2), Mohammadreza Karamad (1), Haotian Wang (2), Jens Nørskov (1) (1) Stanford University (2) Harvard University*

3:52 Paper 44b: Leveraging Separations to Improve Sustainability of Chemical Processes

— *Michael A. Schultz* PTI Global Solutions*

4:14 Paper 44c: Soot Generation of Olefin and Alkane Flares

— *Anan Wang*, Helen Lou, Daniel Chen, Xianchang Li, Christopher Martin Lamar University*

4:36 Paper 44d: Modular Coal Gasification Systems: A Fit for Future of Power Generation?

— *Quinta Warren* Engineering Research Consulting; US Department of Energy*

(45) Pressure Relief Design Learned from Practice — In Honor of Ron Darby

Monday, Apr 23, 3:30 PM

Orlando World Center Marriott, Grand Ballroom 9/10

Davide Moncalvo, Chair

Braunschweiger Flammenfilter GmbH
Freeman Self, Co-Chair
Bechtel OG&C

Sponsored by: Process Safety Spotlights

3:30 Paper 45a: Test-Based Good Engineering Practice in Avoiding Pilot Relief Valve Chatter on Cryogenic Low-Pressure Storage Tanks

— *Davide Moncalvo, Michael Davies*, Thomas Heidermann Braunschweiger Flammenfilter GmbH*

4:00 Paper 45b: Pressure Relief Design for Reactive Systems

— *Michelle Murphy* (1), Surendra Singh (1), Calvin Chan (2) (1) ioKinetic (2) ioMosaic*

4:30 Paper 45c: A Structured Data Collection Approach to Improve Pressure Relief Analysis (PRA) Efficiency and Keep Process Safety Information (PSI) Documentation Ever-Greening

— *Pengchong Zhang*, Alysson Ferreira*, Kartik Maniar* Siemens*

(46) Process Safety Culture — Let's Get Real

Monday, Apr 23, 3:30 PM

Orlando World Center Marriott, Grand Ballroom 7B

Katherine Prem, Chair

Arkema
Ian S. Mylenbusch, Co-Chair
Southern Company

Sponsored by: 20th Process Plant Safety Symposium (PPSS)

Co-Sponsored by: Sustainable Engineering Forum

3:30 Paper 46a: Case Studies and Lessons from Process Safety Culture Improvement Initiatives

— *Steve Arendt, Rick Curtis* ABS Consulting*

4:00 Paper 46b: Contact Energy Process Safety — “Our Story”: How Leadership and Staff Engagement Ensured That “Safe to Run” Was a Fundamental Culture Change Supported by System and Process Changes

— *Brendan Bleasdale* Contact Energy*

4:30 Paper 46c: Recommendations and the Broken KPI

— *Allison De Man*, Ron Mukherjee ACM Facility Safety*

(47) Redox Flow Battery Technologies for Energy Storage II

Monday, Apr 23, 3:30 PM

Orlando World Center Marriott, St. Louis

Jason Morgan, Chair

Worcester Polytechnic Institute

Sponsored by: Topical 5: Emerging Technologies in Clean Energy

3:30 Paper 47a: Role of Hydrogen Evolution Reaction During Zinc Electrodeposition from Flowing Alkaline Zincate Solutions

— *Jan Dundalek* (1), Ivo Snajdr (2), Ondrej Libansky (2), Jiri Vrana (2), Jaromir Povedic (1), Petr Mazur (1), Juraj Kosek (2) (1) University of West Bohemia (2) University of Chemistry and Technology, Prague*

3:55 Paper 47b: Graphite Felt Electrodes for Vanadium Redox Flow Battery: Long-Term Stability and Hydrogen Evolution Reaction

— *Petr Mazur* (1), Jindřich Mrlik (2), Jaromir Povedic (1), Jiri Vrana (1), Jan Dundalek (1), Juraj Kosek (2,1)*

(1) University of West Bohemia

(2) University of Chemistry and Technology, Prague

4:20 Paper 47c: Negative Electrolyte Additive and Heteroatom Co-Doping of Positive Electrode for Improving Electrical Performance of Vanadium Redox Flow Battery

— *Kothandaraman Ramanujam*, Vasudevarao P. Indian Institute of Technology Madras*

(48) Spanish Session: Compartiendo Conocimientos y Experiencias Sobre Seguridad de Procesos: Manejo del Riesgo III

Monday, Apr 23, 3:30 PM

Orlando World Center Marriott, Grand Ballroom 11

Sergio Fernandez Sr., Chair

Pan American Energy
Wolfram Jahn von Arnswaldt, Co-Chair

Pontificia Universidad Católica de Chile

Felipe Muñoz, Co-Chair
Universidad de los Andes

Sponsored by: Perspectives on Process Safety from Around the World

3:30 Paper 48a: Culpar o Aprender: Desafío de la Seguridad de Proceso

— *Nestor H. Sposito Sr.* CCPS*

4:00 Paper 48b: Observaciones de Seguridad de Procesos: Identificación de Precursores de Incidentes

— *Juan Mario Lopez Cristeche*, Sergio Fernandez Pan American Energy*

4:30 Paper 48c: Disciplina Operacional: Una Necesidad para la Seguridad de Procesos

— *Jose Villarreal*, Luis Jaimés* Stork, a Fluor Company*

(49) Tutorials in Process Safety — CCPS I

Monday, Apr 23, 3:30 PM

Orlando World Center Marriott, Grand Ballroom 8B

John Wincek, Chair

DEKRA
David Drabish, Co-Chair
Solvay

Sponsored by: 7th Process Safety Management Mentoring (PSMM) Forum

3:30 Paper 49a: The PSM Roadmap: The Technical Tool to Implement RBPS

— *Cesar Augusto Puma Sr.* Pluspetrol*

4:00 Paper 49b: The Uses and Users of PHA/HAZOP Results

— *William Bridges, Paul Casarez, Jeff Thomas* Process Improvement Institute, Inc.*

4:30 Paper 49c: Practical Application of Bowtie Analysis: Enhancing Traditional PHA

— *James Sneddon*, Vinicius Simoes Risktec Solutions*

(50) You Are Born with 2 Ears and 1 Mouth for a Reason

Monday, Apr 23, 3:30 PM

Orlando World Center Marriott, Miami

Laura Dietsche, Chair

The Dow Chemical Company

Sponsored by: Topical B: Leadership Development — Professional Skills to Catalyze Your Career

Co-Sponsored by: Management Division, Young Professionals Committee (YPC), Minority Affairs Committee (MAC)

(51) Big Data Analytics: Poster Session

Monday, Apr 23, 5:00 PM

Orlando World Center Marriott, Cypress Ballroom 1/2

Brad David, Chair

The Dow Chemical Company

Ivan Castillo, Co-Chair

The Dow Chemical Company

Sponsored by: 2018 AIChE Spring Meeting

Co-Sponsored by: 4th Big Data Analytics & Sustainable Engineering Forum

Paper 51a: Low-Touch Machine Learning Is Fulfilling the Promise of APM

— *John Hague*, Christopher Williams Aspen Technology, Inc.*

Paper 51b: Big Data Analytics Platforms: The Key to Enabling the Analytic Enterprise

— *Danny Smith*, Steve Rice SAS*

Paper 51c: Industry 4.0 and Driving Better Organizational Decisions

— *Josh Shupp*, Dana Petrusich Northwest Analytics*

Paper 51d: Early-Stage Digital Transformation: A Case Study

— *Tim Diller* Enthought, Inc.*

Paper 51e: Integrated Technical Computing for Process Engineering

— *James Cross III* The MathWorks, Inc.*

Paper 51f: Tony Stark Needs Jarvis to Run Iron Man: What's the Future in AI for Continuous Process Industries?

— *Laurent Laporte* Braincube*

Paper 51g: Approaches to Multiblock Modeling and Dimension Reduction for Combining Disparate Data Types— *Heather Brooke**, *Frank Westad*
CAMO Software Inc.

Paper 51h: Manufacturing Analytics: The Journey So Far — *Brad David**, *Chaitanya Khare**
The Dow Chemical Company

Paper 51i: Applying Predictive Analytics to Develop Actionable Demand Forecasts — *Ameya Dhaygude**
The Dow Chemical Company

(52) Clean Energy Technologies Poster Session

Monday, Apr 23, 5:00 PM

Orlando World Center Marriott,
Cypress Ballroom 1/2

Jason Morgan, Chair
Worcester Polytechnic Institute

Sponsored by: 2018 AIChE Spring Meeting

Co-Sponsored by: Emerging Technologies in Clean Energy

Paper 52a: Measurements and Calculations of Asphaltene Deposition — *Adel Elsharkawy* (1)*, *Maryam Al-Matrouk (2)*
(1) Kuwait University
(2) Kuwait Oil Company

Paper 52b: Research on Solution of Suspending Seabed Pipeline Based on Bionic Protective Technology — *Shuang Liang**
China National Petroleum Corporation

Paper 52c: A Heat-Recirculating Combustor Using SiC Porous Foam for Thermophotovoltaic Power Devices — *Hee Kyung Kim**, *Tae Young Kim*, *Young Hoo Kim*, *Jae Won Ku*, *Oh Chae Kwon*
Sungkyunkwan University

Paper 52d: Combustion Properties of Outwardly Propagating Spherical CH₄-NH₃/Air Flames — *Jae Won Ku**, *Yeong Jong Ahn*, *Sun Choi*, *Oh Chae Kwon*
Sungkyunkwan University

Paper 52e: Implementation of Distributed Co-Simulation for Robust Design of Urban Energy Systems — *Pablo Puerto* (1)*, *Jakob Rager (2)*, *Jessen Page (3)*, *Bruno Ladevie (1)*
(1) IMT Mines Albi
(2) Centre de Recherches Énergétiques et Municipales
(3) HES-SO

Paper 52f: The Feasibility of Replacing Electric Drives with Wind Energy in the SWRO System — *Louis Mielke* (1)*, *Brian Cantwell (2)*

(1) Self-Employed
(2) Fluor Corporation

Paper 52g: Bio-Drying: A Sustainable Approach for Enhancing the Pre-Treatment Process and Thermal Properties of Green Waste — *Mutala Mohammed**
University of Kocaeli

(53) GCPS Electronic Poster Session Monday, Apr 23, 5:00 PM

Orlando World Center Marriott,
Cypress Ballroom 1/2

Sponsored by: 14th Global Congress on Process Safety

Paper 53a: Using CFD Effectively on Your Onshore QRA — *Vinicius Simoes**, *Frank Hart*
Risktec Solutions Ltd.

Paper 53b: A Quantitative Individual Risk Assessment Method in Process Facilities with Toxic Gas Release Hazards: A Scenario Library and CFD Combined Approach — *Bo Zhang**
China University of Petroleum

Paper 53c: Risk Analysis Screening Tool — *Albert Ness* (1)*, *David Hurban* (2)*, *Ken First (3)*
(1) CCPS
(2) American Electric Power
(3) The Dow Chemical Company

Paper 53d: Uncertainty in the Determination of the Ignition Energy of Dusts Below 10mJ — *Ulrich Krause (1)*, *Marcus Marx (2)*, *Dieter Gabel* (1)*
(1) Otto-von-Guericke-Universität Magdeburg
(2) Ingenieurbüro KompEx

Paper 53e: The Path to Safe Start-Up: A Change in Pre-Startup Safety Review (PSSR) Perspective — *Rae Ann Joseph**
Atlantic LNG Company of Trinidad and Tobago

Paper 53f: Reducing CAPEX Project Risks and Costs by Performing Pressure Relief Analysis (PRA) During Early Design Stage — *Sarah Link**, *Pengchong Zhang**, *Alysson Ferreira**
Siemens

Paper 53g: Process Safety Information Review and PHA Team Engagement — *James Martin**
DowDuPont Inc.

Paper 53h: Can Human Error Be Measured, Predicted, or Controlled? — *Kyle Wingate**
Lloyd's Register

Paper 53i: Quality Checks on PHAs — *Denise Albrecht**, *Kathy Hintze**
3M

Paper 53j: A Novel Methodology for Auditing Management of Change (MOC) Program to Make It Sustainable — *Sandipan Laskar**
Occidental Oil and Gas Corporation

Paper 53k: An Adaptable Approach to Management of Change — *Brian Desrosiers**
Environmental Resources Management

Paper 53l: Top Ten Failure Modes Your Burner Management System Must Be Protected Against — *Charles Fialkowski**
Siemens

Paper 53m: Integration of Automation Lifecycles: How Functional Safety, Cybersecurity, and Alarm Management Work Together — *Iwan van Beurden**, *Kate Hildenbrandt**
Exida Consulting LLC

Paper 53n: Dynamic Risk: Closing the Loop on Mechanical Integrity Programs — *Vipin Nair**, *Jared Hartness**
General Electric

Paper 53o: Why Run-to-Fail Is Not a Good Strategy for SIS — *Steve Gandy* (1)*, *Keyur Vora* (2)*
(1) Exida Consulting LLC
(2) Reliance Corporate IT Park Ltd.

Paper 53p: Practical Considerations in Conducting Dust Hazard Analyses — *Dan Reinke**
Environmental Resources Management

Paper 53q: Tying It All Together — *Barry W. Bennett**
Independent

Paper 53r: The Art of PHA Scribing: The Invisible Role — *Matias A. Massello**
Process Improvement Institute Inc.

Paper 53s: So You Have Implemented PSM. Does It Help You to Better Recover from Major Disasters? — *Alfonsius Ariawan**, *Lawrence S. Short*
DuPont

Paper 53t: Going Beyond Design Basis Floods — *Kirk Busby**, *Mardy Kazarians*
Kazarians & Associates, Inc.

Paper 53u: Sensitivity Analysis of Transport Conditions on Liquefied Gas Hazards — *Ryan J. Hart*, *Miguel Garcia**, *Delmar "Trey" Morrison*
Exponent, Inc.

Paper 53v: Comparison of Causal Factors for Dozens of Loss-of-Containment Incidents in R&D and Manufacturing Facilities — *Many in Common* — *Jerry L. Jones**
AIChE CCPS

Paper 53w: Prediction of Fire and Explosion Properties from Molecular Structure Using Quantitative Structure-Property Relationship (QSPR) Models — *Qingsheng Wang**
Oklahoma State University

Paper 53x: Energy Loss Risk (ELOS R) in Supply Chain, Micro & Macro Process — *Salvador Avila Filho* (1)*, *Ivone C. S. Cerqueira (1)*, *Carla Galvão (1)*, *Jean Marcel (2)*, *Jose Rafael Nascimento Lopes (3)*
(1) Universidade Federal da Bahia
(2) UNIFACS
(3) SENAI

Paper 53y: Evergreening: Bringing Management Awareness to Process Safety Risks in the Face of Constant Change — *Alysson Ferreira**, *Raphael Ogbongbemiga*
Siemens

Paper 53z: Reliability Under Pressure: Pressure Relief Systems as Independent Protection Layers — *Todd W. Drennen**, *Rene Murata**
Risk Integrity Safety Knowledge, Inc.

Paper 53aa: Towards an Inherently Safer Bio-Processing Industry — *Nilesh Ade**, *Yogesh Koirala*, *M. Sam Mannan*
Texas A&M University

Paper 53ab: Simultaneous Design and Control of an Inherently Safer Extractive Distillation Column — *Denis Su-Feher**, *Bin Zhang*, *Yogesh Koirala*, *Efstathios N. Pistikopoulos*, *M. Sam Mannan*
Texas A&M University

Paper 53ac: Racionalización Efectiva en la Gestión de Alarmas en Plantas de Procesos — *Romel Rodriguez**, *Jazmyle Zelaya**
CSF Consultoría en Seguridad Funcional

Paper 53ad: Application of Advanced Alarm Management Analysis in a Petrochemical Plant in Cartagena, Colombia: A Case of Study — *Edgar de J. Campo*
*Castrillón**
University of Cartagena

Paper 53ae: Safeguard Assurance Programs Within Chevron — *Vincent Attanucci**, *Tracey Driver**
Chevron

(54) GCPS Poster Session
Monday, Apr 23, 5:00 PM
Orlando World Center Marriott,
Cypress Ballroom 1/2

Marabeth Holsinger, Co-Chair
The Dow Chemical Company
Lauren Moyer, Co-Chair
Eastman Chemical Company
Jeff Stawicki, Co-Chair
The Lubrizol Corporation

Sponsored by: 14th Global Congress
on Process Safety

Paper 54a: Risk-Based Decision-Making in Offshore Production Facilities Design Using Enhanced Application of QRA — *Daniel Cheung* (1), SreeRaj Nair (1), Jim Salter (1), Clive Robinson (2), Zoë Wattis (2)*
(1) *Chevron*
(2) *DNV GL*

Paper 54b: Analysis of European Oil and Gas Industry Accidents by Statistical Modelling of Human and Organisational Factors — *Bassey O. Bassey*, Tochukwu Ajare*
Coventry University

Paper 54c: Holistic Planning Is Key for Good Safety in Projects and Construction Industry — *Sarang Mahajan**
DuPont Sustainable Solutions

Paper 54d: Development of Chemical Accident Response Scenario for Public Officers in Korea — *Youngjin Kim*, Seunghyeon Oh, Seokyoung Hong, Chonghwa Eun, Il Moon*
Yonsei University

Paper 54e: Improved Prediction of Alkyd Reactors via Infrequent-Delayed Observations — *Chigozie Uzoh**
Nnamdi Azikiwe University

Paper 54f: Managing Labs and Pilot Plant Safety Based on Risk-Based Process Safety Management — *Kabier Moideenkutty*, Ahmed Ghaleb*
Takreer Research Centre

Paper 54g: Hybrid Mathematical Modeling and Deep Learning of Big Data for Optimal Sensor Placement and Tracking of Chemical Leaks — *Dongil Shin**
Myongji University

Paper 54h: Stress Corrosion Cracking of Type 304 Stainless Steel Stem of Pressure Relief Valve in Crude Oil and Ethanol Environments — *Noor Quddus*, Pritishma Lakhe, Sunder Janardanan, L. Tatiana Flechas-Moreno, Cassio Brunoro Ahumada, M. Sam Mannan*
Texas A&M University

Paper 54i: Bowtie Risk Management Methodology in Chlor-Alkali Industry — *Fidel Ilizastigui Sr.**
Risquest

Paper 54j: Safety Assessment of Secondary Alcohol Oxidation with Hydrogen Peroxide — *Sun Yue* (1), Lei Ni (2), Maria Papadaki (3), Wen Zhu (1), Juncheng Jiang (2), M. Sam Mannan (1)*
(1) *Texas A&M University*
(2) *Jiangsu Key Laboratory of Hazardous Chemicals Safety and Control*
(3) *University of Patras*
Paper 54k: Performing Quantitative Risk Calculations for a Natural Gas Pipeline — *John B. Cornwell*, Benjamin Ishii*
Quest Consultants Inc.

Paper 54l: An Approach to QRA Using Modeling to Develop Event Frequencies — *Bijan Najafi*, Adan Kiyama, Paul Amico, Matt Johnson*
Jensen Hughes

Paper 54m: LOPA: Performed When and by Who — *William Bridges*, Art Dowell III**
Process Improvement Institute, Inc.

Paper 54n: Calorimetric Study of Graphene Oxide Thermal Stability — *Pritishma Lakhe*, Devon Kulhanek, Wanmei Sun, Bin Zhang, Micah J. Green, M. Sam Mannan*
Texas A&M University

Paper 54o: Competence to Treat Human Error by Distance Education: A Travel to the Sun! — *Salvador Ávila Filho* (1), Ivone C. S. Cerqueira (1), Euclides S. Bittencourt (1), Maria Lorena Souza (2)*
(1) *Universidade Federal da Bahia*
(2) *Monsanto*

Paper 54p: Common Bow-Tie Errors and How CCPS Concept Book Rectifies — *Robin Pitblado* (1), Tatiana Norman (1), Paul Haydock (2), Charles Ian Cowley (3), Kiran Krishna (4)*
(1) *DNV GL*
(2) *CGE Risk Management Solutions*
(3) *CCPS*
(4) *WS Atkins*

Paper 54q: Joint Probability Density Estimation for Complex Variables and Its Application to Dynamic Risk Assessment Using Bayesian Method — *Pallavi Kumari*, M. Sam Mannan, Nazmul Karim*
Texas A&M University

Paper 54r: Thermal Decomposition of Benzoyl Peroxide with Incompatible Materials — *Yueqi Shen**
Texas A&M University

Paper 54s: Maximum Explosion Overpressure of Methane/Air Mixture in Enclosures with Different Opening Degrees — *Wei Tan, Dong Lv, Yang Wang*, Guorui Zhu, Liyan Liu*
Tianjin University

Paper 54t: Approach to Select Safety-Critical Elements for Effective Assets Mechanical Integrity Management Program — *Nancy Faulk*, Abdulrehman Aldeeb*
Siemens Energy, Inc.

Paper 54u: Bridging Knowledge and Competency for Process and Occupational Safety — *Michael Fleming**
Decision Point Associates, Inc.

Paper 54v: Preparation of Safety Cases for Petroleum Refineries — *Fidel Ilizastigui Sr.**
Risquest

Paper 54w: A CFD-Based Model for Investigating Thermal Runaway of MMA Suspension Polymerization in a Batch Reactor — *Guanyang Liu*, Monir Ahammad, M. Sam Mannan*
Texas A&M University

Paper 54x: Best Practices for PHA Revalidation — *William Bridges*, Revonda Tew*
Process Improvement Institute, Inc.

Paper 54y: Active Safety Performance Dialogues at the Shop Floor — *Marco Pagnini**
DuPont Sustainable Solutions

Paper 54z: Pitfalls of Using the Wrong Risk Matrix in PHA and LOPA — *Kirk Busby*, Mardy Kazarians*
Kazarians & Associates, Inc.

Paper 54aa: Application of Risk-Based Process Safety (RBPS) to Drive Performance Improvement in the Semiconductor Industry — *Steve Hawkins**
Environmental Resources Management

Paper 54ab: Benchmarking of Petroleum Tanker Discharge Operations at a Nigerian Coastal Terminal and Jetty Facilitates Optimisation of the Ship-Shore Interface — *Bassey O. Bassey*, Francis Effiom**
Coventry University

Paper 54ac: Failsafe-ing Human Error — *Rafaqat A Khan**
Saudi Aramco

Paper 54ad: Achieving Process Safety Management Best Practices: What Can You Do Differently? — *Robert Weber, Sonny Sachdeva**
PSRG Inc.

Paper 54ae: New Method to Design Real Gas Relief System with Rupture Disk — *Jing Yu**
DuPont

Paper 54af: Liquefied Natural Gas Vapour Dispersion Modelling Using Computational Fluid Dynamics Approach — *Tran L. Vu* (1), E.Y.K. NG (1), Dimitrios Konovessis (2), Martin Skote (1)*
(1) *Nanyang Technological University*
(2) *Singapore Institute of Technology*

Paper 54ag: The Application of CFD Simulation in Evaluation of LPG Pool Fire Heat Flux — *Hang Yi*, Qingsheng Wang**
Oklahoma State University

Paper 54ah: Process Hazards and Process Risk Investigation (as a Prerequisite for Operational Discipline) — *Marc Massant* (1), Chris (Kumar) Israni* (2)*
(1) *Umicore*
(2) *Environmental Resources Management*

Paper 54ai: Advancing Asset Integrity in Upstream — *Philip Delpero**
Chevron

Paper 54aj: Study on Cause-Consequence Analysis Method Based on Reliability Theory — *Baoquan Xin*, Lu Wan*
Sinopec

Paper 54ak: Study of the Effects of Flow Conditions on the Performance of Corrosion Inhibitors in CO₂ Environment — *Edna Mendez*, Bin Zhang, Homero Castaneda, M. Sam Mannan*
Texas A&M University

Paper 54al: Multi-Objective Stochastic Optimization for Preventive Maintenance Planning in Chemical Plants — *Christopher Kwadwo Gordon*, Monir Ahammad, M. Sam Mannan*
Texas A&M University

Paper 54am: DMPRA: A Dynamic Model for Pipeline Risk Assessment — *Visalatchi Palaniappan* (1), Monir Ahammad, M. Sam Mannan*
Texas A&M University

Paper 54an: Mechanical Integrity & Reliability: Lessons Learned from Industry Incidents and PSM Audits — *Robert Weber**
PSRG Inc.

Paper 54ao: What Is Your "ROA" or "Return on Audits"? A Different Approach to Understanding Toxic Risk — *Michelle Pritchard**
Chevron Phillips Chemical Company LP

Paper 54ap: Dynamic Risk Mapping Using Big Data Analytics — *Perna Jain**, *M. Sam Mannan*
Texas A&M University

Paper 54aq: Application of Group Intelligent Optimization Algorithm in Gas Emission Source Identification — *Denglong Ma** (1,2), *Wei Tan (1)*, *Qingsheng Wang (2)*, *Zaoxiao Zhang (1)*
(1) *Xi'an Jiaotong University*
(2) *Oklahoma State University*

Paper 54ar: Human Performance in Extreme Weather Events — *Erin Collins**, *Elizabeth Cook*, *Peter A. McKnight*
Jensen Hughes

Paper 54as: Natural Gas Safety As in Response to Industrial Events — *David Hurban**
American Electric Power

Paper 54at: Learning from Experience: Preventive Potential of Near-Miss Deep Understanding and Technical Analysis — Experiences and Concepts from Braskem — *Sandro França**, *Thaiane Duarte*
Braskem

Paper 54au: Analysis of Contributing Factors Behind Injuries in Offshore Oil and Gas Platforms — *Syeda Zohra Halim**, *Carlos Espinosa Guerra*, *Stefany C. Lombana*, *M. Sam Mannan*
Texas A&M University

Paper 54av: Alright, Who Has a Safety Moment? Enabling Learning Through a Systematic Offer — *Samantha Scruggs**
BP America

Paper 54aw: Improving Performance of DCS Alarm System by Implementing Effective Alarm Management Philosophy — *Chirag Parikh**, *Abdulaziz Al-Saeed*, *Hamad Rajab*
Kuwait Oil Company

Paper 54ax: Communicating Major Incidents — *T. J. Larkin**
Larkin Communication Consulting

Paper 54ay: Evergreening: Managing Risk in the Face of Constant Change — *Alysson Ferreira**, *Raphael Ogbongbemiga*
Siemens

Paper 54az: EMOC: Does the 'E' in EMOC Mean Easy or Erroneous? — *Michael E. Robertson**
Processes Matter

Paper 54ba: Teaching Operational Experience — Before Entering the Workforce — *Trish Kerin**
Institution of Chemical Engineers

Paper 54bb: Managing Risks Under Legal Thresholds — *Brian Desrosiers**
Environmental Resources Management

Paper 54bc: Developing Probabilistic Barrier Failure Models to Predict Kicks While Drilling — *Nafiz Tamim** (1), *Delphine Laboureur*, *A. Rashid Hasan*, *M. Sam Mannan*
Texas A&M University

Paper 54bd: Challenges and Mitigation Measures of Safety Relief Revalidation — *Srihari K. Maganti**
Midstream Terminal Services

Paper 54be: Safety Culture Assessment in Ten Oil Companies in Trinidad and Tobago — *Shyam Dyal**
Petrotrin

Paper 54bf: Responsibilities of the Line and Support Organization in the Prevention of Catastrophic Process Safety Events — *Charles A. Soczek**, *Seshu Dharmavaram*, *Richard J. Angiullo*
DuPont

Paper 54bg: Task & Communication in Just Culture, Oil Offshore Exercise — *Salvador Ávila Filho (1)*, *Ivone C. S. Cerqueira** (1), *Jose Filipe Michel Gagliano Ferreira (1)*, *Edmara Drigo (1)*, *Jose Rafael Nascimento Lopes (2)*
(1) *Universidade Federal da Bahia*
(2) *SENAI*

Paper 54bh: Creating Process Safety Culture, Leveraging on CCPS Vision 20/20 — *Sulo Belawan**
PETRONAS

Paper 54bi: Development of a Tool to Estimate the Probability of Ignition and Presence of Personnel in LOPA in a Petrochemical Industry — *Narciso Ruzzarin**
Braskem

Paper 54bj: Critical Equipment: A Matter of Priorities — *David Guss**
DuPont Sustainable Solutions

Paper 54bk: Four Major Gaps That Are Preventing Most Companies Worldwide from Achieving Excellent Process Safety Performance — *William Bridges**, *Jeff Thomas*
Process Improvement Institute, Inc.

Paper 54bl: Functional Safety Lifecycle Software: Why Industry Needs Them and the Benefits They Bring — *David Hansen**
Mangan Software Solutions

Paper 54bm: State-of-the-Art Development of Emergency Depressurization System for High-CO₂ Cryogenic System — *Abdullah Al Mubarak Md Jalil**, *M. Faudzi B.*

Mat Isa, *Nurzatil Aqmar Othman*, *Khairul Rostani PETRONAS*

Paper 54bn: Safety Cases for Aerial Drone Work in Industrial Plants — *John Michael Munsil**, *Carolina del Din**
PSRG Inc.

Paper 54bo: Faster and More Accurate Responses for Chemical Accidents Using Machine Learning Technique — *Chuntak Phark**, *Seungho Jung*
Ajou University

Paper 54bp: Post Graduation in Process Safety Management Based on RBPS PSM System — *Americo Carvalho Neto Sr.**, *Rubem Ede*, *Deyse Casais*, *Safira Barros*, *Amanda Musse*
RSE Consulting

Paper 54bq: Application of Bayesian Networks in Emergency Response Analysis of Typical Leakage Accidents — *Na Gao**
China University of Petroleum (East China)

Paper 54br: October 1, 2017, Paradigm Shift in PSM/CalARP Requirements for California Refineries: What Are the Requirements and What Does Management Need to Know? — *Steven T. Maher** (1), *Aleksandar Metulev (1)*, *Cho Nai Cheung (2)*, *Michael Vigliarolo (3)*, *Max Oppedahl (1)*
(1) *Risk Management Professionals*
(2) *Contra Costa Health Services*
(3) *Alon USA*

Paper 54bs: Unrevealed Failures of Safeguards Used in Process Hazard Analysis: Improving and Understanding Functionality — *Kay Modi**
JCL Risk Services LLC

Paper 54bt: Controlling Static Discharge Using Antistatic Additives — *Amy Rigby**
Innospec Inc.

Paper 54bu: Explosion Features of Flocculent Dusts — *Enrico Danzi** (1), *Luca Marmo (1)*, *Almerinda Di Benedetto (2)*, *Roberto Sanchirico (3)*, *Valeria Di Sarli (3)*
(1) *Politecnico di Torino*
(2) *Università di Napoli Federico II*
(3) *Istituto di Ricerche sulla Combustione – CNR*

Paper 54bv: Influence of the Particle Size Distribution on the Dispersion Process of Combustible Dusts in the 20 L Sphere — *Mariangel Amin (1)*, *Carlos H. Murillo (2)*, *David Eduardo Torrado (2)*, *Paula Pico** (1), *Jose Serrano** (1), *Olivier Dufaud (2)*, *Felipe Muñoz Giraldo (1)*

(1) *Universidad de los Andes*
(2) *Université de Lorraine*

Paper 54bw: Influence of Intertization on the Determination of the Minimum Ignition Energy of Combustible Dusts — *María Larrad Moreno*, *Ljiljana Medic Pejic**, *Javier García Torrent*, *Alvaro Ramírez Gomez*
Polytechnic University of Madrid

Paper 54bx: Analysis of Combustible Dust Flash Fires on Personal Protective Equipment Fabrics — *Sean C. O'Hern**, *Michael C. Stern*, *James Vickery*, *David Anderson*, *Alfonso Ibarreta*, *Timothy J. Myers*
Exponent, Inc.

Paper 54by: Use of Structural Analysis to Optimize Passive Fireproofing for Small-Scale LNG — *Sanjay Ganjam** (1), *Raymundo Rodriguez (1)*, *Andrew Staszak (2)*
(1) *Kiewit Corporation*
(2) *MMI Engineering*

Paper 54bz: Investigating the Gas Dispersion from a Subsea Gas Release in Stratified Shallow Waters — *Moustafa Ali**, *Konstantinos Kokosimos*, *Luc Vechot*
Texas A&M University at Qatar

Paper 54ca: Combustible-Dust Flash Fires: Flame-Resistant Clothing — *Richard Prugh**
Chilworth Technology, Inc.

Paper 54cb: Quantitative Evaluation of "Unconfined" Dust-Cloud Explosion Hazards — *Richard Prugh**
Chilworth Technology, Inc.

Paper 54cc: Investigation of Site Elevation on Simple Dispersion and VCE Modeling — *Michael D. Weinberg**
ABS Consulting

Paper 54cd: CFD Modeling of Liquefied Gases Discharging Through a Pipeline Full Bore Rupture — *L. Tatiana Flechas-Moreno**, *Delphine Laboureur*, *M. Sam Mannan*
Texas A&M University

Paper 54ce: Understanding the Stability of High-Expansion Foam Used for LNG Vapor Risk Mitigation — *Pratik Krishnan**, *Bin Zhang*, *Anas Al-Rabbat*, *Zhengdong Cheng*, *M. Sam Mannan*
Texas A&M University

Paper 54cf: Experience with Conducting a Series of Building Siting Studies per API 752/753 — *John B. Cornwell** (1), *Tony Puckett (2)*
(1) *Quest Consultants Inc.*
(2) *Plains All American Pipeline, LP*

- Paper 54cg: Accelerating Safety in the Permian: Implementing Risk Management in Chevron's "Factory Model" Developments** — Amy Bordonaro*, Nathan Kangas*
Chevron
- Paper 54ch: Dispersion Study: An Alternative Technique for Determining Classified Area of Electrical Installations** — Akhmad Harmantoro* (1), Dedi Murdiadi (2) (1) Pertamina Hulu Energy ONWJ (2) DNV GL
- Paper 54ci: Proven Practices for Communicating Facility Siting Risk to Plant Personnel and Management** — Tracey Hanna* (1), Phillip R. Hodge (2) (1) Flint Hills Resources (2) Baker Engineering & Risk Consultants, Inc.
- Paper 54cj: Improved Along-Wind Dispersion Coefficient Model from Field and Wind Tunnel Data** — Jessica M. Morris*, Thomas O. Spicer III
University of Arkansas
- Paper 54ck: The VOCs Emission Source Intensity and Safety Protection Distance Analysis of Urban Refinery Based on Quantitative Risk Analysis** — Xue Jiang*
Sinopec
- Paper 54cl: Leakage Process of Refined Oil in Different Layered Soils** — Xiao Wang*
China University of Petroleum (Beijing)
- Paper 54cm: Management Role After the Building Siting Evaluation** — Jayant Kulkarni*, Vinicius Simoes, Kris Smith
Risktec Solutions
- Paper 54cn: Bacterial Foraging Optimization Algorithm for Safety-Based Process Plant Layouts** — Diego Alejandro Sierra*, Julian Enrique Mendez Alvarez, Felipe Muñoz Giraldo
Universidad de los Andes
- Paper 54co: Facility Siting: Closing the Gaps** — Yaneira Saud*, Ralph Mancik, Jimenez Alejandro, Richard MacNguyen
Environmental Resources Management
- Paper 54cp: Leadership Keeping the Balance to Create a High-Performance Process Safety Culture** — Coen van Driel*, Robert Kauer
TÜV SÜD Schweiz AG
- Paper 54cq: SARs: Safe, Alert & Resilient Behavior in Social Technical System** — Salvador Ávila Filho*, Ivone C. S. Cerqueira, Euclides S. Bittencourt, Edmara Drigo, Carine N. Santino
Universidade Federal da Bahia
- Paper 54cr: Incorporating Safety and Best Practices into Your Process** — Dustin Beebe*
Emerson Automation Solutions
- Paper 54cs: Validation of Resilience Model of Multiagency Emergency Management System Through Hurricane Harvey and Irma** — Changwon Son*, S. Camille Peres, M. Sam Mannan, Farzan Sasangohar
Texas A&M University
- Paper 54ct: The Definition of Feasibility as It Applies to Inherent Safety** — Michael Hazzan*
AcuTech Group, Inc.
- Paper 54cu: Inherently Safer Design Applications and Case Study of Thermally Coupled Distillation for C3-Alkyne Hydrogenation** — Meng Qi*, Dongfeng Zhao, Yi Liu
China University of Petroleum (East China)
- Paper 54cv: Use of Various High-Nickel Alloys for Supercritical Water Reactions at Severe Temperature and Pressure Conditions** — Matthew Conley*, Matthew Factor, Sunggyu Lee
Ohio University
- Paper 54cw: Personal Safety in UHP Water Jet Cleaning (Reactors, Tanks, Totes & Surfaces)** — Darrell Terpenning*, Johnny Lampertius
NLB Corporation
- Paper 54cx: Optimization of Blowout Preventer Design for Optimal Cost and Reliability** — Denis Su-Feher*, Nilesh Ade, Bin Zhang, Yogesh Koirala, M. Sam Mannan
Texas A&M University
- Paper 54cy: Corporate Memory Loss Ongoing — Except CCPS 4th Pillar (Learn from Experience) as Espionage** — Long Zhang* (1), Wahed Wasel (2) (1) Independent (2) AEYAA International, LLC
- Paper 54cz: Human Factors Engineering Checklist for Shale Hydrocarbon Owner-Operators** — Kurt Clowers*, Graeme Cuffy
GENESIS
- Paper 54da: Research on Emergency Response Evaluation of Major Process Safety Accidents** — Wei Zheng Sr.*
China University of Petroleum (Beijing)
- Paper 54db: Exploration and Research on Safety Management of Scientific Research Laboratories in Colleges and Universities** — Fang Yan*, Shuai Lu
China University of Petroleum (East China)
- Paper 54dc: The Influence of Initial Pressure on the Explosion Characteristics of 2, 3, 3, 3-Tetrafluoropropene** — Yuxiao Li*, Yi Liu
China University of Petroleum (East China)
- Paper 54dd: Promoting the Production Safety Responsibility System in an Orderly Management System** — Duanzhu Ma*
China National Petroleum Corporation
- Paper 54de: Spontaneous Polymer Risk and Control of C5 Hydrogenated Petroleum Resin Plant** — Sabei Hu*
PetroChina Lanzhou Petrochemical Company
- Paper 54df: Analysis on Safety Management of Three Additives for Ethylene Plant** — Hailiang Qin*
PetroChina Lanzhou Petrochemical Company
- Paper 54dg: Special Equipment Inspection Strategy Research and Application Analysis** — Jian Zhang*, Yajun Fan
PetroChina Lanzhou Petrochemical Company
- Paper 54dh: Corrosion Protection System Controls in the Application of the Refining Equipment Management** — Zongzhong Liang*, Yajun Fan
PetroChina Lanzhou Petrochemical Company
- Paper 54di: Effect of the Content of Carbon Oxide in Ethylene on the Production Process of Gas-Phase Polyethylene** — Fangang Ji*
PetroChina Jilin Petrochemical Company
- Paper 54dj: The Research of Infrared Thermal Imaging Technology in Preventing Fire Explosions in Petrochemical Enterprise** — Guilin Peng*
PetroChina Liaoyang Petrochemical Company
- Paper 54dk: Evaluate the HAZOP Analysis Quality from Technical View** — Xue Zhang* (1), Fangfang Ding (1), Chen Qian (2) (1) China National Petroleum Corporation (2) China University of Petroleum (Beijing)
- Paper 54dl: Study on Safety Performance of Nitrogen Sealing in Internal Floating-Roof Tank** — Zuoxiang Wu*, Jiayi Li
China National Petroleum Corporation
- Paper 54dm: Safety Control in Test Process of Coal Chemical Plant** — Zhigang Yang*, Zhiquan Wang, Yong Sun, Yulin Ding, Penghong Wang
Shenhua Ningxia Coal Industry Group
- Paper 54dn: Based on the Maintenance Operation Package Mode Coal Chemical Inspection and Maintenance Safety Management Practices** — Xuexiang Tang*
Shenhua Ningxia Coal Industry Group
- Paper 54do: Application of Safety-Instrumented System in the Process of Safety Management of Coal Oil Chemical Process** — Baoyi Liu*
Shenhua Ningxia Coal Industry Group
- Paper 54dp: Study and Practice of Safety Management and Control Model in Modern Mega CTL and Chemicals Industry Base** — Min Yao*
Shenhua Ningxia Coal Industry Group
- Paper 54dq: Study on the Corrosion Mechanism and Behavior of Large Crude Storage Tank Bottom Plate** — Fangwei Luo*, Mosong Li
China National Petroleum Corporation
- Paper 54dr: Study on the Integrated Protection Technology of Lightning and Static Electricity in Large Oil Storage Tank** — Renjie Lou*, Sixue Chen, Pan Liu
China National Petroleum Corporation
- Paper 54ds: Using ALOHA to Establish Potential Risk Areas and Verified with Actual Incidents for Toxic Chemical Operation in Taiwan: A Case Study in Middle Taiwan** — Jao-Jia Horng*, Kuang-Yu Liao, Min-Chang Li
Yunlin University of Science and Technology
- Paper 54dt: Using Leading Indicators to Measure Safety Management Performance of Urban Refineries** — Hang Zhou*, Dongfeng Zhao
China University of Petroleum (East China)
- Paper 54du: Managing Operational Risks in an Integrated Manner: Extracting Value While Enhancing Safety** — Alfonsius Ariawan*
DuPont
- Paper 54dv: Research Progress in Olefin Polymerization Technology** — Libo Wang Sr.*
PetroChina

be insured.

Professional Liability (E&O) Insurance Program for
Chemical Engineers and Educators

**CONTACT US TODAY
TO RECEIVE A CUSTOM QUOTE!**

1-844-78-AICHE
aiche-questions@alliant.com
<http://aiche.alliant.com>

AIChE 
The Global Home of Chemical Engineers

Alliant

PROCESS ENGINEERS

CONTRIBUTE UNIQUE ENGINEERING JUDGEMENT
TO EACH SUCCESSFUL ENTERPRISE.

Discover the AIChE community that celebrates your value and success.



PROFESSIONAL
DEVELOPMENT



PROCESS ENGINEERS ARE AS
UNIQUE AS THE DIVERSE FIELDS
THEY SERVE. YOU BRING YOUR OWN
HONED ENGINEERING JUDGEMENT
TO **DIVERSE** PLANTS TO SOLVE
PROCESS PROBLEMS.

AIChE 
The Global Home of Chemical Engineers

DOING
A WORLD
OF GOOD

AIChE INVITES YOU TO *join* A COMMUNITY OF PROCESS ENGINEERS THAT VALUES GOOD
ENGINEERING PRACTICE TO DEFINE PROBLEMS AND DELIVER SOLUTIONS.
LEARN MORE AT WWW.AICHE.ORG/PROCESSENGINEERING.

Paper 54dw: Research on Analysis of Abnormal Emission Sources in Petrochemical Enterprises — Xiaoying Tian*, Dongfeng Zhao China University of Petroleum (East China)

(55) Process Development Poster Session

Monday, Apr 23, 5:00 PM

Orlando World Center Marriott, Cypress Ballroom 1/2

Julben Chheda, Chair

Shell Projects & Technology

Sponsored by: 2018 AIChE Spring Meeting

Co-Sponsored by: Process Development Division

Paper 55a: Towards Standardisation of Process Intensification in Solids-Handling Processes: The IbD Platform — Richard Law* (1), David A. Reay (2) (1) Newcastle University (2) David Reay and Associates

Paper 55b: Process Design and Development of Offshore NGL (Natural Gas Liquid) Recovery Processes — Byung-Don Lee*, Chi-Kyun Park Institute of Chemical & Environmental Process

Paper 55c: Thermodynamic Data Requirements for Biodiesel Process Development and Scale-Up — Sailee Nagpurkar*, Imran Quasem, Aaron Driscoll, Kyle Cogswell, Aydin K. Sunol, George Philippidis University of South Florida

Paper 55d: Enzymatic Reaction Kinetics for Biodiesel Process Development and Scale-Up — Aydin K. Sunol, George Philippidis, Imran Quasem* University of South Florida

Paper 55e: Direct Process for Methylchlorosilanes: Chemistry and Technology — Unni Pillai* The Dow Chemical Company

Paper 55f: Development and Application of Simulation Models for Improvement of Highly Non-Ideal and Coupled Distillation Systems — Murali Gopalakrishnan*, Prasanna Pathath, Andrei Merenov, Misfer Al-Ghamdi SABIC Americas, Inc.

(56) UEFA Poster Session

Monday, Apr 23, 5:00 PM

Orlando World Center Marriott, Cypress Ballroom 1/2

Mohammad Tavakkoli, Chair
Rice University

Sponsored by: 2018 AIChE Spring Meeting

Co-Sponsored by: 6th International Conference on Upstream Engineering and Flow Assurance

Paper 56a: Effect of Electrostatic Field on Asphaltene Aggregation and Deposition Under Dynamic Conditions — *Vahid Taghikhani** Sharif University of Technology

Paper 56b: Investigation of Bentonite Swelling Kinetics Using Particle Size Analysis — *M.I. Magzoub (1), Ibelwaleed Hussein* (1), Mohamed Mahmoud (1), Abdullah S. Sultan (2), Mustafa Nasser (1) (1) Qatar University (2) King Fahd University of Petroleum & Minerals*

Paper 56c: Improved Oil Recovery with Viscoelastic Surfactant: Screening and Effectiveness of Formulations — *Abdullah S. Sultan*, Aneeq Nasir Janjua, Muhammad Shahzad Kamal King Fahd University of Petroleum & Minerals*

Paper 56d: Protecting Environment and Assuring Smooth Energy Transfer Using Ionic Liquids — *M. Fahed Qureshi* (1), Tausif AlTamash (1), Majeda Khraisheh (1), Mert Atilhan (2) (1) Qatar University (2) Texas A&M University*

Paper 56e: Flow Analysis of an Atypical Cylindrical Cyclone Separator with a Large Ratio of Length to Diameter — *Zhuwei Gao*, Juan WANG, Jiangyun Wang, Yu Mao, Yaodong Wei China University of Petroleum*

Paper 56f: Laboratory Investigation of Viscoelastic Surfactant for Chemical EOR in High-Salinity and High-Temperature Carbonate Reservoirs — *Abdullah S. Sultan* (1), Aneeq Nasir Janjua (2), Muhammad Shahzad Kamal (1), Lionel Foganga King Fahd University of Petroleum & Minerals*

(57) 2018 AIChE Spring Meeting

Electronic Poster Session

Monday, Apr 23, 5:00 PM

Orlando World Center Marriott, Cypress Ballroom 1/2

Walter S. Postula, Chair

Shell Global Solutions (US), Inc.

Sponsored by: 2018 AIChE Spring Meeting

Paper 58ai: Novel Technique for the Separation of Foam Creators from Industrial Lean Amine Solutions for Identification Purposes — *Emad Alhseinat* (1), Fawzi Banat (2) (1) Khalifa University (2) The Petroleum Institute*

Paper 58r: Large-Scale Separation Efficiency of Dispersed Oil Micro-Droplets from Aqueous Phase with Magnetic Nanoparticles — *Amin Ettehad** Texas Tech University

Paper 58b: Purification of Styrene from the Styrene/Ethylbenzene Mixture with a Small Amount of the Mixed Xylene by Stripping Crystallization — *Lie-Ding Shiau** Chang Gung University

Paper 58s: Experimental Analysis of the Tangential Velocity Fluctuations in the Cyclone — *Liqiang Sun*, Yaodong Wei China University of Petroleum*

Paper 58d: Future of Mobility: A Driver for Change in Energy and Chemicals — *Joseph B. Powell** Shell International Exploration & Production

Paper 58ac: Evaluating the Impact of Higher Emissivity Technologies on Steam Cracking Furnaces, by Means of COILSIM1D Simulations — *Andres E. Muñoz G.*, David J. Brown** AVGI

Paper 58ad: Oil to Chemicals: Technological Approaches and Advanced Process Configurations to Convert Light Crude Oils to Olefins — *Ted Heron*, Clyde Payn, John Murphy The Catalyst Group Resources*

Paper 58af: Combination of SEA and ED Methods for Preparation of Active Bimetallic Catalysts for Direct Methanol Fuel Cells — *Bahareh Alsaad Tavakoli Mehrabadi*, Rembert White, John R. Regalbutto, John W. Weidner, John R. Monnier University of South Carolina*

Paper 58z: New Air-Assisted Flare Design to Handle Low Flow Rates of Waste Gases — *Hayder Alhameedi*, Joseph D. Smith Missouri University of Science and Technology*

Paper 58ah: Highly Selective MOF-Based MMM Integrated with CNTs for CO₂ Separation Purpose — *Mohammed S. Ba-Shammakh** King Fahd University of Petroleum & Minerals

Paper 58ae: Latest Technology of Double Disc Gate Valves for Main Transfer Line and Decoke Line in the Ethylene Service — *Ruediger Klein** ZMK Technologies GmbH

(58) 2018 AIChE Spring Meeting Poster Session and Networking Reception

Monday, Apr 23, 5:00 PM

Orlando World Center Marriott, Cypress Ballroom 1/2

Walter S. Postula, Chair

Shell Global Solutions (US), Inc.

Sponsored by: 2018 AIChE Spring Meeting

Paper 58a: Experimental and Numerical Study on the Effects of Spiral Guide Vane Turns on Cyclone Performance — *Faqi Zhou*, Guogang Sun, Xiaopeng Han China University of Petroleum*

Paper 58b: Purification of Styrene from the Styrene/Ethylbenzene Mixture with a Small Amount of the Mixed Xylene by Stripping Crystallization — *Lie-Ding Shiau** Chang Gung University

Paper 58c: A New Process for Poultry Manure Revalorization: Fresh Water and Thermal Energy Savings with Effluent Recycle, Biogas Production, Thermal Hydrolysis, Anaerobic Digestion and SNAD Process — *Marlene Roeckel*, Víctor Guzmán-Fierro, Constanza Arriagada, Víctor Campos, Luis Pereira, Camila Bustos, Katherina Fernández University of Concepción*

Paper 58d: Future of Mobility: A Driver for Change in Energy and Chemicals — *Joseph B. Powell** Shell International Exploration & Production

Paper 58e: Monte Carlo Simulation of Molecular Separation Across a Nanochannel — *Shagheygh Agah*, Matteo Pasquali, Anatoly Kolomeisky Rice University*

Paper 58f: Process Optimization and IOW Implementation for Preventing Loss of Containment in Gas Processing Plants (Amine Treatment) — *Jose R. Aguilar-Otero Sr.* COMIMSA*

Paper 58g: Comparison of Finite Impulse Response vs. Subspace Vector Identification in Model Identification of a Fractionator — *Mhd A. Abou Shama*, Qiang Xu, Daniel Chen Lamar University*

Paper 58h: Controlled Nano-Scale Polymorph Production of Alpha/Beta Glutaric Acid from Aqueous Solution Atomization/Evaporation — *Hemanta Timsina, Phoebe Belsler, Dabrina Dutcher, Timothy M. Raymond* Bucknell University*

Paper 58i: Particle Scattering Photography Approach for Measurement of Multiphase Reactors: Theoretical Simulation and Experimental Optimization — *Yiting Xiao (1), Xiangyang Li (1), Zai-Sha Mao (2), Minghui Xie (2), Chao Yang* (2)*
(1) Institute of Process Engineering, Chinese Academy of Sciences
(2) Zhejiang GreatWall Mixers Co., Ltd.

Paper 58j: Safety Demands and Proposal Solutions for Laboratories and Searching Centers in Brazilian Universities — *Carlos André Vaz Jr.* (1), Alice Gonçalves (2), Antonio Ribeiro Sr. (3)*
(1) Universidade Federal do Rio de Janeiro
(2) Universidade Católica de Petrópolis
(3) Bayer HealthCare Pharmaceuticals

Paper 58k: Effects of Fossil Fuel CO₂ Emissions on the pH of the Oceans — *Frank J. Elvin**
Texas Specialty Catalysts

Paper 58l: Rapid Catalyst Deactivation and Lifetime Determination — *Maoqi Feng**
Southwest Research Institute

Paper 58m: Safety Improvement and Thermal Management of Cylindrical Lithium-Ion Batteries Using Phase-Change Materials (PCMs) — *Seyed Mojtaba Sadrameli*, Y. Azizi*
Tarbiat Modares University

Paper 58n: Simulation of Atmospheric Cr Chemistry During Air Sampling (pH 9) — *Mehdi Amouei Torkmahalleh*, Mirat Karibayeva, Dinara Konakbayeva*
Nazarbayev University

Paper 58o: Has Syrian War Impacted the Atmospheric Pollutants? — *Mehdi Amouei Torkmahalleh*, Lyazzat Kulmukanova, Aigerim Maksot, Zhuldyz Darynova*
Nazarbayev University

Paper 58p: Study on the Adsorptive Desulfurization of Model Fuel — *Biswajit Saha*, Anshu, Sonali Sengupta*
Indian Institute of Technology Kharagpur

Paper 58q: Continuous Non-Centrifugal Phase Separation in Biphasic Whole-Cell Biocatalysis Using a Lab-Scale Prototype — *Lisa Vahle*, Gabriele Sadowski, Christoph Brandenbusch*
TU Dortmund University

Paper 58r: Large-Scale Separation Efficiency of Dispersed Oil Micro-Droplets from Aqueous Phase with Magnetic Nanoparticles — *Amin Etehad**
Texas Tech University

Paper 58s: Experimental Analysis of the Tangential Velocity Fluctuations in the Cyclone — *Liqiang Sun*, Yaodong Wei*
China University of Petroleum

Paper 58t: Development of a Novel Nanofiltration Membrane Based on the Polydopamine Chemistry — *Hazim Qiblawey*, Tunyu Wang*
Qatar University

Paper 58u: Dissolution Mechanism of Silica and Alumina Minerals by the Chemical Leaching of High-Ash Indian Coal — *Sushanta Kumar Behera*, Sudipto Chakraborty, Bhim Charan Meikap*
Indian Institute of Technology Kharagpur

Paper 58v: Experimental Study of Gas Leakage on Pressure Fluctuation in a Cyclone Separator — *Di Wang*, Yaodong Wei*
China University of Petroleum

Paper 58w: Modeling Hydrocyclones Using Two-Fluid Model (Eulerian-Eulerian) Approach — *Ashkan Davanlou*, Thomas Eppinger, Ravindra Aglave*
Siemens PLM

Paper 58x: Separation Performance of Supersonic Separator with a Rear-Set Helical Guide Blade — *Huirong Liang* (1,2), Shuai Zhang (2), Yong Kang (2), Kegang Ling (1)*
(1) University of North Dakota
(2) Xi'an Shiyou University

Paper 58y: A New Model to Predict MEA Loss Through Particulate Phase (Aerosol) in Post-Combustion CO₂ Capture Plants Using Aspen Plus — *Mehdi Amouei Torkmahalleh* (1), Nursultan Galymzhanov (1), Purvil Khakharia (2), Earl L. V. Goetheer (2)*
(1) Nazarbayev University
(2) TNO

Paper 58z: New Air-Assisted Flare Design to Handle Low Flow Rates of Waste Gases — *Hayder Alhameedi*, Joseph D. Smith*
Missouri University of Science and Technology

Paper 58aa: Design, Development and Demonstration of a Tail-End Acetylene Hydrogenation Catalyst — *Andrew Holland*, Philip Hughes, Karl Oatley, Priyan Mistry*
Johnson Matthey

Paper 58ab: Comprehensive Improvement of the Performances of Light Cuts Hydrogenation Units — *Geoffrey Dubin**
Axens

Paper 58ac: Evaluating the Impact of Higher Emissivity Technologies on Steam Cracking Furnaces, by Means of COILSIM1D Simulations — *Andres E. Muñoz G.*, David J. Brown**
AVG

Paper 58ad: Oil to Chemicals: Technological Approaches and Advanced Process Configurations to Convert Light Crude Oils to Olefins — *Ted Heron*, Clyde Payn, John Murphy*
The Catalyst Group Resources

Paper 58ae: Latest Technology of Double Disc Gate Valves for Main Transfer Line and Decoke Line in the Ethylene Service — *Ruediger Klein**
ZMK Technologies GmbH

Paper 58af: Combination of SEA and ED Methods for Preparation of Active Bimetallic Catalysts for Direct Methanol Fuel Cells — *Bahareh Alsadat Tavakoli Mehrabadi*, Rember White, John R. Regalbuto, John W. Weidner, John R. Monnier*
University of South Carolina

Paper 58ag: Environmental Risk Analysis of Accidental Releases from Onshore Oil Pipelines — *Shengli Liu**

Paper 58ah: Highly Selective MOF-Based MMM Integrated with CNTs for CO₂ Separation Purpose — *Mohammed S. Ba-Shammakh**
King Fahd University of Petroleum & Minerals

Paper 58ai: Novel Technique for the Separation of Foam Creators from Industrial Lean Amine Solutions for Identification Purposes — *Emad Alhseinat* (1), Fawzi Banat (2)*
(1) Khalifa University
(2) The Petroleum Institute

Paper 58aj: Senior Capstone Design Project for the University of South Florida — *Aydin K. Sunol**
University of South Florida

Paper 58ak: Thermal Evaluation and Assessment of Process Burners Using CFD — *Adel Alghamdi**
SABIC

(59) Advances in Product/Process Design & Development I
Tuesday, Apr 24, 8:00 AM
Orlando World Center Marriott, Boston
Anil Krishna Jammula, Chair
Bayer U.S.

Anand N. Vennavelli, Co-Chair
Fractionation Research, Inc.
Sravanthi Vupputuri, Co-Chair
Saint Luke's Health System
Arvind Sreeram, Co-Chair
Micron Technology, Inc.

Sponsored by: Product Design

Co-Sponsored by: Process Development Division

8:00 Paper 59a: Rapid Development of New Product Formulations Through the Efficient Utilization of Company Data — *John MacGregor* (1), Brandon Corbett (1, 2), Marlene Cardin (1)*
(1) ProSensus Inc.
(2) McMaster University

8:22 Paper 59b: Innovating Innovation Processes for Chemical R&D by Treating as Metaphorical Chemical Processes — *Darrell Velegol**
Pennsylvania State University; Knowledge Processes Company

8:44 Paper 59c: An Experimental and Computational Study of the Four-Blade Loop Impeller for Liquid Dispersion During Suspension Polymerization — *Sarat Chandra Kuchibhatla*, Justin Walker, Jim Pressler*
The Dow Chemical Company

9:06 Paper 59d: DIFREX® NEXGEN Expands and Advances Reactor & Technology Solutions — *Stephen C. Arnold* (1), Subhash Dutta (1), Aashish Gaurav (1), Jim Brenner (2)*
(1) DIFREX LLC
(2) Florida Institute of Technology

(60) Alternative Fuels Including Biofuels, Hydrogen, Renewable Hydrogen, and Syngas I
Tuesday, Apr 24, 8:00 AM
Orlando World Center Marriott, St. Louis

Haider Al-Rubaye, Chair
Missouri Science and Technology
Jason Morgan, Co-Chair
Worcester Polytechnic Institute

Sponsored by: Topical 5: Emerging Technologies in Clean Energy

8:00 Paper 60a: Solar Thermochemical CO₂ Splitting Using Ni-Based Ferrite Materials — *Rahul Bhosale*, Gorakshnath Takalkar*
Qatar University

8:25 Paper 60b: Recovering Hydrogen Biofuel from Wet Biowaste — *Melahn Parker, Robin Z. Parker**
Chemergy, Inc.

8:50 Paper 60c: Zinc Carbonate Modification of Methanol Synthesis Catalyst for Single-Stage DME Production — *Lujie Ye**, *Sunggyu Lee*
Ohio University

(61) Best Practices in Process Safety and Risk Management
Tuesday, Apr 24, 8:00 AM

Orlando World Center Marriott, Grand Ballroom 7B

Karen Study, Chair

The Dow Chemical Company
Laura Ankrom, Co-Chair
aeSolutions, Inc.

Sponsored by: 20th Process Plant Safety Symposium (PPSS)

Co-Sponsored by: Young Professionals Committee (YPC), Sustainable Engineering Forum

8:00 Paper 61a: Rare but Conceivable: Determining the Likelihood of Meteors and Other Infrequent Events — *Michael S. Schmidt**, *Maria Vega-Westhoff*
Bluefield Process Safety, LLC

8:30 Paper 61b: Concept Risk Comparison of Transportation Means — *Cynthia Spitzenberger**, *Lindsay Deal*
DNV GL

9:00 Paper 61c: AFPM/API Advancing Process Safety: Practical Tools for Process Safety Performance Improvement — *Lara Swett**
American Fuel & Petrochemical Manufacturers

(62) Big Data Analytics and Fundamental Modeling
Tuesday, Apr 24, 8:00 AM
Orlando World Center Marriott, Grand Ballroom 12

Mothivel Mummudi, Chair
Tridiagonal Solutions Inc.
Wei Dai, Co-Chair
Rockwell Automation

Sponsored by: 4th Big Data Analytics

Co-Sponsored by: Sustainable Engineering Forum

8:00 Paper 62a: A Novel Prediction Method of the Chemical Leakage Range with Artificial Intelligence: Machine Learning for Chemical Species — *Seokyoung Hong**, *Inkyu Lee*, *Youngjin Kim*, *Il Moon*, *Hyungjoon Yoon*
Yonsei University

8:30 Paper 62b: Estimating Physical Properties of the Products of an Atmospheric Distillation Column by Support Vector Regression — *Metin Turkyay* (1)*,

Firat Uzman (2)
(1) Koç University
(2) Tüpraş

9:00 Paper 62c: Genetic Process Visualization Using Parametric t-SNE — *Wenbo Zhu**, *Zachary Webb**, *Jose A. Romagnoli*
Louisiana State University

(63) Big Data Analytics — Vendor Perspective I (Session Speakers Invited)

Tuesday, Apr 24, 8:00 AM
Orlando World Center Marriott, Grand Ballroom 13/14

Birgit Braun, Chair
The Dow Chemical Company
Chaitanya Khare, Co-Chair
The Dow Chemical Company

Sponsored by: 4th Big Data Analytics

Co-Sponsored by: Sustainable Engineering Forum

8:00 Paper 63a: Low-Touch Machine Learning Is Fulfilling the Promise of APM — *John Hague**, *Christopher Williams*
Aspen Technology, Inc.

8:30 Paper 63b: Big Data Analytics Platforms: The Key to Enabling the Analytic Enterprise — *Danny Smith**, *Steve Rice*
SAS

9:00 Paper 63c: Industry 4.0 and Driving Better Organizational Decisions — *Josh Shupp**, *Dana Petrusich**
Northwest Analytics

(64) Computers in Operations: Process Safety and Control
Tuesday, Apr 24, 8:00 AM
Orlando World Center Marriott, Grand Ballroom 6

Steve Howes, Chair
PiControl Solutions LLC
Aaron Driscoll, Co-Chair
University of South Florida

Sponsored by: Computing Systems and Technology Division

8:00 Paper 64a: New Technology for Closed-Loop System Identification, PID Control Loop Optimization and Advanced Process Control (APC) — *Steve Howes**, *Janarde Lepore*
PiControl Solutions LLC

8:25 Paper 64b: A Stylized Trend Analysis Approach for Process Monitoring and Fault Diagnosis — *Yan Fang**, *M.a.K. Rasel*, *Peyton C. Richmond*
Lamar University

8:50 Paper 64c: Development of Process Operating Policies and Control Using Flowsheet Simulators, Plant SCADA, and CFD — *Aaron Driscoll* (1)*, *Komal Rathore (1)*, *Kiesha Pierre (1)*, *Kyle Cogswell (1)*, *Aydin K. Sunol (1)*, *Andres Tejada-Martinez (1)*, *Gita Iranipour (2)*, *Luke Mulford (2)*
(1) University of South Florida
(2) Hillsborough County Public Utilities Department

(65) Fires, Explosions, and Reactive Chemicals I
Tuesday, Apr 24, 8:00 AM

Orlando World Center Marriott, Grand Ballroom 7A

Katherine E. Pearson, Chair
BP Americas
Seshu Dharmavaram, Co-Chair
DuPont

Sponsored by: 52nd Annual Loss Prevention Symposium (LPS)

8:00 Paper 65a: A Simplified Approach to Gas Explosion Vent Sizing — *C. Regis L. Bauwens**, *Sergey B. Dorofeev*
FM Global

8:30 Paper 65b: Hot Work Safety Zones: What If There Is a Leak? — *Ryan J. Hart*, *Eric Peterson*, *Morgan Reed*, *Delmar "Trey" Morrison**
Exponent, Inc.

9:00 Paper 65c: Relief and Flare System Design Mitigation Options — *Neil Prophet**
ioMosaic

(66) Gas Hydrates, Wax and Asphaltene
Tuesday, Apr 24, 8:00 AM
Orlando World Center Marriott, Denver

Francisco Vargas, Chair
Rice University

Sponsored by: Topical 9: 6th International Conference on Upstream Engineering and Flow Assurance

8:00 Paper 66a: Investigation on the Nature of Asphaltene Floccs — *Jairo A. Duran**, *Florian F. Schoeggl*, *Harvey W. Yarranton*
University of Calgary

8:25 Paper 66b: Viscosity Modeling of Visbroken Heavy Oils — *Andres Marquez Socorro* (1)*, *Sandra Rodriguez (1)*, *Florian F. Schoeggl (1)*, *Glen Hay (2)*, *Shawn D. Taylor (3)*, *Harvey W. Yarranton (1)*
(1) University of Calgary
(2) Virtual Materials Group
(3) Schlumberger

8:50 Paper 66c: Application of Aggregation Thermodynamics and Molecular Characterization to Study Asphaltene Precipitation of Bituminous Crude Oils — *Yifan Hao**, *M. R. Islam*, *Chau-Chyun Chen*
Texas Tech University

9:15 Paper 66d: A Critical Overview of Cause and Detection of Pipeline Blockages — *Lu Yang**, *Huirong Liang*, *Alexey Kovalev*, *Sai Wang*, *Kegang Ling*
University of North Dakota

9:40 Paper 66e: Ultra-Small-Angle X-Ray Scattering (USAXS) Assessment of Asphaltene Precipitation and Inhibitor Effectiveness — *Michael P. Hoepfner**
(1) Manaf Ismail (1), *Yuan Yang (1)*, *Cesar Ovalles (2)*, *Estrella Rogel (2)*, *Michael Moir (2)*
(1) University of Utah
(2) Chevron Energy Technology Company

10:05 Paper 66f: Kinetic Precipitation of Asphaltenes with the Presence of Inorganic Solids — *Wattana Chaisontornyotin (1)*, *Jingzhou Zhang (1)*, *Samson Ng (2)*, *Michael P. Hoepfner* (1)*
(1) University of Utah
(2) Syncrude Canada

10:30 Paper 66g: Probing the Effect of Stirring on Natural Gas Hydrate Formation: A Future Energy Fuel — *M. Fahed Qureshi* (1)*, *Tausif Altamash (1)*, *Majeda Khraisheh (1)*, *Mert Atilhan (2)*
(1) Qatar University
(2) Texas A&M University

10:55 Paper 66h: Inhibitory Action of Cost-Effective Ionic Liquids Methane Hydrates — *Tausif Altamash* (1)*, *Fahed Qureshi (1)*, *Majeda Khraisheh (1)*, *Mert Atilhan (2)*
(1) Qatar University
(2) Texas A&M University

(67) Identifying Opportunities for Sustainability in Chemical Processes II

Tuesday, Apr 24, 8:00 AM
Orlando World Center Marriott, Chicago

Quinta Nwanosike-Warren, Chair
Engineering Research Consulting; US Department of Energy

Sponsored by: Sustainable Engineering Forum

Co-Sponsored by: Process Development Division, Process Research and Innovation, Process Safety Spotlights

8:00 Paper 67a: Optimization of Extraction Condition for Phytic Acid from Defatted Peanut Meal by Response Surface Methodology — *Hong Ren**, *Ting Li*, *Huijie Wan*, *Jinping Yue*
Beijing Technology & Business University

8:30 Paper 67b: Improvement of Calcium Ammonium Nitrate Prill Quality — *Shadab Anjum Sr.**
Fatima Group

9:00 Paper 67c: Influences of Geometric Factors on a Solar Thermochemical Reactor for Two-Step CO₂ Splitting — *Han Zhang**, *Joseph D. Smith*
Missouri University of Science and Technology

(68) Initiatives in Process Intensification and Modular Chemical Processing
Tuesday, Apr 24, 8:00 AM

Orlando World Center Marriott, Anaheim

James Bielenberg, Chair
RAPID Manufacturing Institute

Sponsored by: Topical C: Process Intensification

Co-Sponsored by: Process Intensification & Microprocess Engineering

8:00 Paper 68a: Perspectives on Process Intensification and Modular Manufacturing — *Melissa Klembara**
US Department of Energy

8:22 Paper 68b: Modular Systems for Clean Coal — *Bhima Sastri**
US Department of Energy

8:44 Paper 68c: NSF Funding Opportunities for Fundamental Research on Modular Chemical Process Systems — *T. J. Mountziaris**
National Science Foundation

9:06 Paper 68d: Chemical and Thermal Process Intensification at ARPA-E — *Addison K. Stark**
US Department of Energy

(69) Instrumented Protective Systems I

Tuesday, Apr 24, 8:00 AM
Orlando World Center Marriott, Grand Ballroom 9/10

Jim Garrison, Chair
aeSolutions
Chris Iles, Co-Chair
Evonik Corporation

Sponsored by: Process Safety Spotlights

8:00 Paper 69a: Applying Process Safety Time Concepts in Process Plant Applications — *Tab Vestal**,

James Falin
Eastman Chemical Company

8:30 Paper 69b: Choosing HIPS over PRV: It's More Than Risk Reduction — *Angela E. Summers**
SIS-TECH Solutions

9:00 Paper 69c: Pump BLEVE Protection Initiator Determination — *Tab Vestal**, *Andy Steffan*
Eastman Chemical Company

(70) Managing Project Start-Ups
Tuesday, Apr 24, 8:00 AM

Orlando World Center Marriott, Tampa

Donna Bryant, Chair
Syngenta

Sponsored by: Management Division

Co-Sponsored by: Process Development Division

8:00 Paper 70a: Role of Qualitative Risk Assessments in Managing Project Start-Ups — *Robinson Sharon**, *Robert Jubin*
Oak Ridge National Laboratory

8:30 Paper 70b: Commissioning Planning: The Key to a Successful Project Startup — *Peter Kalish**
O'Brien & Gere

9:00 Paper 70c: 3 Superpowers to Boost Your Career — *Aaron Crews**
Emerson Automation Solutions

(71) Pilot Plant and Laboratory Safety I

Tuesday, Apr 24, 8:00 AM
Orlando World Center Marriott, Atlanta

Shyamal K. Bej, Chair
University of Michigan
Jeyarathan Arjunan, Co-Chair
Oklahoma State University

Sponsored by: Pilot Plants

8:00 Paper 71a: "We Have That Covered": The Ten Most Common Mistakes in Pilot Plant and Laboratory Hazard Analysis — *Richard Palluzi**
Richard P. Palluzi LLC

8:25 Paper 71b: New Software Tools for Managing Change in a Laboratory Environment — *Steven M. Bischof**
Chevron Phillips Chemical Co. LP

8:50 Paper 71c: Developing a Pilot Plant Safety Culture Within an Historically Laboratory-Focused Work Force — *Rob Nunley**
Mid-Atlantic Technology, Research & Innovation Center (MATRIC)

9:15 Paper 71d: Relief Design for Laboratory and Pilot Plants — *Michael Trainor**
Zeton Inc.

(72) Process Safety Activities in China I

Tuesday, Apr 24, 8:00 AM
Orlando World Center Marriott, Grand Ballroom 11

Dongfeng Zhao, Chair
China University of Petroleum
Yi Liu, Co-Chair
China University of Petroleum
Yifei Meng, Co-Chair
China University of Petroleum

Sponsored by: Perspectives on Process Safety from Around the World

8:00 Paper 72a: Current Situation and Outlook of Urban Refineries in China — *Yifei Meng**, *Dongfeng Zhao*, *Yi Liu*, *Xiaoming Yan Sr.*
China University of Petroleum

8:30 Paper 72b: China's Chemical Process Safety Development and Global Cooperation Vision I — *Haoshui Wang Sr.**
State Administration of Work Safety

9:00 Paper 72c: China's Chemical Process Safety Development and Global Cooperation Vision II — *Haoshui Wang Sr.**
State Administration of Work Safety

(73) Process Safety Competency of Management

Tuesday, Apr 24, 8:00 AM
Orlando World Center Marriott, Grand Ballroom 8A

Rainer Hoff, Chair
Gateway Consulting Group, Inc.
Tim Murphy, Co-Chair
Arkema

Sponsored by: 33rd Center for Chemical Process Safety (CCPS) International Conference

Co-Sponsored by: Sustainable Engineering Forum

8:00 Paper 73a: Balance in Technical and Human Competencies to Create a High-Performance Process Safety Culture — *Coen van Driel**
TÜV SÜD Schweiz AG

8:30 Paper 73b: Corporate Governance and Leadership Related to Major Hazard Scenarios Is Leader Responsibility and Each Employee Commitment and Responsibility — *Americo Diniz Carvalho Neto**
RSE - Gerenciamento de Risco e Sustentabilidade

9:00 Paper 73c: Case Study in Organizational Risk Profiling: Bridging the Gap Between Risk and Decision Making — *Nathan Turner**
DuPont

(74) Shale Gas/Oil Impact on N. America — Panel Discussion

Tuesday, Apr 24, 8:00 AM
Orlando World Center Marriott, New Orleans/New York

Jeffery Gaspard, Chair
KBR, Inc.
William Rooney, Co-Chair
Honeywell UOP
Ian M. Glasgow, Co-Chair
International Alliance Group

Sponsored by: Topical 7: 21st Topical on Refinery Processing

(75) The Day PSM Hit Home I
Tuesday, Apr 24, 8:00 AM

Orlando World Center Marriott, Grand Ballroom 8B

Lisa Long, Chair
U. S. Department of Labor - OSHA
Michael Morris, Co-Chair
BP

Sponsored by: 7th Process Safety Management Mentoring (PSMM) Forum

8:00 Paper 75a: Why I Am Passionate About Process Safety — *Louisa Nara**
CCPS

8:30 Paper 75b: That Can't Happen — *Kenneth Tague**
Archer Daniels Midland Company

9:00 Paper 75c: The HDAY-4 Unit Catastrophic Fire: Three Decades of Asset Integrity Opportunities — *Rixio E. Medina**
AcuTech Consulting

(76) Workshop: Understanding Unconscious Bias in the Workplace
Tuesday, Apr 24, 8:00 AM

Orlando World Center Marriott, Miami

Cynthia Murphy-Ortega, Co-Chair
Chevron
Sindia Rivera-Jimenez, Co-Chair
University of Florida

Sponsored by: Topical B: Leadership Development — Professional Skills to Catalyze Your Career

Co-Sponsored by: Management Division, Women's Initiatives Committee, Young Professionals Committee (YPC), Minority Affairs Committee (MAC)

**8:00 Introductory Remarks: Cynthia Murphy-Ortega*,
*Chevron***

8:10 Workshop Facilitation

(77) Young Professionals Panel
Tuesday, Apr 24, 8:00 AM

Orlando World Center Marriott, Los Angeles

Rita Tejada Vaprio, Chair
University of Arkansas

Sponsored by: Young Professionals Committee (YPC)

(78) Ethylene Plant Operations Tuesday, Apr 24, 8:00 AM
Orlando World Center Marriott, Sago

Richard Rolke, Chair
The Dow Chemical Company
Patty Summers, Co-Chair
Zeochem

Sponsored by: Topical 4: The 30th Ethylene Producers' Conference

8:00 Welcoming Remarks

8:05 Paper 78a: Troubleshooting Vacuum Operation of an Inter-After Condenser Unit in Ethylene Plant — Thomas Wieslaw* (1), Jeff Nichols (1), Norman Lieberman (2), Eric Johnson (3)

(1) Sasol
(2) Process Improvement Engineering
(3) Graham Corporation

8:30 Paper 78b: Reduced Flaring Options During Ethylene Plant Start-Up and Shutdown — Ramakrishnan Subramaniam*, Muhammad Imran*, Thomas Pickett*
Technip Stone and Webster Process Technology

8:55 Paper 78c: Olefin Plant Turnaround Optimization — Claire Cagnolatti*, Jon Bowen
Solomon Associates

9:20 Break

9:40 Paper 78d: Impact of Cracked Gas Drier Adsorbent Pressure Drop Increase on Plant Profitability — Recai Artan (1), Bruno De Jonckheere* (2)

(1) SABIC Limburg B.V.
(2) Honeywell UOP

10:05 Paper 78e: Mole Sieve Steam Deactivation — Megan Finstad*
The Dow Chemical Company

10:30 Paper 78f: Ethylene Furnace Pre-Commissioning and Commissioning: New Furnace or After Major Revamp — Kari J. Enqvist*
ENQ Consultancy Oy

10:55 Concluding Remarks

(79) Advances in Dividing-Wall Column (DWC) Technology Tuesday, Apr 24, 8:00 AM
Orlando World Center Marriott, Canary 1/2

Daniel R. Summers, Chair
Sulzer Chemtech USA, Inc.
Andrew W. Sloley, Co-Chair
Advisian (WorleyParsons Group)

Sponsored by: Topical 8: Distillation Symposium

8:00 Welcoming Remarks

8:02 Paper 79a: Operable Version of Dividing-Wall Columns: A Control Perspective — Parham Moberd*, Mohit Tawarmalani, Rakesh Agrawal
Purdue University

8:37 Paper 79b: Using a Dividing-Wall Distillation Column to Isolate Trace Impurities — Melissa Donahue*, R. Bruce Eldridge, Michael Baldea
University of Texas at Austin

9:12 Paper 79c: Network of Dividing-Wall Columns in Complex Process Units — Joseph C. Gentry* (1), Manish Bhargava (1), Norihito Suzuki (2)
(1) GTC Technology
(2) TonenGeneral

9:47 Paper 79d: Multiple Dividing-Wall Columns in a Refinery Complex — Manish Bhargava*, Roomi Kalita
GTC Technology

10:22 Paper 79e: A Rate-Based Equation-Oriented Parallel Column Model: Application to Dividing-Wall Columns — Jingsong Zhou*, Harry Kooijman, Ross Taylor
Clarkson University

10:57 Paper 79f: Saving Potentials by Use of Dividing-Wall Columns for Natural Gas Liquid Separations — Simon Xu*, Chia-Chung Wang, Rajeev Nanda
TechnipFMC

11:32 Concluding Remarks

(80) 2020 Bunker Fuel Specs, Lubes, and Waxes Tuesday, Apr 24, 10:15 AM
Orlando World Center Marriott, Grand Ballroom 2

Andrew W. Sloley, Chair
Advisian (WorleyParsons Group)
Julie Valentine, Co-Chair
Emerson

Sponsored by: Topical 7: 21st Topical on Refinery Processing

10:15 Welcoming Remarks

10:20 Paper 80a: Refinery Residue and Bitumen Upgrading: Gasification — Armen Abazajian*, Andrew W. Sloley
Advisian (WorleyParsons Group)

10:45 Paper 80b: Best Practices for Bulk and Additive Transfers in Lubricant Blending Plants — Meha Jha*, Julie Valentine*
Emerson

11:15 Paper 80c: IMO Low-Sulfur Marine Fuel Requirement for 2020 and the Road to Compliance — Christine Hobson*, Josh Ranco Burns & McDonnell

11:40 Concluding Remarks

(81) Advances in Product/Process Design & Development II Tuesday, Apr 24, 10:15 AM
Orlando World Center Marriott, Boston

Anil Krishna Jammula, Chair
Bayer U.S. LLC
Arvind Sreeram, Co-Chair
Micron Technology, Inc.
Anand N. Vennavelli, Co-Chair
Fractionation Research, Inc.
Sravanthi Vupputuri, Co-Chair
Saint Luke's Health System

Sponsored by: Product Design

Co-Sponsored by: Process Development Division

10:15 Paper 81a: Computational Tools for Designing Innovative Chemical Products — Kevin G. Joback*
Molecular Knowledge Systems, Inc.

10:37 Paper 81b: The Effect of Feed Composition Variations from Upstream Plants on the Downstream Design Configuration of Natural Gas Liquid (NGL) Recovery Processes — Mesfin Getu*
Heriot-Watt University Dubai

10:59 Paper 81c: Modeling and Simulation of Diesel Hydrotreaters for ULSD Production: Selection of an Optimal Catalyst Composition — Pedro Rojas*
Bryan Research & Engineering

11:21 Paper 81d: Optimal Reaction Design of Alkoxy Silane Copolymers Using Design of Experiment Methods — Elham Tavakoli*, Shayan Kaviani, Mona Bavarian, Siamak Nejati
University of Nebraska-Lincoln

(82) Alternative Fuels Including Biofuels, Hydrogen, Renewable Hydrogen, and Syngas II Tuesday, Apr 24, 10:15 AM
Orlando World Center Marriott, St. Louis

Jason Morgan, Chair
Worcester Polytechnic Institute

Sponsored by: Topical 5: Emerging Technologies in Clean Energy

10:15 Paper 82a: Metal Oxide-Based Solar-Driven Two-Step CH₄ Reforming and H₂O/CO₂ Splitting Cycle — Rahul Bhosale*, Gorakshnath Takalkar
Qatar University

10:40 Paper 82b: Biogas Production and Hydrogen Gas Injection Effect in Expanded Granular Sludge-Bed Reactor Under Thermophilic Temperature Range — Haider Al-Rubaye* (1), Joseph D. Smith (1), Mahyar Ghorbanian (2), Manohar Manchenahalli (2), Shruti Karambelkar (2)

(1) Missouri University of Science and Technology
(2) University of Louisville

(83) Big Data Analytics — Industry Perspective I Tuesday, Apr 24, 10:15 AM
Orlando World Center Marriott, Grand Ballroom 12

Alix Schmidt, Chair
The Dow Chemical Company
Deval Pandya, Co-Chair
Shell

Sponsored by: 4th Big Data Analytics

Co-Sponsored by: Sustainable Engineering Forum

10:15 Paper 83a: Digitalization in the Process Industries: How and Where to Implement — Jonas Norinder*
Siemens

10:45 Paper 83b: Operational Analytics: Transforming Operational Data into Actionable Insights — Osvaldo Bascuar*
OSIsoft, LLC

11:15 Paper 83c: Empirical Models for Analyzing Big Data: What's the Difference? — John MacGregor*
ProSensus Inc.; McMaster University

(84) Big Data Analytics — Vendor Perspective II (Session Speakers Invited) Tuesday, Apr 24, 10:15 AM
Orlando World Center Marriott, Grand Ballroom 13/14

Birgit Braun, Chair
The Dow Chemical Company
Chaitanya Khare, Co-Chair
The Dow Chemical Company

Sponsored by: 4th Big Data Analytics

Co-Sponsored by: Sustainable Engineering Forum

10:15 Paper 84a: Early-Stage Digital Transformation: A Case Study — Tim Diller*
Enthought, Inc.

10:45 Paper 84b: Integrated Technical Computing for Process Engineering — James Cross III*
The MathWorks, Inc.

11:15 Paper 84c: Tony Stark Needs Jarvis to Run Iron Man: What's the Future in AI for Continuous Process Industries? — *Laurent Laporte**
Braincube

(85) Contemporary Ethical Issues (Chemical Engineering and Business Focus)

Tuesday, Apr 24, 10:15 AM

Orlando World Center Marriott, Tampa

Mark Swintoniewski, Chair
Strata-G

Sponsored by: Management Division

Co-Sponsored by: Young Professionals Committee (YPC)

10:15 Paper 85a: Ethics as the Underpinning of Safety and Process Safety — *Deborah Grubbe**
Operations and Safety Solutions, LLC

10:45 Paper 85b: Multiple Ways to Failure: How Harassment Hurts the Engineering Profession — *Deborah Grubbe**
Operations and Safety Solutions, LLC

11:15 Paper 85c: Remarks on Ethics in Patenting — *Charles Collins-Chase**, *Lauren Dowty*
Finnegan LLP

11:25 Ethical Issues Panel Discussion

(86) Decision-Making for Industrial Process Systems

Tuesday, Apr 24, 10:15 AM

Orlando World Center Marriott, Grand Ballroom 6

Qiang Xu, Chair
Lamar University
Aydin K. Sunol, Co-Chair
University of South Florida

Sponsored by: Computing Systems and Technology Division

Co-Sponsored by: Young Professionals Committee (YPC)

10:15 Paper 86a: Refinery Front-End Crude Scheduling with Consideration of Unit Maintenance — *Honglin Qu**, *Qiang Xu*
Lamar University

10:40 Paper 86b: Process Stream Routing and Multi-Plant Operation of Industrial Wastewater Treatment Facilities — *Aaron Driscoll* (1)*, *Aydin K. Sunol (1)*, *Gita Iranipour (2)*, *Luke Mulford (2)*
(1) University of South Florida
(2) Hillsborough County Public Utilities Department

11:05 Paper 86c: Dynamic and Manufacturing Scheduling Approaching the Maximum Profitability Applications of Air Separation Units — *Song Wang**, *Honglin Qu*, *Jian Zhang*, *Qiang Xu*
Lamar University

(87) Distributed Chemical and Energy Processes for Sustainability I

Tuesday, Apr 24, 10:15 AM

Orlando World Center Marriott, Chicago

Paul E. Yelvington, Chair
Mainstream Engineering Corporation

Sponsored by: Sustainable Engineering Forum

Co-Sponsored by: Process Development Division, Process Research and Innovation, Pilot Plants, Technology Transfer & Manufacturing

10:15 Paper 87a: Holistic Analysis of Emissions from a Small, Modular Fast-Pyrolysis System for Conversion of Biomass and Mixed Waste — *Nicholas R. Schwartz**, *Michael J. Blaise*, *Andrew L. Wagner*, *Paul E. Yelvington*
Mainstream Engineering Corporation

10:45 Paper 87b: Modular System for Converting Lignocellulose into Pyrolytic Sugars and Phenolic Oil — *Robert C. Brown* (1)*, *Mark Gaalswyk (2)*, *Ryan G. Smith (1)*, *Lysle Whitmer (1)*, *Preston A. Gable (1)*, *Marge Rover (1)*, *Joseph Polin (1)*, *John Stanford (1)*
(1) Iowa State University
(2) Easy Energy Systems

11:15 Paper 87c: Anaerobic Treatment of High-Strength Industrial Wastes by Moving-Bed Bioreactors (MBBR) — *Somnath Basu**
Headworks International

(88) Fires, Explosions, and Reactive Chemicals II

Tuesday, Apr 24, 10:15 AM

Orlando World Center Marriott, Grand Ballroom 7A

Katherine E. Pearson, Chair
BP Americas

S. Dharmavaram, Co-Chair
DuPont

Sponsored by: 52nd Annual Loss Prevention Symposium (LPS)

10:15 Paper 88a: Don't Believe the Hype: Using Case Studies and Experimental Evidence to Show Why the HSE Is Wrong About DDTs — *Scott G. Davis* (1)*, *John Pagliaro (1)*, *Drew Botwinick (1)*, *Kees van Wingerden (1)*, *Daniel Allason (2)*, *Michael Johnson (2)*
(1) GexCon
(2) DNV GL

10:45 Paper 88b: Vented Hydrogen DDTs — *Brad Horn* (1)*, *Darren Malik (1)*, *J. Kelly Thomas (1)*, *Boo-Hyoung Bang (2)*
(1) Baker Engineering and Risk Consultants, Inc.
(2) Daewoo Institute of Construction Technology

11:15 Paper 88c: Reaction Effluent Analysis Using Adiabatic Calorimetric Experiments — *Katie Mulligan**, *Kefu Sun*, *Kevin Simmons*, *Doug Fadal*, *Joyce Zhang*, *Steven Horsch*, *Mieke Lammens*, *Xuemin Chen*, *Scott Tipler*
The Dow Chemical Company

(89) Improving Human Performance and Process Safety Effectiveness

Tuesday, Apr 24, 10:15 AM

Orlando World Center Marriott, Grand Ballroom 7B

Rahul Raman, Chair
Kaypear Dyes and Chemicals Pvt. Ltd.
Victor Edwards, Co-Chair
VHE Technical Analysis

Sponsored by: 20th Process Plant Safety Symposium (PPSS)

10:15 Paper 89a: "Fast Food PHAs": They're Fast and Cheap, but Are They Good for You? — *Philip M. Myers**
Advantage Risk Solutions, Inc.

10:45 Paper 89b: Internal Auditing: Improving Human Performance — *Patti Jones**, *Juliana Schmitz*, *Gabriel Drummond*
Praxair, Inc.

11:15 Paper 89c: Impact of Human Performance on Process Safety Management — *Vivek Bichave**
Reliance Industries Ltd.

(90) Innovative Solutions for Unconventional Resources

Tuesday, Apr 24, 10:15 AM

Orlando World Center Marriott, Denver

Kiran Gawas, Chair
Halliburton

Sponsored by: Topical 9: 6th International Conference on Upstream Engineering and Flow Assurance

10:15 Paper 90a: Using Temperature Measurements from Production Logging/Downhole Sensors to Diagnose Multistage Fractured Well Flow Profile — *Ding Zhu**, *A. Daniel Hill*
Texas A&M University

10:37 Paper 90b: A New Two-Part Friction Reducer System Enables Lower FR Concentration and Allows up to 100% Reuse of Produced

Water: Mechanisms and Case Study from the Marcellus Shale — *Liang Xu**
Halliburton

10:59 Paper 90c: Mobility Improvement Using Water-Soluble Polymers: Role of Chemical Structure and Anionicity — *Muhammad Shahzad Kamal**, *Abdullah S. Sultan*, *Lionel Fogang*, *S. M. Shakil Hussain*
King Fahd University of Petroleum & Minerals

11:21 Paper 90d: Effect of Crude Oil on the Reaction Kinetics of Diesel Emulsified Acid with Calcite at High-Pressure and High-Temperature (HPHT) — *Abdullah S. Sultan**, *Musa Eltayeb Ahmad*
King Fahd University of Petroleum & Minerals

11:43 Paper 90e: Performance of Miscible Gas Injection Patterns in Ultralow-Permeability Reservoirs — *Robello Samuel**, *Amit Kumar*
Halliburton

(91) Instrumented Protective Systems II

Tuesday, Apr 24, 10:15 AM

Orlando World Center Marriott, Grand Ballroom 9/10

Susan Behr, Chair
Braskem
Tab Vestal, Co-Chair
Eastman Chemical Company

Sponsored by: Process Safety Spotlights

10:15 Paper 91a: A Hierarchical Bayesian Approach to IEC 61511 Prior Use — *Stephen Thomas**
Chevron

10:45 Paper 91b: Analysis of a Complex Protection Scheme with Component Sharing Between Protection Layers — *Robert J. Stack* (1)*, *Joseph Belland* (2)*
(1) DowDuPont
(2) Isograph

11:15 Paper 91c: Going Full Life Cycle with Process Safety Data — *Kate Hildenbrandt**, *Iwan van Beurden*
Exida Consulting LLC

(92) LNG Safety

Tuesday, Apr 24, 10:15 AM

Orlando World Center Marriott, Grand Ballroom 5

Christopher S. Buehler, Chair
Exponent, Inc.
Jeffery Gaspard, Co-Chair
KBR, Inc.

Sponsored by: Topical 6: 18th Topical Conference on Gas Utilization

10:15 Paper 92a: Numerical Study of Bund Overtopping After Catastrophic Tank Failures — *Bin Zhang**, *Nilesh Ade*, *Guanyang Liu*, *Guanlan Liu*, *M. Sam Mannan*
Texas A&M University

10:45 Paper 92b: LNG Pool Spreading and Vaporization — *Nirupama Gopalaswami**, *Konstantinos Kokosimos*, *M. Sam Mannan*
Texas A&M University

11:15 Paper 92c: When Is a Fatality Not a Fatality? — *Mark Nandlal**
Croda Europe

(93) Opportunities in Process Intensification — Industrial Perspective
Tuesday, Apr 24, 10:15 AM
Orlando World Center Marriott, Anaheim

Shawn D. Feist, Chair
The Dow Chemical Company
James Bielenberg, Co-Chair
RAPID Manufacturing Institute

Sponsored by: Topical C: Process Intensification

10:15 Welcoming Remarks

10:18 Paper 93a: Industrial Application of Process Intensification in Adsorptive Systems — *Yang Luo**
Praxair, Inc.

10:38 Paper 93b: Enabling Modular Process Intensification Through Microfibrillar Entrapment Technology — *Paul S. Dimick* (1)*, *Hongyun Yang (1)*, *Bruce J. Tatarchuk (2)*
(1) IntraMicron, Inc.
(2) Auburn University

10:58 Paper 93c: Role of Digitalization and Virtual Engineering in Modular Chemical Processing — *Ravindra Aglave**
Siemens PLM Software

11:18 Paper 93d: Building an Effective University/Industrial Collaboration in Process Intensification for the 21st Century — *Cliff Kowall**
Lubrizol

11:38 Concluding Remarks

(94) Panel Discussion: Real Stories of Unconscious Bias in the Workplace
Tuesday, Apr 24, 10:15 AM
Orlando World Center Marriott, Miami
Sindia Rivera-Jimenez, Chair
University of Florida

Sponsored by: Topical B: Leadership Development — Professional Skills to Catalyze Your Career

Co-Sponsored by: Management Division, Women's Initiatives Committee, Young Professionals Committee (YPC), Minority Affairs Committee (MAC)

10:15 Panelist: *Cynthia Murphy-Ortega*, *Chevron*

10:25 Panelist: *Kevin J Edwards*, *Bechtel Infrastructure*

10:35 Panelist: *Bill Byers*, *CH2M HILL*

10:45 Panelist: *LaRuth McAfee*, *University of Wisconsin–Madison*

10:55 Panelist: *Jeremy A. Magruder Waisome*, *University of Florida*

11:05 Panel Discussion: Moderated by *Sindia Rivera Jimenez*, *University of Florida*

11:40 Concluding Remarks

(95) Pilot Plant and Laboratory Safety II
Tuesday, Apr 24, 10:15 AM
Orlando World Center Marriott, Atlanta

Shyamal K. Bej, Chair
University of Michigan
Jeyarathan Arjunan, Co-Chair
Oklahoma State University

Sponsored by: Pilot Plants

10:15 Paper 95a: Best Practices and Case Studies of Managing Process and Operational Safety in Process Development, from Laboratory to Pilot — *Joseph B. Powell**
Shell International Exploration & Production

10:33 Paper 95b: Implementing Laboratory Safety at Third-Party Laboratories — *Blake Branson**
Alcor Petrolab

10:51 Paper 95c: Systematic Approaches to Mitigate Hazards in the Design and Operation of Experimental Systems — *Andrew Kasick**, *Sunggyu Lee*
Ohio University

11:09 Paper 95d: Where Does Laboratory Safety Start? — *Jacob H. Arredondo* (1)*, *Timothy Threatt (1)*, *Jonathan H. Worstell (2)*
(1) Rice University
(2) University of Houston

11:27 Paper 95e: Process Safety and Scale-Up Strategy for Coating Polymers — *David N. Nare**
Sherwin-Williams

(96) Process Control Monitoring and Analytics I
Tuesday, Apr 24, 10:15 AM
Orlando World Center Marriott, Grand Ballroom 1

Mark Darby, Chair
CMiD Solutions
Azita Ahmadzadeh, Co-Chair
Honeywell UOP

Sponsored by: Fuels and Petrochemicals Division

Co-Sponsored by: Topical 7: 21st Topical on Refinery Processing

10:15 Paper 96a: Using Advance Control to Monitor Plant Performance and Economics — *Sanjay Dave*, *Andrew Trenchard*, *Christopher Webb**
Honeywell

10:45 Paper 96b: Process Monitoring of Batch Bioreactor Process Using Optimized Data-Based Model — *Chiranjivi Botre**, *Jonathan P. Raftery*, *Majdi Mansouri*, *Mohamed Nounou*, *Hazem Nounou*, *Nazmul Karim*
Texas A&M University

(97) Process Safety Activities in China II
Tuesday, Apr 24, 10:15 AM
Orlando World Center Marriott, Grand Ballroom 11

Yifei Meng, Co-Chair
China University of Petroleum

Sponsored by: Perspectives on Process Safety from Around the World

10:15 Paper 97a: Process Safety Management in Sinopec — *Yutai Wang Sr.**, *Fadong Li*, *Wei Xu*
Sinopec

10:45 Paper 97b: Current Situation and Prospect of Dynamic Equipment Status Monitoring and Fault Diagnosis on Big Data — *Yun Niu**, *Shuang Liang*
China National Petroleum Corporation

11:15 Paper 97c: Research and Application of Internet of Things Technology in Field Safety and Accident Prevention and Control — *Huitao Ma**
PetroChina Ningxia Petrochemical Company

(98) Process Safety Competency
Tuesday, Apr 24, 10:15 AM
Orlando World Center Marriott, Grand Ballroom 8A

James Klein, Chair
ABS Consulting
Bernard Groce, Co-Chair
Hess Corporation

Sponsored by: 33rd Center for Chemical Process Safety (CCPS) International Conference

10:15 Paper 98a: Competency Requirements in Process Safety — *Iwan van Beurden**, *Kate Hildenbrandt*
Exida Consulting LLC

10:45 Paper 98b: Building Competency in Internal PHA Leaders: Lessons Learned in 40 Years of Doing So — *William Bridges**
Process Improvement Institute, Inc.

11:15 Paper 98c: Catalytic Processes: Process Safety Requirements — *Geert Vercrusse**
BASF

(99) Revamps, Operability, and Reliability
Tuesday, Apr 24, 10:15 AM
Orlando World Center Marriott, Grand Ballroom 3

Jayce Mathews, Chair
KBR, Inc.
Ellen Kloppenborg, Co-Chair
Honeywell UOP
Leandro Labanca, Co-Chair
Process Integration Limited

Sponsored by: Topical 7: 21st Topical on Refinery Processing

Co-Sponsored by: Young Professionals Committee (YPC)

10:15 Paper 99a: Retrofit Strategy for Heat Exchanger Networks — *Akpomiemie Mary Onome* (1)*, *Kexin Xu (2)*, *Robin Smith (2)*, *Lu Chen (1)*
(1) Process Integration Limited
(2) University of Manchester

10:45 Paper 99b: Identifying the Causes of Acute Fouling in Refinery Preheat Trains — *Emilio Diaz-Bejarano (1)*, *Francesco Coletti* (1)*, *Sandro Macchietto (2)*
(1) Hexxcell Ltd.
(2) Imperial College London

11:15 Paper 99c: Improving Catalytic Reformer Heaters Duty Using New Technologies — *Ashutosh Garg**
Furnace Improvements Services

(100) Smart Manufacturing I
Tuesday, Apr 24, 10:15 AM
Orlando World Center Marriott, Grand Ballroom 4

Minghua Ye, Co-Chair
SABIC Americas, Inc.
William Hollar, Co-Chair
SABIC Innovative Plastics
Francesco Coletti, Co-Chair
Hexxcell Ltd.
Virginia Sommer, Co-Chair
Fluor Corporation

Sponsored by: Technology Transfer & Manufacturing

Co-Sponsored by: Process Development Division, Process Intensification & Microprocess Engineering, Innovative Manufacturing, Topical 7: 21st Topical on Refinery Processing

10:15 Paper 100a: Integration of Smart Manufacturing in the Advancement of Polymer Processing — *Efstratios N. Pistikopoulos**, *Amit Manthanwar*, *Gerald S. Ogumerem*, *Baris Burnak*
Texas A&M University

10:35 Paper 100b: Smart Manufacturing: A Must to Remain Competitive — *Munawar Saudagar**, *Minghua Ye*, *Sultan Al-Otaibe*, *Khalid Al-Jarba*
SABIC Americas, Inc.

(101) The Day PSM Hit Home II Tuesday, Apr 24, 10:15 AM
Orlando World Center Marriott, Grand Ballroom 8B

Dan Miller, Chair
CCPS
Cynthia Spitzenberger, Co-Chair
DNV GL

Sponsored by: 7th Process Safety Management Mentoring (PSMM) Forum

10:15 Paper 101a: When the House Was a Rockin', Process Safety Came Knockin' — *Elliot Wolf* (1)*, *Florine Vincik* (2)*
(1) Syngenta Crop Protection
(2) BASF

10:45 Paper 101b: The Day a Three Mile Island Event Did Not Happen — *Dan Wilczynski**
Marathon Petroleum Company

11:15 Paper 101c: Why Are the New People Making the Same Mistakes That the Old-Timers Made 25 Years Ago? Managing Organizational Change — *Art Dowell III**
Process Improvement Institute

(103) YP Professional Development Workshop

Tuesday, Apr 24, 10:15 AM
Orlando World Center Marriott, Los Angeles

Amanda Scalza, Chair
BASF

Sponsored by: Young Professionals Committee (YPC)

Co-Sponsored by: Management Division

(104) 2018 AIChE Spring Meeting & 14th GCPS Tuesday Luncheon Tuesday, Apr 24, 11:45 AM
Orlando World Center Marriott, Cypress Ballroom 3

Sponsored by: 2018 AIChE Spring Meeting & 14th Global Congress on Process Safety

(105) Advanced Technologies for Reduction of Atmospheric Emissions in the Petrochemical and Refining Industries I

Tuesday, Apr 24, 1:30 PM
Orlando World Center Marriott, San Antonio

Vikas Khanna, Chair
University of Pittsburgh

Sponsored by: Air

Co-Sponsored by: Fuels and Petrochemicals Division

1:30 Paper 105a: Flameless Oxidation for the Heating of Ethylene Furnaces — *Sebastian Muschelknautz* (1)*, *Joachim G. Wüning (2)*
(1) TakeOff Engineering
(2) WS Inc.

1:52 Paper 105b: Simultaneous Desulfurization and Denitrification of Flue Gas with Haloalkaliphilic Bacteria — *Jianmin Xing**
Institute of Process Engineering, Chinese Academy of Sciences

2:14 Paper 105c: A Case Study on Building Safety: The Coupling of Indoor and Outdoor Air Quality Modeling for Addressing Nearby Terrorist Chemical Attacks on Building Safety — *William Jones**
Jensen Hughes

(106) Advance Process Concepts — Heat & Mass Transfer I

Tuesday, Apr 24, 1:30 PM
Orlando World Center Marriott, Anaheim

Quinta Nwanosike-Warren, Chair
Engineering Research Consulting; US Department of Energy
Kirtan K. Trivedi, Co-Chair
ExxonMobil Research & Engineering Company
Virginia Sommer, Co-Chair
Fluor Corporation

Sponsored by: Topical C: Process Intensification

Co-Sponsored by: Process Intensification & Microprocess Engineering, Topical 7: 21st Topical on Refinery Processing

1:30 Paper 106a: cMIST Compact Inline Gas Treating Technology — *Shwetha Ramkumar**, *Norman K. Yeh*, *Don P. Shatto*
ExxonMobil

1:52 Paper 106b: Novel Cryogenic CO₂ Removal: Operating Conditions and Economic Analysis — *Farhad Fazlollahi**
Brigham Young University

2:14 Paper 106c: Dynamic Intensification of Separation Processes — *Lingqing Yan**, *Thomas F. Edgar*, *Michael Baldea*
University of Texas at Austin

2:36 Paper 106d: Top Dividing Wall Columns in Process Intensification — *Manish Bhargava**, *Brad Fleming*
GTC Technology

(107) Advances in Product/Process Design & Development III Tuesday, Apr 24, 1:30 PM

Orlando World Center Marriott, Boston

Anil Krishna Jammula, Chair
Bayer U.S. LLC
Sravanthi Vupputuri, Co-Chair
Saint Luke's Health System
Anand N. Vennavelli, Co-Chair
Fractionation Research, Inc.
Arvind Sreeram, Co-Chair
Micon Technology, Inc.

Sponsored by: Product Design

Co-Sponsored by: Process Development Division, Young Professionals Committee (YPC)

1:30 Paper 107a: A Kinetic Analysis of the Shipp Synthesis from 2,2',4,4',6,6'-Hexanitrostilbene — *Toni Kirkes* (1)*, *Donald Ramirez (2)*, *Martin Haddix (2)*, *Chau-Chyun Chen (1)*
(1) Texas Tech University
(2) Consolidated Nuclear Security, LLC; Pantex Plant

1:55 Paper 107b: Halloysite Nanotube Nanocomposite: Processing and Characterizations — *Bahareh Baheri**, *Sunggyu Lee*
Ohio University

2:20 Paper 107c: The Development of a Novel Method Using Cryogenic Grinding to Produce Chitin Nanofibers for Blending with Biodegradable Polymers — *Amy L. Lindenberger**, *Sunggyu Lee*
Ohio University

(108) Biomass Energy Technologies I Tuesday, Apr 24, 1:30 PM
Orlando World Center Marriott, San Francisco

Ravindra Aglave, Chair
Siemens PLM Software
Cory Jensen, Co-Chair
Colorado School of Mines
Haider Al-Rubaye, Co-Chair
Missouri Science and Technology

Sponsored by: Topical 5: Emerging Technologies in Clean Energy

1:30 Paper 108a: Low-Temperature Electrochemical Methods for the Conversion of Bio-Oils to Fuel Intermediates — *Asanga B. Padmaperuma**, *Jamelyn D. Holladay*, *Michael A. Lilga*
Pacific Northwest National Laboratory

1:55 Paper 108b: Effect of Biomass Type, Heating Rate, and Sample Size on Microwave-Enhanced Fast Pyrolysis Product Yields and Qualities — *Tyler L. Westover* (1)*, *Jordan Klinger (2)*, *Rachel Emerson (1)*, *C. Luke Williams (1)*, *Sergio Hernandez (1)*
(1) Idaho National Laboratory
(2) Michigan Technological University

2:20 Paper 108c: Co-Gasification Characteristics of Biomass Palm Oil By-Products and Coal — *Ha-Na Jang**, *Min-Jae Jeong*, *En-Song Lee*, *Sang-Yup Lee*
Yonsei University

(109) Careers in Process Safety — Invited Panel

Tuesday, Apr 24, 1:30 PM
Orlando World Center Marriott, Grand Ballroom 8B

Brian Dickson, Chair
University of Strathclyde
Ruifeng "Ray" Qi, Co-Chair
Huntsman Corporation

Sponsored by: 7th Process Safety Management Mentoring (PSMM) Forum

Co-Sponsored by: Young Professionals Committee (YPC)

1:30 Paper 109a: Q&A on Developing your Career in Process Safety — *Steve Cutchen**
Chemical Safety Board

(110) CCPS Spotlight Tuesday, Apr 24, 1:30 PM
Orlando World Center Marriott, Grand Ballroom 8A

Fred Henselwood, Chair
NOVA Chemicals
Andrew Goddard, Co-Chair
Arkema

Sponsored by: 33rd Center for Chemical Process Safety (CCPS) International Conference

Co-Sponsored by: Sustainable Engineering Forum

1:30 Paper 110a: The Roundabout Way to Disaster: Recognizing and Responding to Normalization of Deviance — *Jennifer Mize**
Eastman Chemical Company

2:00 Paper 110b: CCPS Evergreen Process Safety Metric Project — *Eric Freiburger**
Praxair, Inc.

2:30 Paper 110c: Essential Practices for Developing, Strengthening and Implementing Process Safety Culture and Leadership — *Karen Tancredi (1), Scott Berger* (2), Eric Freiburger (3)*
(1) Chevron
(2) Scott Berger and Associates LLC
(3) Praxair, Inc.

(111) Combustible Dust Hazards and Their Mitigation I

Tuesday, Apr 24, 1:30 PM
Orlando World Center Marriott, Grand Ballroom 7A

Jérôme Taveau, Chair
Fike Corporation
Susan Bershad, Co-Chair
National Fire Protection Association

Sponsored by: 52nd Annual Loss Prevention Symposium (LPS)

1:30 Paper 111a: How to Conduct a Dust Hazards Analysis (DHA) — *Michelle Murphy**
(1), Matthew Borene (2)
(1) ioKinetic
(2) ioMosaic

2:00 Paper 111b: Combustible Dust Management Screening: Methodology and Tool Development — *Sean Classen* (1), Merrill Childs* (2), Rene Murata* (1)*
(1) RISK, Inc.
(2) Cargill

2:30 Paper 111c: Risk-Based Dust Hazard Analysis (DHA) — *Fuman Zhao**
PSRG Inc.

(112) Disability Unity Community Convocation

Tuesday, Apr 24, 1:30 PM
Orlando World Center Marriott, Los Angeles

Christopher Pope, Chair
Independent Researcher/Consultant

Sponsored by: Topical B: Leadership Development — Professional Skills to Catalyze Your Career

Co-Sponsored by: Management Division, Young Professionals Committee (YPC), Minority Affairs Committee (MAC)

1:30 Paper 112a: Disability Unity Community Convocation,
*Keri Gray**
USBLN

1:45 Paper 112b: Hiring People with Disabilities: Competitive Advantage for the Savvy Manager,
*John J. Johnston**
USDA Food Safety & Inspection Service

2:00 Paper 112c: Diversity & Inclusion,
*Greg Pollock**
The Dow Chemical Company

2:15 Paper 112d: Navigating the ADA,
*Sandra Reyes**
EEO/AA/Diversity and Employee Relations Administrator for the State of Delaware

2:30 Panel Discussion: Moderated by
Chris Pope, Independent Researcher/Consultant in Chemical Engineering

3:25 Concluding Remarks

(113) Facility Security
Tuesday, Apr 24, 1:30 PM
Orlando World Center Marriott, Grand Ballroom 9/10

Terry Waldrop, Chair
AIG
Paul Rostick, Co-Chair
aeSolutions

Sponsored by: Process Safety Spotlights

1:30 Paper 113a: Cyber Security Consideration in Process Hazard Analysis — *Christopher Ng*, Addie Cormier**
Siemens Energy, Inc.

2:00 Paper 113b: If It Isn't Secure, It Isn't Safe: Incorporating Cybersecurity into Process Safety — *John Cusimano**
aeSolutions

2:30 Paper 113c: Chemical Facility Anti-Terrorism Standards (CFATS) Implementation at Tennessee Eastman Chemical Company — *David Skelton*, Teresa Campbell*
Eastman Chemical Company

(114) Gas Monetization Projects: Challenges and Strategies
Tuesday, Apr 24, 1:30 PM
Orlando World Center Marriott, Grand Ballroom 5

Jeffery Gaspard, Chair
KBR, Inc.
Mahdi Nouri, Co-Chair
Jacobs

Sponsored by: Topical 6: 18th Topical Conference on Gas Utilization

1:30 Paper 114a: How to Partner Up and Protect Your Intellectual Property in Energy Industry Joint Ventures — *Charles Collins-Chase**
Finnegan LLP

1:55 Paper 114b: Project Changes in Gas Monetization: Pitfalls or Success — *Jeffery Gaspard**
KBR, Inc.

2:20 Paper 114c: Strategies for LNG Project Development — *Arif Habibullah* (1), Yoshitsugi Kikkawa* (2)*
(1) WorleyParsons
(2) Kikkawa Giken

(115) How Young Managers Can Successfully Manage Experienced Employees

Tuesday, Apr 24, 1:30 PM
Orlando World Center Marriott, Tampa
Brandon Harding, Chair
BAE Systems

Sponsored by: Professional Development and Licensing

Co-Sponsored by: Process Development Division

1:30 Paper 115a: Young Managers with Experienced Employees — *Brandon Harding**
BAE Systems

2:00 Paper 115b: The Sartomer Success System (3S): Achieving Operational Excellence — *Rene Neron**
Sartomer

2:30 Paper 115c: 1st-Year Experience of a Young Manager in a Chemical Manufacturing Unit — *Donna Bryant**
Syngenta

(116) Industrial Strategies for Sustainability

Tuesday, Apr 24, 1:30 PM
Orlando World Center Marriott, Chicago

Sipho C. Ndlela, Chair
Owens Corning

Sponsored by: Sustainable Engineering Forum

Co-Sponsored by: Environmental Division, Process Development Division, Process Research and Innovation, Chemical Engineering & the Law Forum, 4th Big Data Analytics

1:30 Paper 116a: Justifying Energy Savings in Ethylene Crackers in a Low-Energy-Price Environment — *Mahesh Kumar Srinivas, Abdullah Alqahtani**
SABIC

1:54 Paper 116b: Retrospective Health Impact Assessment for Pm 2.5 Pollution in Mexico City, 1990–2015 — *Yousif Alhammad**
Saudi Aramco

2:16 Paper 116c: Sustainability Analytics: The Critical Link Between Sustainability and Business Strategy for Actionable Insights — *Raghavan Ramanan**
Desert Research Institute

2:38 Paper 116d: The Reaction Mechanism and Kinetics of Magnesium Oxide for CO₂ Immobilization — *Yifei Zhang Sr.**
Institute of Process Engineering, Chinese Academy of Sciences

(118) Industry 4.0 for Process Manufacturers
Tuesday, Apr 24, 1:30 PM
Orlando World Center Marriott, Grand Ballroom 12

Kevin McDunn, Chair
UI LABS
Leo H. Chiang, Co-Chair
The Dow Chemical Company

Sponsored by: Cybersecurity

1:30 Paper 118a: A Digital Vision for U.S. Manufacturing — *Kevin McDunn**
UI LABS

2:00 Paper 118b: Strategic Analysis of Smart Manufacturing Applications — *Diane J. Graziano**
Argonne National Laboratory

2:30 Paper 118c: Realizing the Digital Enterprise — *Doug Fish**
Siemens

(119) Invited Tutorial Session — Approaches in Big Data Analytics I
Tuesday, Apr 24, 1:30 PM

Orlando World Center Marriott, Grand Ballroom 13/14

Leo H. Chiang, Chair
The Dow Chemical Company
Aditya Tulsyan, Co-Chair
Amgen Inc.

Sponsored by: 4th Big Data Analytics

Co-Sponsored by: Sustainable Engineering Forum

1:30 Paper 119a: Moving Towards the Smart Factory Leveraging Big Data Advancements — *James Moyné*, Michael Armacost, Mingwei Li, Amos Dor*
Applied Materials

2:15 Paper 119b: Future of Latent Variable Methods for Big Data Analytics in the Process Industry 4.0 — *Alberto Ferrer**
Universitat Politècnica de València

(120) Learning from Experience
Tuesday, Apr 24, 1:30 PM
 Orlando World Center Marriott, Grand Ballroom 7B

Steven D. Emerson, Chair
 Emerson Technical Analysis, LLC
Joshua Moyers, Co-Chair
 Bayer

Sponsored by: 20th Process Plant Safety Symposium (PPSS)

1:30 Paper 120a: Perceived Low-Risk Processes Can Be Important: Lessons to a Regulator Based on a Nuclear Fuel Facility Process Event — *Donnie Harrison**, *April Smith*
US Nuclear Regulatory Commission

2:00 Paper 120b: Flag on the Play; Delay of Game — *John Herber**
CCPS

2:30 Paper 120c: Never Again: How to Remember Lessons Learned — *Jack McCavit* (1)*, *Cheryl Grounds (2)*, *Anne O'Neal (3)*
(1) JL McCavit Consulting, LLC
(2) CCPS Emeritus
(3) Chevron

(121) Novel Hydrogen Generation Technologies
Tuesday, Apr 24, 1:30 PM

Orlando World Center Marriott, St. Louis

Jason Morgan, Chair
 Worcester Polytechnic Institute

Sponsored by: Topical 5: Emerging Technologies in Clean Energy

1:30 Paper 121a: Co-Production of Ethylene and Hydrogen via Electrochemical Non-Oxidative Deprotonation of Ethane: A Low-Thermal-Budget and Low-Carbon-Footprint Approach — *Dong Ding**, *Yunya Zhang*, *Wei Wu*, *Ting He*
Idaho National Laboratory

1:55 Paper 121b: Synthesis and Electrochemical Properties of Ni-Doped TiO₂ Nanotubes for Enhancing Visible Light Absorption — *Joaquín Tirano** (1), *Hugo Ricardo Zea Ramírez (1)*, *Michael Bredol (2)*
(1) Universidad Nacional de Colombia
(2) Münster University of Applied Sciences

2:20 Paper 121c: Manganese Oxide/Manganese Sulfate-Based Solar Thermochemical Water Splitting Cycle — *Rahul Bhosale**, *Gorakshnath Takalkar*
Qatar University

(122) Process Control Monitoring and Analytics II
Tuesday, Apr 24, 1:30 PM
 Orlando World Center Marriott, Grand Ballroom 1

Mark Darby, Chair
 CMiD Solutions
Azita Ahmadzadeh, Co-Chair
 Honeywell UOP

Sponsored by: Fuels and Petrochemicals Division

Co-Sponsored by: Topical 7: 21st Topical on Refinery Processing

1:30 Paper 122a: Machine Learning at Scale for the Advanced Process Control Toolkit — *Aswin N. Venkat**
Falconry, Inc.

2:00 Paper 122b: Driving Ammonia Plant Operational Excellence Through Performance Monitoring and Analytics — *Satish Baliga**, *Avinash Malhotra*
KBR, Inc.

2:30 Paper 122c: A Review of Generalized Likelihood Ratio-Based Monitoring Techniques — *M. Ziyen Sheriff*, *Chiranjivi Botre**, *Hazem Nounou*, *M. Nazmul Karim*, *Mohamed Nounou*
Texas A&M University

(123) Process Modeling and Simulation

Tuesday, Apr 24, 1:30 PM
 Orlando World Center Marriott, Grand Ballroom 6

James Cross III, Chair
 The MathWorks, Inc.
Trevor Rice, Co-Chair
 Chemstations, Inc.

Sponsored by: Computing Systems and Technology Division

1:30 Paper 123a: Hybrid Simulation of a Dynamic System — *James Cross III* (1)*, *Wendy Young (2)*
(1) The MathWorks, Inc.
(2) Chemstations, Inc.

1:55 Paper 123b: Optimising EDC Cracker Operation to Enhance VCM Plant Economics — *Sreekumar Maroor* (1)*, *Stapan Spatenka (1)*, *Wipada Lertpukpon (2)*, *Pheeraya Kityanyong (2)*, *Kritsada Chotiwiriyakun (2)*, *Nattawat Tiensadi (2)*, *Renato Wong (1)*
(1) Process Systems Enterprise Ltd.
(2) SCG Chemicals Co., Ltd.

2:20 Paper 123c: Single & Multi-Objective Optimizations Using Parallelized Process Simulators — *Trevor Rice**, *Aaron Herrick*, *Mingder Lu*
Chemstations, Inc.

(124) Refinery Profitability, Flexibility, and Optimization I
Tuesday, Apr 24, 1:30 PM
 Orlando World Center Marriott, Grand Ballroom 2

Ellen Kloppenborg, Chair
 Honeywell UOP
Ahmed Khogeer, Co-Chair
 Saudi Aramco

Sponsored by: Topical 7: 21st Topical on Refinery Processing

1:30 Paper 124a: Improving Profitability by Solving Crude and Fuel Blending Challenges — *Meha Jha**, *Julie Valentine**
Emerson

2:00 Paper 124b: What Is the Right Gas Oil Cutpoint? — *Maria Aldescu**, *Al Shelton**
KBC Advanced Technologies Inc.

2:30 Paper 124c: Building Flexibility into a Refinery with a Delayed Coking Unit — *Richard R. Heniford**
Bechtel

(125) Smart Manufacturing II
Tuesday, Apr 24, 1:30 PM

Orlando World Center Marriott, Grand Ballroom 4

Minghua Ye, Chair
 SABIC Americas, Inc.
Francesco Coletti, Co-Chair
 Brunel University London

Sponsored by: Technology Transfer & Manufacturing

Co-Sponsored by: Process Development Division, Process Intensification & Microprocess Engineering, Innovative Manufacturing, Topical 7: 21st Topical on Refinery Processing

1:30 Paper 125a: Smart Systems for the Process Industries — *Samvith Rao**
The MathWorks, Inc.

1:55 Paper 125b: Smart Damper Design Provides Better Control of Fired Heaters — *Ashutosh Garg**
Furnace Improvements Services

2:20 Paper 125c: Application-Centralized Information Technology in Process Design Package Development — *Minghua Ye**, *Munawar Saudagar*, *Sergio Mohedas*
SABIC Americas, Inc.

(126) Spanish Session: Compartiendo Conocimientos y Experiencias Sobre Seguridad de Procesos — Alarmas y SIS
Tuesday, Apr 24, 1:30 PM
 Orlando World Center Marriott, Grand Ballroom 11

Wolfram Jahn von Arnswaldt, Chair
 Pontificia Universidad Católica de Chile
Sergio Fernandez Sr., Co-Chair
 Pan American Energy
Felipe Muñoz Giraldo, Co-Chair
 Universidad de los Andes

Sponsored by: Perspectives on Process Safety from Around the World

1:30 Paper 126a: Seguridad de Procesos en el Upstream de Operación Basada en Riesgo en Vaca Muerta — *Victor Cabanne Sr.**, *Luis Kirs Sr.*, *Fernando Chialva Sr.**, *Nicolas Sorroche Sr.*, *Juan Ignacio Alvarez Claramunt Sr.**, *Julio Sernaglia Sr.*
YPF

2:00 Paper 126b: Medicion de la Efectividad del SIS en Campo: ¿Concuerda con las Suposiciones del Analisis de Riesgo? — *Alejandro Esparza**
Exida Consulting LLC

2:30 Paper 126c: Aplicación Práctica de un Funcional Safety Pre-Assessment Según la Normativa IEC 61511-1 — *Romel Rodriguez* (1)*, *Eliana Berroteran* (1)*, *Carlos Salcedo* (2)*
(1) CSF Consultoría en Seguridad Funcional
(2) FertiNitro

(127) Safety Measures for Tower Entry

Tuesday, Apr 24, 1:30 PM
 Orlando World Center Marriott, Canary 1/2

Daniel R. Summers, Chair
 Sulzer Chemtech USA, Inc.
Andrew W. Sloley, Co-Chair
 Advisian (WorleyParsons Group)

Sponsored by: Topical 8: Distillation Symposium

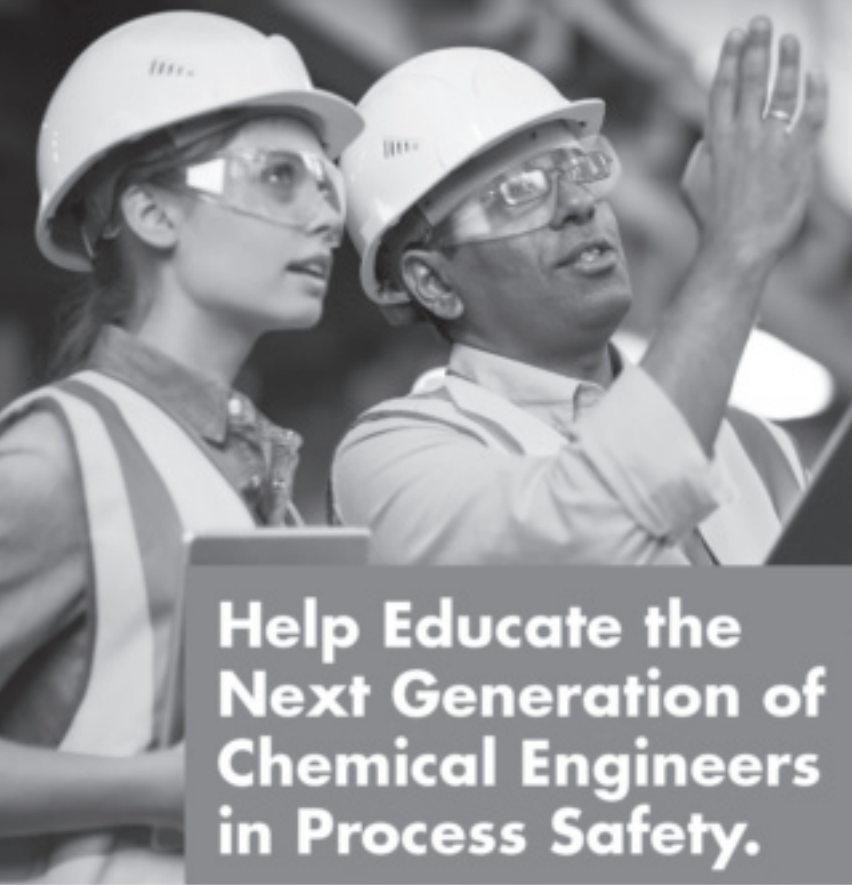
1:30 Welcoming Remarks

1:35 Paper 127a: Tower Entry Safety Topics — *Bhushan Sukhram**, *Glenn Victor*
United Safety Council

2:35 Paper 127b: Practical Tower Safety from the Engineer's Perspective — *Daniel R. Summers**
Sulzer Chemtech USA, Inc.

3:35 Paper 127c: Practical Tower Safety from the Installer's Perspective — *Michael Lochbaum* (1)*, *Daniel R. Summers*, *Xavier Rubio*
Sulzer Chemtech USA, Inc.

4:35 Concluding Remarks



**Help Educate the
Next Generation of
Chemical Engineers
in Process Safety.**

The AIChE® Undergraduate
Process Safety Learning Initiative.
While you're making the world better and
safer, they will be, too.

LEAD THE WAY AT WWW.AICHE.ORG/SAFERWORLD

AIChE® thanks the following Founders' Circle companies for their leadership support:

Benefactors



Underwriter



Patrons



(128) Ethylene Plant Maintenance & Reliability**Tuesday, Apr 24, 2:00 PM**

Orlando World Center Marriott, Royal

Jorge E. Blanco, Chair

Schmidtsche Schack | ARVOS GmbH

Shailendra Inamdar, Co-Chair

Linde Engineering North America Inc.

Sponsored by: Topical 4: The 30th Ethylene Producers' Conference**2:00 Welcoming Remarks****2:05 Paper 128a: Exploring the Use of Fitness for Service (API 579) in Ethylene Production Facilities —** *Scott Bouse*, John Norris Stress Engineering Services, Inc.***2:30 Paper 128b: Transfer Line Exchanger Fitness-for-Service Analysis Case Study: Assessing Erosion for Remaining Life Prediction —** *Jimmy Cleavinger* (1), Joerg Weidenfeller (2), Carlos Corleto (3), Bala Devakottai (1) (1) Chevron Phillips Chemical Company (2) Schmidtsche Schack | ARVOS GmbH (3) KnightHawk Engineering***2:55 Paper 128c: Maintenance & Reliability: Predictive Analytics Using Process & Operating Data —** *Sandra Peterson* TrendMiner***3:20 Break****3:40 Paper 128d: Condition-Based Recoiling —** *Stef Luijten*, Georgios Bellos The Dow Chemical Company***4:05 Paper 128e: High-Temperature Hydrogen Attack in Ethylene Producing Plants —** *Tatiana Randall* Flint Hills Resources***4:30 Paper 128f: Cold Service Bolted Joint Reliability —** *Kathryn Worden* Flexitallic, L.P.***4:55 Paper 128g: Special Venturi Technology for Condensate Removal —** *Marc Froeyen* Steamloc International***5:20 Concluding Remarks****(129) Ethylene Plant Technology Fundamentals****Tuesday, Apr 24, 2:00 PM**

Orlando World Center Marriott, Sago

Jack H. Buehler, Chair

Shell

Robert Krinock, Co-Chair

The Dow Chemical Company

Sponsored by: Topical 4: The 30th Ethylene Producers' Conference**2:00 Welcoming Remarks****2:05 Paper 129a: RDR: Revolution in Ethylene Yield —** *Harri Johannesdahl* Coolbrook Oy***2:30 Paper 129b: Flameless Oxidation for Heating of Ethylene Furnaces —** *Sebastian Muschelknautz* TakeOff Engineering***2:55 Paper 129c: Thermal Decomposition of Sulfur Compounds and Their Role in Coke Formation During Steam Cracking of Ethane and Heptane —** *Kevin M. Van Geem, Marko R. Djokic*, Natalia Olahova, Guy B. Marin Ghent University***3:20 Break****3:40 Paper 129d: Separation of Olefin-Paraffin Mixtures with OptipermTM-Customized Amorphous Fluoropolymer Membranes —** *Sudip Majumdar, Ken Loprete, Kenneth J. Pennisi, Daniel Campos, Stuart Nemser, Andrew Feiring, Ning Shanguan, Hannah Murnen, Dan Lousenberg, Bill Charlton* Compact Membrane Systems***4:05 Paper 129e: Catalytic Cracking of Light Hydrocarbons over Zeolite-Based Composites for On-Purpose Propylene —** *Fuyuki Yagi* Chiyoda Corporation***4:30 Paper 129f: IMPROOF: Integrated Model-Guided Process Optimization of Steam Cracking Furnaces —** *Marko R. Djokic, Kevin M. Van Geem* Ghent University***4:55 Concluding Remarks****(130) Advanced Technologies for Reduction of Atmospheric Emissions in the Petrochemical and Refining Industries II****Tuesday, Apr 24, 3:30 PM**

Orlando World Center Marriott, San Antonio

Vikas Khanna, Chair
University of Pittsburgh**Sponsored by:** Air**3:30 Paper 130a: WSA Technology: A Competitive Solution for Refinery Sulfur Management —** *Livia Sierra Llorens* Haldor Topsøe***3:52 Paper 130b: Model Predictive Control for Ethylene Oxide Plant Startup —** *Albert Odell III*, Qiang Xu Lamar University***4:14 Paper 130c: Research on Gas-Liquid Coalescence Filtration Performance of Electrospun Polyacrylonitrile Nanofiber Composite Filters —** *Feng Chen*, Zhongli Ji, Qiangqiang Qi China University of Petroleum***4:36 Paper 130d: Dynamic Simulation and Optimization of Turnaround Operations Among Multiple Olefin Plants for Flare Minimization —** *Yiling Xu*, Qiang Xu Lamar University***(131) Advance Process Concepts — Heat & Mass Transfer II**
Tuesday, Apr 24, 3:30 PM
Orlando World Center Marriott, Anaheim**Quinta Nwanosike-Warren, Chair**
Engineering Research Consulting; US Department of Energy
Kirtan K. Trivedi, Co-Chair
ExxonMobil Research & Engineering Company
Virginia Sommer, Co-Chair
Fluor Corporation**Sponsored by:** Topical C: Process Intensification**Co-Sponsored by:** Process Intensification & Microprocess Engineering**3:30 Paper 131a: Use of Dividing Wall Technology to Increase Throughput and Improve Product Specifications in Two-Diameter Columns —** *Manish Bhargava*, Roomi Kalita GTC Technology***3:50 Paper 131b: Process Intensification of Distillation Using a Microwave Technology Platform —** *Ward E. Tegrotenhuis*, Danny Bottenus, Paul Humble, Michael R. Powell Pacific Northwest National Laboratory***4:10 Paper 131c: Improving Plant Economics by Upgrading Low-Value Hydrocarbon Stream by Enrichment of C9+ Compounds Using Divided-Wall Distillation Columns —** *Abdullah Alqahtani, Mahesh Kumar Srinivas* SABIC***(132) Application of Risk Assessment Methods and Tools**
Tuesday, Apr 24, 3:30 PM

Orlando World Center Marriott, Grand Ballroom 7B

Sean P. Lapekas, Chair
Ash Stevens Inc.**Jack Chosnek, Co-Chair**
KnowledgeOne LLC**Sponsored by:** 20th Process Plant Safety Symposium (PPSS)**Co-Sponsored by:** Sustainable Engineering Forum**3:30 Paper 132a: Applying an Enterprise Risk Management Framework to Process Safety —** *Muhammad Mushahid Qureshi* Saudi Aramco***4:00 Paper 132b: What Is the Safest Way to Move LNG? —** *Ryan J. Hart*, Miguel Garcia, Delmar "Trey" Morrison Exponent, Inc.***4:30 Paper 132c: Beyond HAZOP: Analyzing Common Cause and System Scenarios —** *Eloise Roche*, Angela E. Summers, Watson Dupont SIS-TECH Solutions***(133) Biomass Energy Technologies II**
Tuesday, Apr 24, 3:30 PM
Orlando World Center Marriott, San Francisco**Haider Al-Rubaye, Chair**
Missouri Science and Technology
Jason Morgan, Co-Chair
Worcester Polytechnic Institute**Sponsored by:** Topical 5: Emerging Technologies in Clean Energy**3:30 Paper 133a: Sustainable Energy Production from Renewable Resources Through Anaerobic Digestion Process: Nigerian Experience —** *Oluyemi Adetule* European Commission for International Cooperation and Development (EuropeAid)***3:55 Paper 133b: Transportation Fuels from Renewable Biomass Sources: Opportunities and Challenges —** *Asanga B. Padmaperuma*, Mariefel V. Olarte Pacific Northwest National Laboratory***4:20 Paper 133c: Thermal Characterization of Microalgal Biomass and Lipids Extracted Residual for Biofuel Production —** *Shaikh Razzak* King Fahd University of Petroleum and Minerals***(134) Combustible Dust Hazards and Their Mitigation II**
Tuesday, Apr 24, 3:30 PM

Orlando World Center Marriott, Grand Ballroom 7A

Jérôme Taveau, Chair
Fike Corporation
Susan Bershad, Co-Chair
National Fire Protection Association**Sponsored by:** 52nd Annual Loss Prevention Symposium (LPS)**3:30 Paper 134a: Metal Powder and Nanoparticles: Combustible Dust Safety Challenges? —** *Gerd Mayer* REMBE Inc.*

4:00 Paper 134b: Electrostatic Hazards During Pneumatic Conveying of Combustible Dusts in Flexible Hoses — *Michael Stern**, Sean J. Dee, Alfonso F. Ibarreta, Russell Ogle, Timothy J. Myers
Exponent, Inc.

4:30 Paper 134c: Investigation of the Lower Explosion Limit of Hybrid Mixtures — *Emmanuel K. Addai* (1)*, Paul R. Amyotte (2), Ulrich Krause (3)
(1) DEKRA Insight
(2) Dalhousie University
(3) Otto-von-Guericke-Universität Magdeburg

(135) Cyber Security Panel
Tuesday, Apr 24, 3:30 PM
Orlando World Center Marriott, Grand Ballroom 9/10

J. Wayne Chastain, Chair
Eastman Chemical Company
Kimberly Mullins, Co-Chair
Occidental Chemical Corporation

Sponsored by: Process Safety Spotlights

Co-Sponsored by: 4th Big Data Analytics, Cybersecurity

(137) Data and Operations
Tuesday, Apr 24, 3:30 PM
Orlando World Center Marriott, Grand Ballroom 1

Tim Olsen, Chair
Emerson Automation Solutions
Deval Pandya, Co-Chair
Shell
Lluvia M. Ochoa-Estopier, Co-Chair
University of Manchester

Sponsored by: Topical 7: 21st Topical on Refinery Processing

Co-Sponsored by: 4th Big Data Analytics

3:30 Paper 137a: Advances in Utilizing Data to Improve Operations — *Tim Olsen**
Emerson Automation Solutions

4:00 Paper 137b: Adaptive Anomaly Detection and Its Application to Online Asset Monitoring — *Tim Butters**
Sabisu

4:30 Paper 137c: Dynamic Data Analysis of Large-Scale Data to Monitor Fouling in Heat Exchanger Networks — *Francesco Coletti* (1)*, Emilio Diaz-Bejarano (1), Sandro Macchietto (2)
(1) Hexxcell Ltd.
(2) Imperial College London

(139) Disaster Resilience in and Around the Chemical Engineering Community
Tuesday, Apr 24, 3:30 PM
Orlando World Center Marriott, Chicago

Cory Jensen, Chair
Colorado School of Mines

Sponsored by: Sustainable Engineering Forum

Co-Sponsored by: 7th Process Safety Management Mentoring (PSMM) Forum, 4th Big Data Analytics

(141) Fuel Cell Technologies
Tuesday, Apr 24, 3:30 PM
Orlando World Center Marriott, St. Louis

Jason Morgan, Chair
Worcester Polytechnic Institute
Cory Jensen, Co-Chair
Colorado School of Mines

Sponsored by: Topical 5: Emerging Technologies in Clean Energy

3:30 Paper 141a: Influence of Carbon Dioxide and Carbonate on the Electrode Reactions in Alkaline Direct Methanol Fuel Cells — *Carsten Cremers**, Tilman Jurzinsky
Fraunhofer Institute for Chemical Technology (ICT)

3:55 Paper 141b: Water Management Strategies for PEM Fuel Cells: A Review — *Harshit Bajpai**, Shripad T. Revankar
Purdue University

4:20 Paper 141c: PEM Fuel Cell Design Exploration — *Chris Lueth**
Siemens PLM Software

4:45 Paper 141d: Synthesis of Vertically Oriented Titanium Dioxide Nanostructures by Electrochemical Anodization — *Joaquin Tirano** (1), Hugo Ricardo Zea Ramirez (1), Claudia Luhrs (2)
(1) National University of Colombia
(2) Naval Postgraduate School

(142) Invited Tutorial Session — Approaches in Big Data Analytics II
Tuesday, Apr 24, 3:30 PM
Orlando World Center Marriott, Grand Ballroom 13/14

Leo H. Chiang, Chair
The Dow Chemical Company
Aditya Tulsyan, Co-Chair
Amgen Inc.

Sponsored by: 4th Big Data Analytics

Co-Sponsored by: Sustainable Engineering Forum

3:30 Paper 142a: Machine Learning Collective Variable Discovery for Materials Design and Engineering — *Andrew Ferguson**
University of Illinois at Urbana-Champaign

4:15 Paper 142b: Big Data Analytics for Upstream Processes — *Biao Huang**
University of Alberta

(144) Managing Yourself: Reinventing Yourself for Your Next Role
Tuesday, Apr 24, 3:30 PM
Orlando World Center Marriott, Tampa
Quinta Nwanosike-Warren, Chair
Engineering Research Consulting; US Department of Energy

Sponsored by: Professional Development and Licensing

3:30 Paper 144a: Listen to the Operators, They Know the Process — *Martin K. Kimani**
Northeastern University

4:00 Paper 144b: An Engineer's Guide to Marketing Yourself Professionally — *Meha Jha**
Emerson

4:30 Paper 144c: Leadership by Engineers and Scientists — *Dennis W. Hess**
Georgia Institute of Technology

(145) Operating Discipline
Tuesday, Apr 24, 3:30 PM
Orlando World Center Marriott, Grand Ballroom 8A

John W. Champion, Chair
The Dow Chemical Company
Bill Bradshaw, Co-Chair
ABS Consulting

Sponsored by: 33rd Center for Chemical Process Safety (CCPS) International Conference

Co-Sponsored by: Sustainable Engineering Forum

3:30 Paper 145a: Risk Awareness: The Key to Operational Discipline — *Alfonsius Ariawan**, Lawrence S. Short
DuPont

4:00 Paper 145b: Know Your Limits — *Jerry J. Forest**
Celanese

4:30 Paper 145c: Human Factors in Barrier Management — *Kyle Wingate**
Lloyd's Register

(146) Pilot Plant Success Stories
Tuesday, Apr 24, 3:30 PM
Orlando World Center Marriott, Atlanta

Michael Trainor, Chair
Zeton Inc.
Vinod Kumar Venkatakrishnan, Co-Chair
Shell International Exploration & Production

Sponsored by: Pilot Plants

3:30 Paper 146a: Overcoming Foreseen and Unforeseen Problems with Oldershaw Column Designs in a Pilot Plant — *Rob Nunley**, Glenn Graham
Mid-Atlantic Technology, Research & Innovation Center (MATRIC)

3:55 Paper 146b: Pilot Plant Success Stories from Xerox Research Centre of Canada — *Tom Enright**
Xerox Research Center of Canada

4:20 Paper 146c: Piloting to Prevent Failure — *Paul F. Martin**
Zeton Inc.

4:45 Paper 146d: The US DOE's ABPDU: Enabling Commercialization in the Bioeconomy Through Rapid Process Prototyping and Piloting — *Akash Narani**, Ning Sun, Deepti Tanjore, Todd Pray
Lawrence Berkeley National Laboratory

(147) Portuguese Session: Compartilhando Conhecimentos e Experiências de Segurança de Processos
Tuesday, Apr 24, 3:30 PM
Orlando World Center Marriott, Grand Ballroom 11

Eduardo M. Francisco, Chair
DuPont
Nestor H. Sposito Sr., Co-Chair
CCPS

Sponsored by: Perspectives on Process Safety from Around the World

3:30 Paper 147a: Risk Approach for Urban Planning Around Chemical Plants — *Elizabeth Alves**
Federal University of ABC

4:00 Paper 147b: Developments of an Effective Training on Operational Discipline in Latin America — *Eduardo M. Francisco* (1)*, Leticia Forrer Sosa (2)
(1) DuPont
(2) Universidade Federal do Rio de Janeiro

4:30 Paper 147c: Sound and Fury: How Clean Is Your Alarm System? — *Monica Hochleitner**
SIS-TECH Solutions

(148) Refinery Profitability, Flexibility, and Optimization II
Tuesday, Apr 24, 3:30 PM
 Orlando World Center Marriott, Grand Ballroom 2

Ellen Kloppenborg, Chair
 Honeywell UOP
Ahmed Khogeer, Co-Chair
 Saudi Aramco

Sponsored by: Topical 7: 21st Topical on Refinery Processing

3:30 Paper 148a: Optimization of Refinery Preheat Trains: Predictive Maintenance and Operations Improvement — *Francesco Coletti** (1,2), *Federico Lozano (1)*, *Emilio Diaz-Bejarano (1)*, *Sandro Macchietto (1,3)* (1) *Hexxell Ltd.*
 (2) *Brunel University London*
 (3) *Imperial College London*

3:55 Paper 148b: Refinery Preheat Train Fouling Management for Enhanced Energy Efficiency — *Stephen Hall**, *Kumar Prashant* *Process Systems Enterprise Ltd.*

4:20 Paper 148c: Optimising Productivity and Energy Consumption in Crude Oil Distillation Units with Investment-Free Solutions — *Lu Chen (1)*, *Lluvia M. Ochoa-Estopier* (2)* (1) *Process Integration Limited*
 (2) *University of Manchester*

(149) Syngas Processing and Technology Development
Tuesday, Apr 24, 3:30 PM
 Orlando World Center Marriott, Grand Ballroom 5

Hebab Quazi, Chair
 AngelNet Energy, Water and Environmental Systems, Inc.

Sponsored by: Topical 6: 18th Topical Conference on Gas Utilization

3:30 Paper 149a: Optimal Synthesis of Integrated Reactive Distillation Systems for Fischer-Tropsch Process — *Yizu Zhang*, *Cornelius Mduduzi Masuku**, *Lorenz T. Biegler* *Carnegie Mellon University*

3:55 Paper 149b: A Mini-Pilot-Scale Demonstration of Single-Stage Syngas-to-DME Process — *Lujie Ye**, *Sunggyu Lee* *Ohio University*

4:20 Paper 149c: Enhancing Lubricity of Gas-to-Liquid (GTL) Paraffinic Kerosene Using Additives and Optimizing the Fuel's Physicochemical Properties — *Hani Ababneh* (1)*, *Nasr Mohamed (2)*, *Hanif Choudhury (2)*, *Gordon Mckay (1)* *Nimir Elbashir (2)* (1) *Hamad Bin Khalifa University*
 (2) *Texas A&M University at Qatar*

4:45 Paper 149d: Effect of Space Velocity and Long Residence Time to Fischer-Tropsch Products and Catalysts Reduced with Different Gases — *Joshua Gorimbo**, *Adolph Muleja*, *Diane Hildebrandt* *University of South Africa*

(150) Tutorials in Process Safety — CCPS II

Tuesday, Apr 24, 3:30 PM
 Orlando World Center Marriott, Grand Ballroom 8B

Myron Carlson, Chair
 Cargill
Bill Mosier, Co-Chair
 Syngenta

Sponsored by: 7th Process Safety Management Mentoring (PSMM) Forum

(151) Advances in Catalysis
Wednesday, Apr 25, 8:00 AM
 Orlando World Center Marriott, Grand Ballroom 3

Azita Ahmadzadeh, Chair
 Honeywell UOP
Tracy J. Benson, Co-Chair
 Lamar University
Gary Gildert, Co-Chair
 Vanguard Catalysts, LLC

Sponsored by: Topical 7: 21st Topical on Refinery Processing

8:00 Paper 151a: Sorbent-Based Desulfurization Process for Removing Organic Sulfur Compounds — *Gokhan Alptekin** *SulfaTrap LLC*

8:25 Paper 151b: Catalytic Reforming for Syngas Production Using Industrial CO₂: Carbon Capture and Chemical Manufacturing — *Prashant Kumar* (1)*, *David Lynch (1)*, *Gary Gildert (2)*, *Mani Erfan (3)* (1) *Enerkem Inc.*
 (2) *Vanguard Catalysts, LLC*
 (3) *Unicat Catalyst Technologies*

8:50 Paper 151c: Medium-Chain Alcohol Production Using Alkali-Promoted Mo-Sulfide Fischer-Tropsch Catalysts — *Tracy J. Benson* (1)*, *Russell R. Chianelli (2)* (1) *Lamar University*
 (2) *University of Texas at El Paso*

(152) Assuring/Verifying Barriers I
Wednesday, Apr 25, 8:00 AM

Orlando World Center Marriott, Grand Ballroom 8A

San Burnett, Chair
 BHP
Seshu Dharmavaram, Co-Chair
 DuPont

Sponsored by: 33rd Center for Chemical Process Safety (CCPS) International Conference

8:00 Paper 152a: Are Your Barriers Ready for Action? Are You Sure? — *Christopher Ronk** *BP Pipelines*

8:30 Paper 152b: Making Everyone a Barrier Guardian — *Steve Arendt**, *Oscar Suarez* *ABS Consulting*

9:00 Paper 152c: Maintaining the Integrity of Safety Barriers: A Challenge — *Rajender Dahiya** *American International Group, Inc.*

(153) Controls and Digitalization Technology I
Wednesday, Apr 25, 8:00 AM
 Orlando World Center Marriott, Grand Ballroom 1

Nikki Bishop, Chair
 Siemens
Swapnil Fegade, Co-Chair
 Fusion Automation Inc.

Sponsored by: Topical 7: 21st Topical on Refinery Processing

8:00 Paper 153a: How to Sell the Value of Digitalization with MPC — *Laurie Ben**, *James Beall IV** *Emerson Automation Solutions*

8:45 Paper 153b: Autonomous Tuning and Firing Temperature Control for Variable Engine Operating Conditions: A New Control Scheme Designed for Optimized Engine Control in All Seasons and a Variety of Fuel Gas Compositions — *Matthew Burton** *Siemens*

9:30 Paper 153c: To Cloud or Not to Cloud: That Is the Question — *Ben Bishop**, *Bill Thackston III** *Siemens*

(154) Emerging Topics and Technologies
Wednesday, Apr 25, 8:00 AM
 Orlando World Center Marriott, Grand Ballroom 7A

Elliot Wolf, Chair
 Syngenta Crop Protection
Peter N. Lodal, Co-Chair
 Eastman Chemical Company

Sponsored by: 52nd Annual Loss Prevention Symposium (LPS)

Co-Sponsored by: Young Professionals Committee (YPC)

8:00 Paper 154a: Unmanned Aircraft Systems (UAS): Case Studies That Highlight Challenges and Opportunities — *Florine Vincik** *BASF*

8:30 Paper 154b: Composite Intermediate Bulk Containers (CIBCs): Understanding Risk & Emerging Fire Code Issues — *Michael Snyder** *DEKRA*

9:00 Paper 154c: Enabling Real-Time Hazard Assessment at the Workplace — *Nastassja Lewinski** *Virginia Commonwealth University*

(155) H2@Scale 1
Wednesday, Apr 25, 8:00 AM
 Orlando World Center Marriott, Miami

Sponsored by: Industry 4.0 Topical Conference

(156) Inherently Safer Design I
Wednesday, Apr 25, 8:00 AM
 Orlando World Center Marriott, Grand Ballroom 9/10

Nirupama Gopaldaswami, Chair
 Honeywell Process Solutions
Brad Newman, Co-Chair
 Praxair, Inc.

Sponsored by: Process Safety Spotlights

Co-Sponsored by: Sustainable Engineering Forum

8:00 Paper 156a: Inherent Safety and the Elements of PSM/RBPS Programs — *Michael Hazzan** *AcuTech Group, Inc.*

8:30 Paper 156b: Encouraging the Use of Inherent Safety — *David A. Moore** *AcuTech Group, Inc.*

9:00 Paper 156c: Application of a Property-Based Inherent Safety Quantification Framework for Integrating Risk Assessment into Process Safety Life Cycle — *Monzure-Khoda Kazi**, *Fadwa T. Eljack*, *Ahmed AlNouss* *Qatar University*

(157) Intellectual Property Law Panel Session
Wednesday, Apr 25, 8:00 AM
 Orlando World Center Marriott, Tampa

Sponsored by: Chemical Engineering & the Law Forum

Co-Sponsored by: Process Development Division

8:00 Paper 157a: Kaboom!: Examples of Recent Misadventures in the Patent World — *Gerard Reinhardt** *Reinhardt IP*

8:25 Paper 157b: Think like a Startup: Idea Protection — *David Holt** *Bradley Arant Boult Cummings LLP*

(158) Japan's Process Safety Progress: Lessons Learned from Past Accidents to Reduce Future Losses
Wednesday, Apr 25, 8:00 AM
Orlando World Center Marriott, Grand Ballroom 11

Masaki Nakagawa, Chair
Mitsubishi Chemical Corporation
Ana Maria Cruz, Co-Chair
Kyoto University

Sponsored by: Perspectives on Process Safety from Around the World

Co-Sponsored by: Sustainable Engineering Forum

8:00 Paper 158a: Learning from Lubes Plant Fire: Importance of Hazard Identification and Preparation — *Masaki Iguchi**
JXTG Nippon Oil & Energy Corporation

8:30 Paper 158b: Tsunami-Induced Oil Spill Fire Simulation in the Vicinity of Petroleum Industries in Japan — *Tomoaki Nishino* (1), Youhei Takagi (2)*
(1) Kyoto University
(2) Yokohama National University

9:00 Paper 158c: Business Continuity Plan for the Next Large-Scale Earthquake "Nankai-Trough" at the Refinery in Japan — *Hayato Abe Sr.**
Idemitsu Kosan

(159) MOC's Gone Wild — Essential, but so Challenging to Get Right
Wednesday, Apr 25, 8:00 AM
Orlando World Center Marriott, Grand Ballroom 7B

Colin S. Howat III, Chair
C. S. Howat & Associates
Neha Suresh Rajan, Co-Chair
Bayer Business & Technology Services, LLC

Sponsored by: 20th Process Plant Safety Symposium (PPSS)

8:00 Paper 159a: Auditing MOC: A Target-Rich Environment — *Charles Foshee**
Chevron

8:30 Paper 159b: Managing the Risk of MOC — *Jack Chosnek**
KnowledgeOne LLC

9:00 Paper 159c: The "Projectness" of MOC — *Rainer Hoff**
Gateway Consulting Group, Inc.

(161) Modeling Tools and Techniques for Process R&D
Wednesday, Apr 25, 8:00 AM
Orlando World Center Marriott, Boston

Gaurav Arora, Chair
SABIC Americas, Inc.

Honglin Qu, Co-Chair
Lamar University

Sponsored by: Process Research and Innovation

Co-Sponsored by: Computing Systems and Technology Division, Process Development Division

8:00 Paper 161a: Integration of Computational Dynamics, Data Analysis Tools and Process Simulation for Modeling of Waste Water Treatment Plants — *Komal Rathore* (1), Kiesha Pierre (1), Kyle Cogswell (1), Aaron Driscoll (1), Aydin K. Sunol (1), Andres Tejada-Martinez (1), Gita Iranipour (2), Luke Mulford (2)*
(1) University of South Florida
(2) Hillsborough County Public Utilities Department

8:25 Paper 161b: Comparative Process Analysis Techniques Applied to Four Propylene Oxide Manufacturing Routes — *John C. Prindle**
Torchwood Enterprises

8:50 Paper 161c: Application and Challenges of Numerical Simulations in Modeling and Scale-Up of Circulating Fluidized-Bed Reactors — *Emad Abbasi**
Honeywell UOP

(163) PI in Solids Handling/Processing
Wednesday, Apr 25, 8:00 AM
Orlando World Center Marriott, Anaheim

James Bielenberg, Chair
RAPID Manufacturing Institute

Sponsored by: Topical C: Process Intensification

Co-Sponsored by: Process Intensification & Microprocess Engineering

8:00 Paper 163a: Intensified-by-Design (IbD): Creating a Platform for Facilitating Process Intensification in Solids Handling Applications — *Kamelia Boodhoo*, Anh Phan, Vladimir Zivkovic, Valentine C. Eze, Ahmad Mustaffar*
Newcastle University

8:20 Paper 163b: Rapid, In-line Characterization to Support Process Intensification Concepts — *Tyler L. Westover**
Idaho National Laboratory

8:40 Paper 163c: Hybrid Heat Pipe Screw Dryer: A Novel, Continuous and Highly Energy-Efficient Drying Technology — *Ahmad Mustaffar*, Kamelia Boodhoo, Anh Phan*
Newcastle University

9:00 Paper 163d: Process Intensification and Cost Reduction for In-Plant Biomass Preprocessing Equipment — *Michael J. Blaise*, Nicholas R. Schwartz, Paul E. Yelvington*
Mainstream Engineering Corporation

(164) Pilot Plant Separations
Wednesday, Apr 25, 8:00 AM
Orlando World Center Marriott, Atlanta

Rob Nunley, Chair
Mid-Atlantic Technology, Research & Innovation Center (MATRIC)
Jacob H. Arredondo, Co-Chair
Rice University

Sponsored by: Pilot Plants

8:00 Paper 164a: Simulation of Intermediate Boilers in Distillation for Piloting and Scale-Up — *Mark Nunley*, Don Bunning, Rob Nunley*
Mid-Atlantic Technology, Research & Innovation Center (MATRIC)

8:30 Paper 164b: Adsorption: The Forgotten Unit Operation — *Jacob H. Arredondo* (1), Bor-Yea Hsu (2), Amy Le (2), Jonathan H. Worstell (2)*
(1) Rice University
(2) Worstell and Worstell, Consultants

9:00 Paper 164c: Process Intensification of Multiple Separations in a Pilot Plant Process via the Implementation of a Nutsche Filter — *Anika Coolbaugh*, Jeremy Rader*
Mid-Atlantic Technology, Research & Innovation Center (MATRIC)

(165) Simulation, Optimization and Controls for Gas Applications
Wednesday, Apr 25, 8:00 AM
Orlando World Center Marriott, Grand Ballroom 5

Azita Ahmadzadeh, Chair
Honeywell UOP

Sponsored by: Topical 6: 18th Topical Conference on Gas Utilization

8:00 Paper 165a: Dynamic Simulation of Natural Gas Liquefaction with Helium Recovery — *Yogesh Kurle*, Qiang Xu, Srinivas Palanki*
Lamar University

8:25 Paper 165b: Experimental Study and CFD Simulation of the Multiphase Flow Conditions Encountered in a Novel Down-Flow Bubble Column — *Mutharasu LC* (1), Dinesh V. Kalaga (2), Mayur Sathe (1), Xueliang Li (3), Derek Griffin (3), Krishnaswamy Nandakumar (1), J. B. Joshi (4)*
(1) Louisiana State University
(2) City College of New York
(3) LanzaTech Inc.
(4) Homi Bhabha National Institute

8:50 Paper 165c: Flowsheet Safety and Techno-Economic Analysis of Ammonia and Urea Production Route — *Ahmed AlNouss*, Fadwa T. Eljick*
Qatar University

(166) Synergies Between Refining and Petrochemical Processing I
Wednesday, Apr 25, 8:00 AM
Orlando World Center Marriott, Grand Ballroom 2

Eberhard Lucke, Chair
NiQuan Energy
Ahmed Khogeer, Co-Chair
Saudi Aramco
Abyar Aejaz, Co-Chair
Burns & McDonnell

Sponsored by: Topical 7: 21st Topical on Refinery Processing

Co-Sponsored by: Fuels and Petrochemicals Division

8:00 Paper 166a: The Journey Towards 2030 — Was It Too Ambitious? Update on the Impact of 2030 Vision and 2020 Transformation Program on Energy, Infrastructure and Other Projects in the Region — *Ahmed Khogeer**
Saudi Aramco

8:30 Paper 166b: Refinery-Petrochemical Integration: Organization and Culture — *Andrew W. Sloley*, Scott Schroeder*
Advisian (WorleyParsons Group)

9:00 Paper 166c: One Stone, Two Birds: CO₂ to Methanol and Petrochemicals — *Edgar Amaro*
*Roncos**
CH2M

(167) Tutorials in Process Safety — PPSS II
Wednesday, Apr 25, 8:00 AM
Orlando World Center Marriott, Grand Ballroom 8B

Rao Akula, Chair
CalEPA
Eric Peterson, Co-Chair
MMI Engineering

Sponsored by: 7th Process Safety Management Mentoring (PSMM) Forum

8:00 Paper 167a: Process Safety Aviation Series: And... Who Is the Pilot? — *Ignacio Alonso* (1), Mike Broadribb* (2)*
(1) Consejo de Seguridad de Procesos
(2) Baker Engineering and Risk Consultants, Inc.

8:30 Paper 167b: Preparing for a Successful HAZOP/LOPA: Making or Breaking Quality & Efficiency — *Steven T. Maher*, John M. Johnson, Carine Black*
Risk Management Professionals, Inc.

9:00 Paper 167c: Understanding the Interrelationships Between the PSM Elements for Effective Implementation — *Revonda Tew**
Process Improvement Institute, Inc.

(168) YP Tutorial: Environmental Issues and Controls in Select Industrial Sectors

Wednesday, Apr 25, 8:00 AM
Orlando World Center Marriott, San Antonio

Joseph Cramer, Chair
AICHE

Sponsored by: Environmental Division

Co-Sponsored by: Young Professionals Committee (YPC), Sustainable Engineering Forum

8:00 Paper 168a: Pollution, Control Status and Strategy of Volatile Organic Compounds in China's Petrochemical and Refining Industries — *Jia Ke**, *Dongfeng Zhao*, *Yi Liu*

China University of Petroleum (East China)

8:30 Paper 168b: A Look Inside a Chemical Plant Waste Water Treatment Unit — *Donna Bryant**
Syngenta

(169) Application of Big Data Analytics in Ethylene Production
Wednesday, Apr 25, 8:00 AM
Orlando World Center Marriott, Royal

Birgit Braun, Chair
The Dow Chemical Company
Sasha Vragolic, Co-Chair
Flint Hills Resources

Sponsored by: Topical 4: The 30th Ethylene Producers' Conference

Co-Sponsored by: 4th Big Data Analytics

8:00 Welcoming Remarks

8:05 Paper 169a: Enterprise Manufacturing Intelligence in Hydrocarbons — *Chaitanya Khare** (1), *Mary Beth Seasholtz* (1), *Richard Rolke* (1), *Jim Petrusich* (2)
(1) *The Dow Chemical Company*
(2) *Northwest Analytics*

8:30 Paper 169b: Big Data Analytics for Improved Overall Asset Effectiveness of Ethylene Plants — *Pratap Nair**
Ingenero

8:55 Paper 169c: Machine Learning Techniques to Monitor Catalyst Health in an Ethylene Oxide Reactor — *Tim Diller** (1), *Şahin Sarrafi* (2), *Sinan Üçyiğittler* (2)
(1) *Entthought, Inc.*
(2) *Petkim Petrokimya Holding A.Ş.*

9:20 Break

9:40 Paper 169d: Incorporating Model-Based Technology with Big Data Concepts for Monitoring Ethylene Production — *Peter Le**
Schneider Electric Software

10:05 Paper 169e: Improving Ethylene Furnace Performance with Big Data Analytics —

*James Brigman**
Ingenero

10:30 Paper 169f: Start Listening to Your Heat Exchanger: Smart Data Application Enables Insight into Process Equipment — *Joerg Weidenfeller**, *Axel Kindgen*, *Karsten Stueckrath*
Schmidtsche Schack | ARVOS GmbH

10:55 Concluding Remarks

(171) Ethylene Plant General Environmental Session

Wednesday, Apr 25, 8:00 AM
Orlando World Center Marriott, Sago

Mark Schmidt, Chair
DuPont
Mark Ulrich, Co-Chair
Linde
Ted Heron, Co-Chair
The Catalyst Group

Sponsored by: Topical 4: The 30th Ethylene Producers' Conference

Co-Sponsored by: Environmental Division

8:00 Introductory Remarks

8:05 Paper 171a: Ethylene Risk and Technology Review: What's the Outlook? — *Steve Smith**
LyondellBasell

8:55 Paper 171b: Delivering a Successful Ethylene Section 114 Information Collection Request Test Program — *Jeff Thomason**
TRC Environmental Corporation

9:20 Break

9:40 Paper 171c: Predicting Long-Term Evaporative Cooling Tower Water Usage: The Energy-Water Balance — *William Celenza**, *Sarah Shank*
KBR, Inc.

10:05 Paper 171d: Optical Gas Imaging: Taking a Drive Through IR Camera Technology and How It's Used — *Justin Lamb**, *Nick James**
Dexter ATC Field Services

10:30 Paper 171e: Implementing a Benzene Fenceline Passive Sampling Program — *Roy Massengale**
Enrud Resources

10:55 Concluding Remarks

(172) Advances in Distillation Technology I

Wednesday, Apr 25, 8:30 AM
Orlando World Center Marriott, Canary 1/2

Daniel R. Summers, Chair
Sulzer Chemtech USA, Inc.
Andrew W. Stoley, Co-Chair
Advisian (WorleyParsons Group)

Sponsored by: Topical 8: Distillation Symposium

Co-Sponsored by: Young Professionals Committee (YPC)

8:30 Welcoming Remarks

8:32 Paper 172a: Non-Ideal Two-Phase Flow on Large-Diameter Trays: The Stagnant Regions Model Versus FRI Experiment — *Simon Chambers**, *Ken C. McCarley*
Fractionation Research, Inc.

9:07 Paper 172b: Evolution of Random Packing Performance with a Focus on Geometry — *Ken C. McCarley**, *Chao Wang*, *Anand N. Vennavelli*, *Tony Cai*
Fractionation Research, Inc.

9:42 Paper 172c: Computational Fluid Dynamic (CFD) Simulations of Multiphase Flow Through Representative Elementary Units (REU) of Structured Packing — *Trien (Mikey) Phan**, *R. Bruce Eldridge*
University of Texas at Austin

10:17 Paper 172d: Evidence for the Need of Probability Density Function Representations of Liquid-Side Mass Transfer Rate Coefficients for Absorption Modeling in Structured Packings — *John Roesler**, *Laszlo Hegely*, *Arslan Muhammad*, *Pascal Alix*
IFP Energies Nouvelles

10:52 Paper 172e: Distillation Control: Practical Aspects — *Sigifredo Nino**
Summa Control Solutions Inc.

11:27 Paper 172f: Packed Tower Separation Efficiency Problem Diagnosed Using Gamma Scanning Technology — *Lowell Pless** (1), *Hailey Dunsworth* (2), *Chet Davidson* (2)
(1) *Tracerco*
(2) *The Dow Chemical Company*

12:02 Concluding Remarks

(173) Advance Process Concepts — Reactors and Reactive Separation
Wednesday, Apr 25, 10:15 AM

Orlando World Center Marriott, Anaheim

James Bielenberg, Chair

RAPID Manufacturing Institute

Sponsored by: Topical C: Process Intensification

Co-Sponsored by: Process Intensification & Microprocess Engineering

10:15 Paper 173a: A Comparative Study of Homogeneous Base Catalysts and Process Conditions for High Biodiesel Conversions from High-Free-Fatty-Acid Rapeseed Oil Using a Mesoscale Oscillatory Baffled Reactor — *Luma Al-saadi**, *Valentine C. Eze*, *Adam P. Harvey*
Newcastle University

10:35 Paper 173b: INL/CMS's Modular, Process-Intensified, Oxidative Dehydrogenation of Ethane to Ethylene with an Integrated Membrane Purification Step for Production of Polymer-Grade Ethylene — *Anne Gaffney**
Idaho National Laboratory

10:55 Paper 173c: Overcoming Heat Transfer Bottlenecks in Non-Equilibrium Chemical Processes Through Autothermal Operation — *Robert C. Brown**, *Chad Peterson*
Iowa State University

11:15 Paper 173d: Reverse Flow Reactors: Process Intensification for High-Temperature Chemistries — *Federico Barraï* (1), *Dhaval Bhandari** (1), *Changmin Chun* (1), *Frank Hershkowitz* (2), *James Lattner* (1), *Elizabeth G. Mahoney* (1), *Brian M. Weiss* (2)
(1) *ExxonMobil Chemical Company*
(2) *Becht Engineering*

(174) Advances in Catalysis II
Wednesday, Apr 25, 10:15 AM
Orlando World Center Marriott, Grand Ballroom 3

Azita Ahmadzadeh, Chair
Honeywell UOP
Tracy J. Benson, Co-Chair
Lamar University
Gary Gildert, Co-Chair
Vanguard Catalysts, LLC

Sponsored by: Topical 7: 21st Topical on Refinery Processing

10:15 Paper 174a: A New Era for Alkylation — *Elizabeth Carter**
Honeywell UOP

10:40 Paper 174b: Organotemplate-Free Synthesis of Hierarchical Beta Zeolites — *Ke Zhang** (1), *Sergio Fernandez*, *Michele L. Ostraat*
Aramco Services Company

11:05 Paper 174c: The Future Is Here: Robotic Catalyst Removal — *Christopher R. Jansen* (1), *Andrew W. Stoley**, *Scott Schroeder*
Advisian (WorleyParsons Group)

(175) Asset Integrity and Reliability
Wednesday, Apr 25, 10:15 AM
Orlando World Center Marriott, Grand Ballroom 7A

Michael D. Moosemiller, Chair
Baker Engineering and Risk Consultants, Inc.
John F. Murphy, Co-Chair
Process Safety Services

Sponsored by: 52nd Annual Loss Prevention Symposium (LPS)

10:15 Paper 175a: From Availability to Integrity — *David Hanning**
Chevron

10:45 Paper 175b: Understanding the Impact of Acoustic-Induced Vibration on Piping Systems — *Josh Kolenc**
Curtiss-Wright Corporation

11:15 Paper 175c: Creating an Effective Asset Integrity Management Program — *Lauren Moyer**, *Matthew Hedlund**
Eastman Chemical Company

(176) Assuring/Verifying Barriers II
Wednesday, Apr 25, 10:15 AM
Orlando World Center Marriott, Grand Ballroom 8A

Chris (Kumar) Israni, Chair
Environmental Resources Management
Dan Rathgeber, Co-Chair
Praxair, Inc.

Sponsored by: 33rd Center for Chemical Process Safety (CCPS) International Conference

10:15 Paper 176a: Functional Safety Practices for Operations & Maintenance — *Denise Chastain-Knight**
Exida Consulting LLC

10:45 Paper 176b: Understanding IPL Boundaries — *Art Dowell III**
Process Improvement Institute

11:15 Paper 176c: Use Process Historian Data to Understand and Assure Barriers — *Anthony Downes** (1), *Prasad Goteti* (2), *Meenakshi Sundaram Krishnaswamy* (2)
(1) Honeywell
(2) Honeywell Process Solutions

(177) Big Data Analytics — Industry Perspective II

Wednesday, Apr 25, 10:15 AM
Orlando World Center Marriott, Grand Ballroom 13/14

Alix Schmidt, Chair
The Dow Chemical Company
Deval Pandya, Co-Chair
Shell

Sponsored by: 4th Big Data Analytics

Co-Sponsored by: Sustainable Engineering Forum

10:15 Paper 177a: Obtaining Parsimonious Regression Models with Large Datasets — *Ricardo Rendall* (1), *Ivan Castillo** (2), *Alix Schmidt** (2), *Leo H. Chiang* (2), *Sweeteng Chin* (2), *Marco Reis* (1)
(1) University of Coimbra
(2) The Dow Chemical Company

10:45 Paper 177b: Utilizing Deep Reinforcement Learning for Supply Chain Materials Planning — *Christian D. Hubbs**, *John M. Wassick*, *Satyajith Amaran*
The Dow Chemical Company

11:15 Paper 177c: Equipment Health Monitoring to Improve Reliability and Plant Performance Through Application of Data Analytics and Predictive Modeling Techniques — *Sameer Thorat**
Ingenero

(178) Controls and Digitalization Technology II
Wednesday, Apr 25, 10:15 AM
Orlando World Center Marriott, Grand Ballroom 1

Nikki Bishop, Chair
Siemens
Swapnil Fegade, Co-Chair
Fusion Automation Inc.

Sponsored by: Topical 7: 21st Topical on Refinery Processing

10:15 Paper 178a: Using the Industrial Internet of Things to Monitor Process Equipment for Health, Performance, and Energy Consumption — *Brian Atkinson**
Emerson Process Management

11:00 Paper 178b: Using Automation Modernization as a Lever for Business Success — *Laurie Ben**
Emerson Automation

(179) Greenhouse Gas Reduction Technologies I
Wednesday, Apr 25, 10:15 AM
Orlando World Center Marriott, San Antonio

Joseph Cramer, Chair
AIChE
Sunil Hangal, Co-Chair
Environmental Compliance Assurance Management (ECAM)

Sponsored by: Climate Change

10:15 Paper 179a: Combined Experimental and Theoretical Thermophysical Properties Investigation of Deep Eutectic Solvents for Gas Capture Applications — *Santiago Aparicio* (1), *Mert Atilhan** (2)
(1) University of Burgos
(2) Texas A&M University at Qatar

10:45 Paper 179b: Synthesis, Characterization and Evaluation of (Ce, Y, Zn)-Ion-Exchanged Silicalite-1 Supported Ni Catalyst Structures for CO₂ Capturing by Methane Dry Reforming — *Zuhair Malaibari**, *Abdul-Rashid Bawah*, *Oki Muraza*
King Fahd University of Petroleum and Minerals

11:15 Paper 179c: Development of Carbon Capture & Storage Technology by Oxy-Combustion of Sewage Sludge and Biomass — *Ha-Na Jang**, *Min-Jae Jeong*, *En-Song Lee*, *Sang-Yup Lee*
Yonsei University

(180) H2@Scale 2
Wednesday, Apr 25, 10:15 AM
Orlando World Center Marriott, Miami

Sponsored by: Industry 4.0 Topical Conference

(181) Inherently Safer Design II
Wednesday, Apr 25, 10:15 AM
Orlando World Center Marriott, Grand Ballroom 9/10

Ray A. Mentzer, Chair
Purdue Process Safety & Assurance Center
David Skelton, Co-Chair
Eastman Chemical Company

Sponsored by: Process Safety Spotlights

10:15 Paper 181a: Evaluating Inherently Safer Design with Multi-Attribute Utility Theory — *Sean J. Dee**, *Brenton L. Cox*, *Russell Ogle*
Exponent, Inc.

10:45 Paper 181b: Inherently Safer Process Design: Assessing the Thermal Stability of Common Peptide Coupling Reagents — *Jeffrey Sperry**
Pfizer, Inc.

11:15 Paper 181c: Development of a Risk-Based Inherent Safety Index Using an Integrated Approach — *Bin Zhang** (1), *Wei Xu* (2), *Sun Yue* (1), *Harold U. Escobar-Hernandez* (1), *Prerna Jain* (1), *Wen Zhu* (1), *Nirupama Gopalaswami* (1), *Nitin Roy* (1), *Shanjun Mu* (2), *M. Sam Mannan* (1)
(1) Texas A&M University
(2) Sinopec

(182) Japan's Process Safety Progress: Technical Considerations in Process Safety
Wednesday, Apr 25, 10:15 AM
Orlando World Center Marriott, Grand Ballroom 11

Neil Concibido, Co-Chair
Corning Inc.
Atsumi Miyake, Co-Chair
Yokohama National University

Sponsored by: Perspectives on Process Safety from Around the World

10:15 Paper 182a: A Study of Vent Sizing for Chemical Reaction Runaway — *Yuto Mizuta**
MCHC R&D Synergy Center

10:45 Paper 182b: Applying Comprehensive Societal Risk Framework to Hydrogen Station — *Atsumi Miyake**
Yokohama National University

11:15 Paper 182c: Combustion of Lubricating Oil Penetrated into the Heat Insulator — *Yuji Tsuchiya**
Cosmo Oil Company, Ltd.

(183) LNG Simulation, Operations and Control
Wednesday, Apr 25, 10:15 AM
Orlando World Center Marriott, Grand Ballroom 5

Matthew J. Okasinski, Chair
Air Products and Chemicals, Inc.
Vinod Rajkumar, Co-Chair
Bechtel Oil, Gas & Chemicals

Sponsored by: Topical 6: 18th Topical Conference on Gas Utilization

10:15 Paper 183a: Application of Dynamic Simulation for Relief System Design in LNG Facility — *Haribabu Chittibabu**, *Sameera Thakore*
Bechtel Oil, Gas & Chemicals

10:45 Paper 183b: A CFD Study of System Vibration's Effect on LNG Boil-Off in a Transportation Vehicle — *Xingchun Wang**, *Qiang Xu*
Lamar University

11:15 Paper 183c: Development of LNG Heel Stock Estimation Technology for Ballast Voyage — *Kenichi Matsuoka* (1), *David Hill** (2), *Aaron Herrick* (2), *Koji Dai* (3)
(1) Azbil Corporation
(2) Chemstations, Inc.
(3) MTI

11:45 Paper 183d: High-Capacity Concept for an Efficient Gas Expander FLNG Process — *Heinz C. Bauer**
Linde Engineering

(184) Modeling Tools and Techniques for Process R&D II
Wednesday, Apr 25, 10:15 AM
Orlando World Center Marriott, Boston

Gaurav Arora, Chair
SABIC Americas, Inc.
Honglin Qu, Co-Chair
Lamar University

Sponsored by: Process Research and Innovation

Co-Sponsored by: Computing Systems and Technology Division, Process Development Division, Young Professionals Committee (YPC)

10:15 Paper 184a: Thermodynamic Modeling for CO₂ Absorption in Aqueous Potassium Carbonate Solution with Electrolyte NRTL Model — *Harnoor Kaur**, *Chau-Chyun Chen*
Texas Tech University

10:40 Paper 184b: Single- and Multi-Objective Optimizations Using Parallelized Process Simulators — *Trevor Rice**, *Aaron Herrick*, *Mingder Lu*
Chemstations, Inc.

11:05 Paper 184c: Thermodynamic Modeling of the LiCl+LiBr+LiNO₃+LiI+H₂O System with the Electrolyte NRTL Model — *Toni Kirkes**, *Chau-Chyun Chen*
Texas Tech University

(185) Synergies Between Refining and Petrochemical Processing II
Wednesday, Apr 25, 10:15 AM
Orlando World Center Marriott, Grand Ballroom 2

Eberhard Lucke, Chair
NiQuan Energy
Ahmed Khogeer, Co-Chair
Saudi Aramco
Abyar Aejaz, Co-Chair
Burns & McDonnell

Sponsored by: Topical 7: 21st Topical on Refinery Processing

Co-Sponsored by: Fuels and Petrochemicals Division

10:15 Paper 185a: Advanced Process Modelling for Refinery-Petrochemical Integration — *Steve Hall**
Process Systems Enterprise Ltd.

10:45 Paper 185b: Re-Thinking Benzene Control Strategies to Maximize Octane — *Dominic Varraveto**
Burns & McDonnell

(186) Techno-Economic Analyses of Sustainable Energy Systems
Wednesday, Apr 25, 10:15 AM
Orlando World Center Marriott, St. Louis

Santhosh Shankar, Chair
Shell Intl E&P
Jason Morgan, Co-Chair
Worcester Polytechnic Institute

Sponsored by: Topical 5: Emerging Technologies in Clean Energy

10:15 Paper 186a: Techno-Economic Analysis of Renewable Transportation Fuel from Wastewater Treatment Sludge —

*Lesley J. Snowden-Swan**, *Yunhua Zhu*, *Mark D. Bearden*, *Timothy E. Seiple*, *Susanne B. Jones*, *Justin M. Billing*, *Andrew J. Schmidt*, *Karl O. Albrecht*, *Richard T. Hallen*
Pacific Northwest National Laboratory

10:40 Paper 186b: An Integrated Techno-Economic and Life Cycle Analysis of Northeastern Willow Biomass as a Bioenergy Feedstock — *Tristan Brown**
State University of New York

(187) Technology Impact on Process Safety
Wednesday, Apr 25, 10:15 AM
Orlando World Center Marriott, Grand Ballroom 7B

Rainer Hoff, Chair
Gateway Consulting Group, Inc.
Jerry J. Forest, Co-Chair
Celanese

Sponsored by: 20th Process Plant Safety Symposium (PPSS)

Co-Sponsored by: Sustainable Engineering Forum

10:15 Paper 187a: Using Connected Systems to Improve Process Safety — *Scott M. Wozniak**, *Ajay Kakkannattu* *Honeywell UOP*

10:45 Paper 187b: Technology Impact on Process Safety Through the Cloud — *Annant Srivastava**, *Anil Patel*
Siemens

11:15 Paper 187c: Data Mining and Analysis of the Alarm Management — *Pankaj Goel**, *Aniruddha Datta*, *M. Sam Mannan*
Texas A&M University

(188) Tutorials in Process Safety — LPS II
Wednesday, Apr 25, 10:15 AM
Orlando World Center Marriott, Grand Ballroom 8B

David A. Moore, Chair
AcuTech Group, Inc.
Dan Wilczynski, Co-Chair
Marathon Petroleum Company

Sponsored by: 7th Process Safety Management Mentoring (PSMM) Forum

10:15 Paper 188a: Dust Explosion Propagation and Isolation — *Jérôme Taveau**
Fike Corporation

10:45 Paper 188b: Analysis of Dust Concentration Measurements Taken During the Filling Process of a Silo — *Lahiru Lakshan Lulbadda Waduge*, *Stefan Zigan*, *Pablo Garcia Triñanes**
Wolfson Centre for Bulk Solids Handling Technology

11:15 Paper 188c: The Design and Operation of Multi-Point Dust Collection Systems — *Yi Fan**, *Karl Jacob**, *James F. Koch*
The Dow Chemical Company

(189) 2018 AIChE Spring Meeting & 14th GCPS Wednesday Luncheon
Wednesday, Apr 25, 11:45 AM
Orlando World Center Marriott, Cypress Ballroom 3

Sponsored by: 2018 AIChE Spring Meeting & 14th Global Congress on Process Safety

(190) Advances in Manufacturing Enabling PI and MCPI
Wednesday, Apr 25, 1:30 PM
Orlando World Center Marriott, Anaheim

Ward E. Tegrotenhuis, Chair
Pacific Northwest National Laboratory
Brian Paul, Co-Chair
Oregon State University

Sponsored by: Topical C: Process Intensification

Co-Sponsored by: Process Intensification & Microprocess Engineering

1:30 Paper 190a: Building with Blocks — *Greg Theunick**
Dow Corning Corporation

1:50 Paper 190b: Invited Presentation — *Mark Gaalswyck**
Easy Energy Systems

2:10 Paper 190c: Critical Factors and Criteria for the Development and Deployment of Modular Chemical Processes — *Paul S. Dimick**, *Bruce Tatarchuk*
IntraMicron, Inc.

2:30 Paper 190d: Continuous Processing of Specialty Chemicals: Opportunities with MCPI — *Oleg Pajalic**
Perstorp Holding AB

(191) Biomass Conversion to Valuable Products I
Wednesday, Apr 25, 1:30 PM
Orlando World Center Marriott, Atlanta
Vinod Kumar Venkatakrishnan, Chair
Shell International Exploration & Production
Fuyue Stephanie Li, Co-Chair
Honeywell UOP

Sponsored by: Process Research and Innovation

Co-Sponsored by: Fuels and Petrochemicals Division, Topical 7: 21st Topical on Refinery Processing

1:30 Paper 191a: Development of a Two-Stage Thermal Deoxygenation Process for Fuels and Chemicals from Biomass — *M. Clayton Wheeler**, *Sampath Gunukula*, *Scott Eaton*, *Hemant P. Pendse*, *William J. DeSisto*, *G. Peter van Walsum*
University of Maine

1:55 Paper 191b: Aiding the Development of Molecular-Level Kinetic Mega Models Through Parallelization — *Juan Lucio-Vega**, *Michael T. Klein*
University of Delaware

2:20 Paper 191c: Development of Green Pathways for the Extraction of Medically Active Components from Grape Waste — *Kyle Cogswell**, *Aydin K. Sunal*
University of South Florida

2:45 Paper 191d: Optimum Utilization of Biomass for the Production of Power and Fuels Using Gasification — *Ahmed AlNouss**
Helmholtz-Zentrum Dresden-Rossendorf (HZDR)

(193) Experimental, Theoretical, and Numerical Analysis of Transport Processes in Flow Reactors
Wednesday, Apr 25, 1:30 PM
Orlando World Center Marriott, St. Louis

Ravindra Aglave, Chair
Siemens PLM Software
Jason Morgan, Co-Chair
Worcester Polytechnic Institute

Sponsored by: Topical 5: Emerging Technologies in Clean Energy

1:30 Paper 193a: Precise Determination of the Main Transition Velocities in a Bubble Column Based on New Identification Methods Applied to Ultrafast X-Ray Tomographic Data — *Stoyan Nedeltchev** (1), *Uwe Hampel* (1,2), *Markus Schubert* (1) (1) *Helmholtz-Zentrum Dresden-Rossendorf (HZDR)* (2) *Technische Universität Dresden*

1:55 Paper 193b: BubbleTree: A Rigorous Algorithm for Lagrangian Tracking and Statistical Analysis of Bubble or Cluster Motion and Flux Within 3D Fluid Bed Simulations — *Kyle Buchheit** (1), *Christos Altantzis* (2), *Akhilesh Bakshi* (2), *Terry Jordan* (2), *Tingwen Li* (2), *Dirk Van Essendelft* (2) (1) *Oak Ridge Institute for Science and Education* (2) *National Energy Technology Laboratory*

2:20 Paper 193c: CFD Modeling of Oxy-Natural Gas Furnace Using Detailed Kinetic Modeling with and Without the Use of Chemistry Acceleration — *Niveditha Krishnamoorthy*, Chandra Tourani, Ravindra Aglave*
Siemens PLM Software

2:45 Paper 193d: Application of Computational Fluid Dynamics (CFD) Modeling to the Gas-to-Liquid (GTL) Process on Offshore Plants — *Joseph Albert Mendoza*, Sungwon Hwang*
Inha University

(194) Greenhouse Gas Reduction Technologies II
Wednesday, Apr 25, 1:30 PM

Orlando World Center Marriott, San Antonio

Sunil Hangal, Chair
Environmental Compliance Assurance Management (ECAM)
Jeffrey Seay, Co-Chair
University of Kentucky

Sponsored by: Climate Change

1:30 Paper 194a: Effects of Fossil Fuel Emissions and Seawater Adsorption on Atmospheric Carbon Dioxide Concentrations — *Frank J. Elvin**
Texas Specialty Catalysts

2:00 Paper 194b: Operating Flexibility and Controllability of CO₂ Post-Combustion Capture Process with Different Amines — *Sijie Ge*, Ziyuan Wang, Sujing Wang Qiang Xu, Thomas Ho*
Lamar University

2:30 Paper 194c: Operating Condition Optimization of a Full-Scale Stirred Tank for Biofuel Production — *Thomas Eppinger*, Leonard Becker, Ravindra Aglave*
Siemens PLM Software

(195) Modeling Tools and Techniques for Process R&D III
Wednesday, Apr 25, 1:30 PM
Orlando World Center Marriott, Boston

Gaurav Arora, Chair
SABIC Americas, Inc.
Honglin Ou, Co-Chair
Lamar University

Sponsored by: Process Research and Innovation

Co-Sponsored by: Computing Systems and Technology Division, Process Development Division

1:30 Paper 195a: Efficient Numerical Optimization of an Aerated Mixing Vessel for Fermentation — *Thomas Eppinger*, Leonard Becker, Ravindra Aglave*
Siemens PLM Software

1:55 Paper 195b: Multi-Oil Product Pipeline Scheduling with Appropriate Handling of Oil Mixing Interface — *Li Yu*, Min Chen, Qiang Xu*
Lamar University

2:20 Paper 195c: Advanced Model-Based Dynamics Optimization of a Commercial Natural Gas Recovery Unit — *Abdallah S. Berrouk*, Yasser Al Wahedi, Dara Satyadileep*
The Petroleum Institute

2:45 Paper 195d: CFD Simulation of Gas-Liquid Flow in Monolith Channels — *Yuan Zhou**
PetroChina Petrochemical Research Institute

(196) Invited Tutorial Session — Approaches in Big Data Analytics III
Wednesday, Apr 25, 1:30 PM
Orlando World Center Marriott, Grand Ballroom 13/14

Leo H. Chiang, Chair
The Dow Chemical Company
Aditya Tulsyan, Co-Chair
Amgen Inc.

Sponsored by: 4th Big Data Analytics

Co-Sponsored by: Sustainable Engineering Forum

1:30 Paper 196a: Deep Reinforcement Learning for Model Predictive Control — *Bhushan Gopaluni*, Siang Lim, Steven Spielberg Pon Kumar*
University of British Columbia

2:15 Paper 196b: Powerful and Novel Multivariate Statistical Approaches in Big Data Sets and in Data Mining with Applications to Bio-, Medical-, and Material- Informatics — *Derrick K. Rollins Sr.**
Iowa State University

(197) Advances in Distillation Technology II
Wednesday, Apr 25, 1:30 PM
Orlando World Center Marriott, Canary 1/2

Daniel R. Summers, Chair
Sulzer Chemtech USA, Inc.
Andrew W. Sioley, Co-Chair
Advisian (WorleyParsons Group)

Sponsored by: Topical 8: Distillation Symposium

1:30 Welcoming Remarks

1:32 Paper 197a: UFM™ Trays Expand into the Fixed Valve Arena with the UFM™ AF — *Henk Bert van Westendorp*, Daniel R. Summers, Sven Glüer, Dolores Alvarez*
Sulzer Chemtech Ltd.

2:07 Paper 197b: Deep-Seal Sieve Trays for Improved Scrubbing Performance — *Joseph Flowers*, Jim Evans*
DowDuPont

2:42 Paper 197c: Revamping a Giant C3-Splitter Tower — *Izak Nieuwoudt*, Neil A. Sandford*
Koch-Glitsch LP

3:17 Paper 197d: A Design and Computation Software for Separating Multicomponent Mixtures — *Tony Joseph Mathew*, Parham Mobeed, Radhakrishna Tumbalam Gooty, Mohit Tawarmalani, Rakesh Agrawal*
Purdue University

3:52 Paper 197e: New Test Systems for Distillation Efficiency Experiments at High Liquid Viscosities — *Raj Ganesh Manivannan* (1), Sayeed Mohammad (1), Tony Cai (2), Ken C. McCarley (2), Clint P. Aichele (1)*
(1) Oklahoma State University
(2) Fractionation Research, Inc.

4:27 Paper 197f: Reboiled Refinery Sidestrippers Considered as a Special Case of Thermally Coupled Columns — *Andrew W. Sioley**
Advisian (WorleyParsons Group)

5:02 Concluding Remarks

(198) Case Histories and Lessons Learned — GCPS Joint Session
Wednesday, Apr 25, 1:30 PM
Orlando World Center Marriott, Grand Ballroom 7 A/B

Jennifer Mize, Co-Chair
Eastman Chemical Company
Frederick Gregory, Co-Chair
The Lubrizol Corporation
Morgan Reed, Co-Chair
Exponent, Inc.

Sponsored by: 14th Global Congress on Process Safety

1:30 Paper 198a: Best Paper Awards

1:45 Paper 198b: 20 Years of Chemical Safety and the Changing Environment — *Vanessa A. Sutherland**
Chemical Safety Board

2:30 Paper 198c: Bonded,

Grounded, and Burned to a Crisp: Electrostatic Ignition of Flammable Gases — *Brenton L. Cox*, Justin A. Bishop, Russell Ogle, Jay R. Prigmore, Nicholas A. Traina*
Exponent, Inc.

3:00 Paper 197d: Case Histories Session Break

3:15 Paper 198e: Expect the Unexpected: A Tragic Outcome to a Hydrogen Sulfide Exposure During Troubleshooting — *Katherine E. Pearson* (1), John W. Champion (2)*
(1) BP Americas
(2) The Dow Chemical Company

3:45 Paper 198f: Importance of Properly Designing Dust Explosion Protection Systems: Case Study — 2014 Georgia-Pacific Corrigan Facility Fire and Explosion — *Scott G. Davis*, John Pagliaro*
GexCon US

4:15 Paper 198g: Deflagration Incident in an Organic Peroxide Solution Tank — *Ben McDavid*, Larry Britton*
Ashland Inc.

(199) Emerging Technologies in Data Analytics
Wednesday, Apr 25, 1:30 PM
Orlando World Center Marriott, Grand Ballroom 12

James Cross III, Chair
The MathWorks, Inc.
Ameya Dhaygude, Co-Chair
The Dow Chemical Company

Sponsored by: 4th Big Data Analytics

Co-Sponsored by: Young Professionals Committee (YPC), Sustainable Engineering Forum

1:30 Paper 199a: Image Classification in Manufacturing Analytics: Improving a Pellet Classification System with Deep Neural Networks — *Ricardo Rendall* (1), Ivan Castillo* (2), Bo Lu (2), Michael Broadway (2), Brenda Colegrove (2), Leo H. Chiang (2), Marco Reis (1)*
(1) University of Coimbra
(2) The Dow Chemical Company

2:00 Paper 199b: Immersive Introduction to IoT — *Joel Berg**
The MathWorks, Inc.

2:30 Paper 199c: Comparing Several Methods for Product Properties Prediction — *Jean Jérôme Da Costa (1), Benoît Celse* (1), Fabien Chainet (1), Marion Lacoue Negre (1), Cyril Ruckebusch (2), Didier Espinat (1)*
(1) IFP Energies Nouvelles
(2) Centre National de la Recherche Scientifique

(200) Hydroprocessing / Hydrogen
Wednesday, Apr 25, 1:30 PM
 Orlando World Center Marriott, Grand Ballroom 2

Saadet Ulas Acikgoz, Chair
 Honeywell UOP
Sanjiv Ratan, Co-Chair

ZoneFlow Reactor Technologies, LLC

Sponsored by: Topical 7: 21st Topical on Refinery Processing

Co-Sponsored by: Topical 6: 18th Topical Conference on Gas Utilization

1:30 Paper 200a: Catalytic Option(s) for Hydrotreaters Struggling with Cracked-Rich Feeds — *Steven F. Zink**
 Honeywell UOP

2:00 Paper 200b: Smart Equipment Integration for Improved Process Yield — *Whyman William**
 Honeywell UOP

2:30 Paper 200c: Innovative ZoneFlow® Reactor Technology: Gearing for Future in Steam Reforming for Hydrogen Generation — *Sanjiv Ratan**
 Consultant

3:00 Paper 200d: Catalyst Characterization in the Molecular-Level Kinetic Modeling of Hydroprocessing Reactors — *Pratyush Agarwal**, *Michael T. Klein*
 University of Delaware

3:30 Paper 200e: Molecular Kinetic Modeling in Hydrocracking — *Pelin Cox**
 Honeywell UOP

4:00 Paper 200f: Lumped Kinetic Model for Hydrocracking of Heavy Oils over Oil-Dispersed Mo-Based Catalyst — *Woohyun Kim* (1,2)*, *Kwang Ho Kim (1,2)*, *Kang Seok Go (1,2)*, *Nam Sun Nho (1,2)*, *Sung Woo Jeong (2)*, *Yong-Goo Kim (1,2)*
 (1) Korea Institute of Energy Research
 (2) Korea Research Institute of Chemical Technology

4:30 Paper 200g: Change of Product Yield and Quality with a Variation of Residue Conversion in a Slurry-Phase Hydrocracking of Vacuum Residue — *Kang Seok Go* (1,2)*, *Sung Woo Jeong (2)*, *Yong Ku Kim (1,2)*, *Nam Sun Nho (1,2)*, *Woo Hyun Kim (1,2)*, *Kwang Ho Kim (1,2)*
 (1) Korea Institute of Energy Research
 (2) Korea Research Institute of Chemical Technology

(201) Plant Design and Energy Integration
Wednesday, Apr 25, 1:30 PM
 Orlando World Center Marriott, Grand Ballroom 5

Steven Vallee, Chair
 Chart Energy & Chemicals, Inc.
Tony Liu, Co-Chair
 MMI Engineering
Jeffery Gaspard, Co-Chair
 KBR, Inc.

Sponsored by: Topical 6: 18th Topical Conference on Gas Utilization

1:30 Paper 201a: Dynamic Modeling of the Hybrid LNG Terminal Coupling NGL Recovery and LNG Re-Gasification — *Mohammad A. Muqet, Md Emdadul Haque*, Qiang Xu, Srinivas Palanki*
 Lamar University

1:55 Paper 201b: Shale Gas Techno-Economic Analysis: Designing Separation Units to Handle Feedstock Variability — *Eric Bohac**, *Mahmoud El-Halwagi*
 Texas A&M University

2:20 Paper 201c: Remove/Use Gigatons of CO₂ from Flue Gas Without CO₂ Recovery or Purification — *Brian Kolodji**
 Independent Consultant

2:45 Paper 201d: Thermodynamics Analysis-Based Optimal Design and Operation of DMR Refrigeration System for Natural Gas Liquefaction Process — *Mozammel Mazumder**, *Qiang Xu, Srinivas Palanki*
 Lamar University

3:10 Paper 201e: Reboilers with Plate-Fin Brazed Aluminum Heat Exchangers: Best Practices and Considerations for Design and Operation — *Steven J. Vallee**, *Douglas Decker, Adam McNeilly*
 Chart Energy & Chemicals, Inc.

(202) Process Control and Optimization Developments
Wednesday, Apr 25, 1:30 PM
 Orlando World Center Marriott, Grand Ballroom 4

Mark Darby, Chair
 CMiD Solutions
Tony Liu, Co-Chair
 MMI Engineering
M. Nazmul Karim, Co-Chair
 Texas A&M University

Sponsored by: Fuels and Petrochemicals Division

Co-Sponsored by: Topical 7: 21st Topical on Refinery Processing

1:30 Paper 202a: Tuning PID Controllers for Complex Integrating Process Dynamics — *James Beall IV**
 Emerson Automation Solutions

2:00 Paper 202b: Tune Your PID Loops Please! — *Sam Dhaliwal**
 IPCOS

2:30 Paper 202c: pH and Other Non-Linear Control Applications — *Tom Nolan**
 Emerson Automation Solutions

3:00 Paper 202d: Living on the Edge with Distributed Embedded Model Predictive Control — *Patrick Thorpe**, *Shabroz Gill*
 Spiro Control Ltd.

3:30 Paper 202e: Automation of Knowledge Work in Advanced Process Control — *Alex Kalafatis**, *Hong Zhao*
 Aspen Technology, Inc.

4:00 Paper 202f: Data-Based Fault Detection for Safe and Reliable Process Start-Up and Recovery After Natural Disasters — *Jonathan P. Raftery**, *Chiranjivi Botre, Nazmul Karim*
 Texas A&M University

(203) Ethylene Plant Safety
Wednesday, Apr 25, 2:00 PM
 Orlando World Center Marriott, Sago

Gwen Kelley, Chair
 Shell
Michael Smith, Co-Chair
 ExxonMobil Chemical Company

Sponsored by: Topical 4: The 30th Ethylene Producers' Conference

2:00 Welcoming Remarks

2:05 Paper 203a: Synopsis of Risk Assessment and Analysis Techniques for Brittle Fracture and Current Vulnerabilities — *Jeremy Staats**
 Becht Engineering

2:30 Paper 203b: Avoiding Risks of New Brittle Fracture Susceptibility in Carbon Steel Pipe, Fittings and Flanges That Meet ASME Code — *Barry Messer**, *Shahab Soltaninia, Dishoo Randhawa*
 Fluor Corporation

2:55 Paper 203c: Control Valve Packing Follower Failure in Cold Service — *Richard Kratzer**
 BASF

3:20 Break

3:40 Paper 203d: Chrome VI in Cracking Furnaces — *Bolaji Olayiwola**, *Mike Koselek**, *Vasily Simanzhenkov, Hany Farag, Evan Mah*
 NOVA Chemicals Corporation

4:05 Paper 203e: CSB Case Study: Summary of Williams Plant Incident — *Lauren Grim**
 Chemical Safety Board

4:55 Concluding Remarks

(204) Biomass Conversion to Valuable Products II
Wednesday, Apr 25, 3:00 PM
 Orlando World Center Marriott, Atlanta

Vinod Kumar Venkatakrishnan, Chair
 Shell International Exploration & Production
Fuyue Stephanie Li, Co-Chair
 Honeywell UOP

Sponsored by: Process Research and Innovation

3:00 Paper 204a: Comparison of Several Indirect Liquefaction Pathways to Fuels and Co-Products via Biomass Gasification and Synthesis — *Steven D. Phillips**, *Robert A. Dagle, Vanessa Lebarbier Dagle, Susanne B. Jones, Michel J. Gray, Karthikeyan K. Ramasamy, Lesley J. Snowden-Swan*
 Pacific Northwest National Laboratory

3:20 Paper 204b: Techno-Economic and Environmental Life Cycle Assessment (LCA) of Biodiesel Production Process from Waste Cooking Oil via Supercritical Transesterification — *Prashant Nagapurkar**, *Conner Nuernberger, Elliot Sutton, Muihilaan Vasuthavan, Richard Hoefer, Joseph D. Smith*
 Missouri University of Science and Technology

3:40 Paper 204c: Continuous Cultivation of Microalga *Nannochloropsis oculata* to Extract and Characterize Polar Lipids for Cosmetic Applications — *Ahmet Y. Manisali**, *Aydin K. Sunol, George Philippidis*
 University of South Florida

4:00 Paper 204d: Synergistic Utilization of Coal Ash and Biomass Ash Rice Husk Ash for Zeolite and Sorbent Production — *Maoqi Feng**
 Southwest Research Institute

4:20 Paper 204e: Conversion of Syngas into Liquid Hydrocarbons — *Girish Srinivas**
 TDA Research Inc.

4:40 Paper 204f: Hydrogen Production from Biomass — *Anh Phan**, *Phuet Prasertcharoensuk, Steve Bull*
 Newcastle University

(205) Challenges in Education and Workforce Development for Process Intensification and Modular Processing
Wednesday, Apr 25, 3:00 PM
 Orlando World Center Marriott, Anaheim

Ashley Smith-Schoettker, Chair
 RAPID Manufacturing Institute

Sponsored by: Topical C: Process Intensification

Co-Sponsored by: Process Intensification & Microprocess Engineering

3:00 Paper 205a: RAPID Activities in Education & Workforce Development — Ashley Smith-Schoettker*
RAPID

3:15 Paper 205b: Challenges in PI & MCPI Education & WFD for Modeling & Simulation — Benjamin Wilhite*
Texas A&M

3:30 Paper 205c: Education & WFD Needs for Advancing MCPI within Module Manufacturing — Brian Paul*
Oregon State

3:45 Paper 205d: Challenges in PI & MCPI Education & WFD for Intensified Process Fundamentals — Jim Ritter*
University of South Carolina

4:00 Roundtable Discussion

(206) CO₂ Capture, Utilization, and Disposal: Key to Clean Energy Production
Wednesday, Apr 25, 3:00 PM
Orlando World Center Marriott, St. Louis

Yangchuan Xing, Chair
University of Missouri
Jason Morgan, Co-Chair
Worcester Polytechnic Institute
Santhosh Shankar, Co-Chair
Shell Intl E&P

Sponsored by: Topical 5: Emerging Technologies in Clean Energy

3:00 Paper 206a: Computer-Aided Designing High-Performance Solid Sorbents for CO₂ Capture Application — Yuhua Duan*
National Energy Technology Laboratory

3:25 Paper 206b: Ocean Thermal Energy for Abatement of Global CO₂ Emissions — C. B. Panchal*, Richard Doctor, Rachel Sturtz
E3Tec Service, LLC

3:50 Paper 206c: Utilization of Captured CO₂ for Manufacturing Alkyl Carbonates — C. B. Panchal* (1), John C. Prindle (1), Rachel Sturtz (1), Richard Doctor (1), Scott Parker (2), Lars Peereboom (2), Dennis Miller (2) (1) E3Tec Service, LLC (2) Michigan State University

4:15 Paper 206d: Transition Metal-Doped Ceria for Solar Thermochemical Fuel Production — Rahul Bhosale*, Gorakshnath Takalkar
Qatar University

4:40 Paper 206e: Effect of Adsorption of CO₂ and H₂ on Methanation Reaction by Ni/AI₂O₃ — Reyad Shawabkeh*
University of Jordan

5:05 Paper 206f: Investigating Aerosol Formation in Flue Gas from Post-Combustion CO₂ Capture Plants Using Molecular Dynamics Simulation — Ulan Mansurov, Mehdi Amouei Torkmahalleh*, Dhawal Shah
Nazarbayev University

(207) Process Research and Development for Industrial Sustainability

Wednesday, Apr 25, 3:00 PM
Orlando World Center Marriott, Boston

Qiang Xu, Chair
Lamar University
Jialin Xu, Co-Chair
Lamar University

Sponsored by: Process Research and Innovation

Co-Sponsored by: Sustainable Engineering Forum

3:00 Paper 207a: Model-Based Development of High-Purity Hydrogen Production Unit for Hydrogen Refueling Stations — Woohyun Kim*, Dong Joo Seo, Young Jae Hwang, Sang Ho Park, Wang Lai Yoon
Korea Institute of Energy Research

3:22 Paper 207b: Designing for Innovation: Process and Technology Configurations for Oil Sands Production — Evar C. Umeozor*, Ian D. Gates
University of Calgary

3:44 Paper 207c: Model-Guided Optimization of Industrial Azeotropic Distillation Column — Prasanna Pathath*, Murali Gopalakrishnan, Andrei Merenov, Misfer Al-Ghamdi
SABIC Americas, Inc.

4:06 Paper 207d: Knowledge Transfer and Support of New Technology Acquisitions — Joseph Peters*
TechnipFMC

4:28 Paper 207e: Optimal Selection and Design of a Methanol Process with Enhanced CO₂ Utilization — Abdulrahman Alsuhaibani*, Mahmoud El-Halwagi
Texas A&M University

(208) Water Solutions
Wednesday, Apr 25, 3:00 PM
Orlando World Center Marriott, San Antonio

Quan Yuan, Chair
The Dow Chemical Company
Eberhard Lucke, Co-Chair
CH2M Oil, Gas & Chemicals
Ted Heron, Co-Chair
The Catalyst Group

Sponsored by: Topical 7: 21st Topical on Refinery Processing

Co-Sponsored by: Environmental Division

3:00 Paper 208a: Molecular Dynamic Simulation Study of Water Desalination Across Carbon Nanotube Membrane — Shaghayegh Agah*, Anatoly Kolomeisky, Matteo Pasquali
Rice University

3:20 Paper 208b: Inorganic Salts Removal from Hydraulic Fracturing Flowback Water by Cooling — Maoqi Feng*, Kristin Silva
Southwest Research Institute

3:40 Paper 208c: Metal-Hexacyanoferrate-Based Nanoadsorbents for the Removal of Radioactive Cesium from Seawater — Hee-Man Yang*, Chan Woo Park, Kune Woo Lee
Korea Atomic Energy Research Institute

4:00 Paper 208d: A Computational Model to Simulate Performance of Industrial Clarifiers — Shankhadeep Das*, Jen-Hsiang Kao, Bryon Barney, Mike Kidd, Mark Kuettel
The Dow Chemical Company

4:20 Paper 208e: CFD Modeling of Honeywell-UOP XceedTM Wastewater Bioreactor — Azita Ahmadzadeh*, William Sheridan, Lori Donovan
Honeywell UOP

4:40 Paper 208f: Optimization of Water Demand Growth Fulfillment in Seawater Thermal Desalination System — Hassan Baaqeel* (1,2), Mahmoud El-Halwagi (2) (1) King Fahd University of Petroleum & Minerals (2) Texas A&M University

(210) Big Data Analytics — Vendor Perspective III (Session Speakers Invited)

Wednesday, Apr 25, 3:30 PM
Orlando World Center Marriott, Grand Ballroom 13/14

Birgit Braun, Chair
The Dow Chemical Company
Chaitanya Khare, Co-Chair
The Dow Chemical Company

Sponsored by: 4th Big Data Analytics

Co-Sponsored by: Sustainable Engineering Forum

3:30 Paper 210a: Big Data to Support Operators in Chemical Plants — Zied Ouertani*
ABB Group

4:00 Paper 210b: Finding a Needle in an Ocean of Data with Digital Twins: An Oil & Gas Perspective on Analytics — Arun K. Subramanian*
Baker Hughes

4:30 Paper 210c: Approaches to Multiblock Modeling and Dimension Reduction for Combining Disparate Data Types — Heather Brooke*, Frank Westad
CAMO Software Inc.

(211) Ethylene Cracker Quench System Tutorial & Improvements
Thursday, Apr 26, 8:00 AM
Orlando World Center Marriott, Royal

Bala Devakottai, Chair
Chevron Phillips Chemical Company
VK Arora, Co-Chair
KPI Inc.

Sponsored by: Topical 4: The 30th Ethylene Producers' Conference

8:00 Welcoming Remarks

8:05 Paper 211a: Quench Systems for Gas and Liquids Crackers: A Primer — Mark Whitney*
Linde

8:45 Paper 211b: Gas Cracking Quench Systems Tutorial — Chris Phillips*, John L. Webb, Michael J. Tallman
KBR, Inc.

9:25 Break

9:40 Paper 211c: Quench Water Quality Challenges in Ethane Cracker — Jorge Luis Cabrera Amador* (1), Leandro Ruiz Ruiz (1), Roberto Jesus Prisciliano Rodriguez Mendoza (1), Ramraj Venkatadri (2), Ali Arshad (2) (1) Braskem Idesa (2) Pall Corporation

10:05 Paper 211d: EPC Sasol Quench Tutorial Fundamentals Presentation — Edward Soliz Jr., Thomas Wieslaw*
Sasol North American Operations

10:30 Paper 211e: Primary Fractionator Fundamentals & Flexibility to Feedstocks — Andre Bernard*, David Gent
NOVA Chemicals Corporation

10:55 Concluding Remarks

AIChE® ScaleUp Program: Building Bridges between Students and Industry

AIChE Gratefully Acknowledges the 2018 ScaleUp Sponsors*

Platinum ▼



Gold ▼



CORNING



A Honeywell Company

Objective:

- To engage and enrich the next generation of chemical engineers by connecting chemical engineering students with industry professionals.

Overview:

- ScaleUp promotes technical expertise and professionalism in the future chemical engineering workforce. Through corporate sponsorship, ScaleUp provides subsidized undergraduate membership in AIChE®, career development tools, internships and employment opportunities to chemical engineering students at 172 ABET-accredited colleges and universities in the United States and worldwide. In turn, ScaleUp corporate sponsors gain access to future engineers who are among “the best and brightest” through AIChE’s initiatives, products and networking opportunities.

Highlights:

- Since its inception in 2007, ScaleUp has grown from 3,000 student members to over **23,000** to date.
- Since 2008, the AIChE’s Safety and Chemical Engineering Education (SACHE) Certificate Program has awarded nearly **70,000** certificates to students who have demonstrated proficiency in process safety training.

To learn more about a ScaleUp corporate sponsorship, visit www.aidhe.org/scaleup or contact **Ian Sergio**, Senior Director, Business Services, AIChE at ianse@aidhe.org or 646.495.1518



Secure your spot and mark your calendar for these **AIChE[®]** events.

Biological and Metabolic Engineering

Fifth International Mammalian Synthetic Biology Workshop

May 5–6, 2018
Boston, MA

2018 Synthetic Biology: Engineering, Evolution & Design

June 3–7, 2018
Scottsdale, AZ

Metabolic Engineering 12 (SBE/IMES)

June 24–28, 2018
Munich, Germany

Conference on Constraint-Based Reconstruction and Analysis (SBE/IMES)

October 14–16, 2018
Seattle, WA

Rock Stars of Regenerative Engineering

October 27–28, 2018
Pittsburgh, PA

2nd International Conference on Plant Synthetic Biology, Bioengineering, and Biotechnology

November 29–December 1, 2018
Clearwater, FL

International Conference on Stem Cell Engineering

December 5–7, 2018
Los Angeles, CA

8th International Conference on Biomolecular Engineering

January 6–9, 2019
Newport Beach, CA

Conference on Accelerating Biopharmaceutical Development

February 17–19, 2019
Carlsbad, CA

Chemical Engineering Practice

Process Development Symposium

June 5–7, 2018
Oak Brook, IL

10th AIChE Southwest Process Technology Conference

October 9–10, 2018
Galveston, TX

2018 AIChE Annual Meeting

October 28–November 2, 2018
Pittsburgh, PA

2019 AIChE Spring Meeting and 15th Global Congress on Process Safety

March 31 - April 4, 2019
New Orleans, LA

Energy

Offshore Technology Conference

April 30–May 3, 2018
Houston, TX

Natural Gas Utilization Workshop

August 13–14, 2018
College Station, TX

12th Natural Gas Conversion Symposium

June 2–6, 2019
San Antonio, TX

Process Safety

Annual Safety in Ammonia Plants and Related Facilities Symposium

September 16–20, 2018
Toronto, ON, Canada

6th CCPS China Conference on Process Safety

September 25–27, 2018
Qingdao, China

2018 European Conference on Process Safety and Big Data

November 14–15, 2018
Frankfurt am Main, Germany

Sustainability and Environment

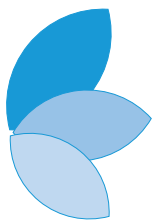
7th International Congress on Sustainability Science and Engineering

August 12–15, 2018
Cincinnati, OH



Conferences and dates subject to change.

SESSION PARTICIPANTS



A

Ababneh, Hani.....**149c**
 Abazajian, Armen **80a**
 Abbasi, Emad **161c**
 Abdeshova, Togzhan K. 15b
 Abe, Hayato.....**158c**
 Abedin, Ashraf..... 19b
 Abou Shama, Mhd A. **58g**
 Addai, Emmanuel K.....**134c**
 Ade, Nilesh 54cx, 92a
 Adetule, Oluyemi..... **133a**
 Aejaz, Abyar 166, 185
 Agah, Shaghayegh **58e, 208a**
 Agarwal, Pratyush **200d**
 Aglave, Ravindra 58w, **93c**
 193c, 194c, 195a
 Agrawal, Rakesh 79a, 197d
 Aguilar-Otero, Jose R..... **58f**
 Ahammad, Monir..... 54al, 54am, 54w
 Ahmad, Adeel..... **40b**
 Ahmad, Musa Eltayeb 90d
 Ahmadzadeh, Azita 96, 122,
 **151, 165, 174, 208e**
 Ahn, Yeong Jong..... 52d
 Aichele, Clint P. **31d**, 197e
 Ajare, Tochukwu 54b
 Akula, Rao **167**
 Al Wahedi, Yasser 195c
 Al-Ghamdi, Misfer..... 55f, 207c
 Al-Jarba, Khalid 100b
 Al-Matrouk, Maryam..... 52a
 Al-Otaibe, Sultan 100b
 Al-Rabbat, Anas..... 54ce
 Al-Rubaye, Haider **82b**
 Al-saadi, Luma..... **173a**
 Al-Saeed, Abdulaziz 54aw
 Albrecht, Karl O..... 186a
 Aldeeb, Abdulrehman 54t
 Aldescu, Maria..... **124b**
 Alejandro, Jimenez 54co
 Alghamdi, Adel..... **58ak**
 Alhameedi, Hayder..... **58z**
 Alhammad, Yousif **116b**
 Alhseinat, Emad **58ai**
 Ali, Moustafa **54bz**
 Alix, Pascal 172d
 Allason, Daniel 88a
 Alnasleh, Bassam 32c
 Ainouss, Ahmed **156c, 165c, 191d**
 Alonso, Ignacio..... **167a**
 Alptekin, Gokhan **151a**
 Alqahtani, Abdullah **116a**, 131c
 Alsuhaibani, Abdulrahman **207e**
 Altamash, Tausif..... 56d, 66g, **66h**

Altantzis, Christos..... 193b
 Alvarez Claramunt,
 Juan Ignacio..... **126a**
 Alvarez, Dolores 197a
 Alves, Elizabeth **147a**
 Amaran, Satyajith 177b
 Amaro Ronces, Edgar **166c**
 Amico, Paul **8a**, 54l
 Amin, Mariangel 54bv
 Amoros, Marcel 22a
 Amouei Torkmahalleh,
 Mehdi **58n, 58o, 58y, 206f**
 Amyotte, Paul R..... **9b**, 134c
 Anderson, David..... 54bx
 Angiullo, Richard J. 54bf
 Anjum, Shadab **67b**
 Ankrom, Laura 61
 Anshu, Anshu 58p
 Aparicio, Santiago..... 179a
 Arendt, Steve..... 46a, **152b**
 Ariawan, Alfonsius..... **54du, 145a**
 Arjunan, Jeyarathan 71, 95
 Armacost, Michael..... 119a
 Arnold, Stephen C..... **59d**
 Arnst, Theodore C..... 5e
 Arora, Gaurav **161, 184, 195**
 Arora, Vk 211
 Arredondo, Jacob H..... **95d**,
 164, **164b**
 Arriagada, Constanza..... 58c
 Arshad, Ali 211c
 Artan, Recai..... 78d
 Atilhan, Mert..... 56d, 66g,
 66h, **179a**
 Atkinson, Brian **178a**
 Ávila Filho, Salvador... **54o**, 54bg, **54cq**
 Aziz, Michael J..... 28b
 Azizi, Y 58m

B

B Mat Isa, M Faudzi..... 54bm
 Ba-Shammakh, Mohammed S. **58ah**
 Baaqeel, Hassan **208f**
 Bafna, Ayush A. **20c**
 Baheri, Bahareh **107b**
 Bajpai, Harshit..... **141b**
 Bakshi, Akhilesh..... 193b
 Baldea, Michael..... 79b, 106c
 Baliga, Satish..... **122b**
 Ballance, Brian 6d
 Banat, Fawzi..... 58ai
 Bang, Boo-Hyoung 88b
 Barney, Bryon..... 208d
 Barrai, Federico..... 173d

Barrett, Connor 10c
 Barrington, Bryan 5a, **5b**
 Barros, Safira..... 54bp
 Bascur, Osvaldo 37, **83b**
 Bassey, Bassey O..... **54b, 54ab**
 Bassie, Ron..... 32a
 Basu, Somnath **87c**
 Baudouin, Olivier..... **39b**
 Bauer, Heinz C. **183d**
 Bauwens, C. Regis L. **65a**
 Bavarian, Mona 81d
 Bawah, Abdul-Rashid 179b
 Beall, James **153a, 202a**
 Bearden, Mark D. 186a
 Becker, Leonard..... 194c, 195a
 Beebe, Dustin..... **15c, 54cr**
 Behera, Sushanta Kumar **58u**
 Behr, Susan **91**
 Bej, Shyamal K. 19, **71, 95**
 Belawan, Sulo **54bh**
 Belland, Joseph..... **91b**
 Bellos, Georgios 128d
 Belser, Phoebe..... 58h
 Bělský, Petr 28c
 Ben, Laurie **153a, 178b**
 Benson, Tracy J..... 151, **151c**, 174
 Berg, Joel **199b**
 Berger, Scott **18, 110c**
 Bernard, Andre..... **211e**
 Berroteran, Eliana **126c**
 Berrouk, Abdallah S. **195c**
 Bershada, Susan 111, 134
 Beum, Hee-Tae 16c
 Bhandari, Dhaval..... **173d**
 Bhargava, Manish **25b**, 79c,
 **79d, 106d, 131a**
 Bhattar, Srikar 19b
 Bhosale, Rahul **60a, 82a, 121c, 206d**
 Bichave, Vivek..... **89c**
 Biegler, Lorenz T. 149a
 Bielenberg, James **34, 68, 93, 163, 173**
 Billing, Justin M..... 186a
 Bischof, Steven M. **71b**
 Bishop, Ben **153c**
 Bishop, Justin A..... 198c
 Bishop, Nikki **153, 178**
 Bittencourt, Euclides S. 54o, 54cq
 Black, Carine 167b
 Blaise, Michael J. 87a, **163c**
 Blanco, Jorge E. **128**
 Bleasdale, Brendan **46b**
 Bohac, Eric **201b**
 Boodhoo, Kamelia..... **163a**, 163b
 Bordonaro, Amy **54cg**
 Borene, Matthew..... 111a

Botre, Chiranjivi..... **96b, 122c**, 202f
 Bottenus, Danny..... 131b
 Botwinick, Drew **22c**, 88a
 Bouse, Scott **128a**
 Bowen, Jon 78c
 Bradshaw, Bill 145
 Brandenbusch, Christoph 58q
 Branson, Blake **95b**
 Braun, Birgit **63, 84, 169, 210**
 Brayden, Mark **32**, 32a
 Bredol, Michael 121b
 Brenner, Jim 59d
 Bridges, William 49b, **54m, 54x**,
 **54bk, 98b**
 Brigman, James **169e**
 Britton, Larry 198g
 Broadribb, Mike..... **167a**
 Broadway, Michael..... 199a
 Brooke, Heather..... **51g, 210c**
 Brown, David J..... **58ac**
 Brown, Robert C..... **87b, 173c**
 Brown, Tristan **186b**
 Browne, Robert 39
 Bruce, Andrew G. **17b**
 Brunoro Ahumada, Cassio 54h
 Bryant, Donna **70, 115c, 168b**
 Buchheit, Kyle **193b**
 Buehler, Christopher S..... **92**
 Buehler, Jack H..... **129**
 Bukowski, Julia V. **9c**
 Bull, Steve 204f
 Bunning, Don..... 164a
 Burke, Nick..... 6b
 Burleigh, Andy..... 31e
 Burnak, Baris..... 100a
 Burnett, San **152**
 Burton, Matthew **153b**
 Busby, Kirk **54z**
 Bustos, Camila 58c
 Butters, Tim **137b**

C

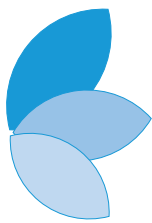
Cabanne, Victor..... **126a**
 Cabrera Amador, Jorge Luis..... **211c**
 Cagnolatti, Claire **78c**
 Cai, Tony 6a, 31b, 172b, 197e
 Calvo, Wilson A. P. 6c
 Campbell, Teresa 113c
 Campos, Daniel..... 129d
 Campos, Víctor..... 58c
 Cantwell, Brian 52f
 Cardin, Marlene..... 39a, 59a
 Cardoso-Palmerin, Sandra Angelica... **4b**
 Carlson, Myron **150**



SESSION PARTICIPANTS

Carreno-Zamora, Janet.....	4b	Cima, Dennis L.....	15b	Davis, Brian.....	31e	Dubin, Geoffrey.....	58ab
Carter, Elizabeth.....	174a	Classen, Sean.....	111b	Davis, Russ.....	7a	Dufaud, Olivier.....	54bv
Carvalho Neto, Americo.....	54bp, 73b	Cleavinger, Jimmy.....	128b	Davis, Scott G.....	22c, 88a, 198f	Dundalek, Jan.....	28c, 47a, 47b
Casais, Deysa.....	54bp	Clowers, Kurt.....	54cz	De Jonckheere, Bruno.....	78d	Dunjó, Jordi.....	22a
Casarez, Paul.....	49b	Cogswell, Kyle.....	55c, 64c, 161a, 191c	De Man, Allison.....	46c	Dunsworth, Hailey.....	172f
Caskey, Stephen.....	16a	Colegrove, Brenda.....	199a	Deal, Lindsay.....	61b	Dupont, Watson.....	132c
Castaneda, Homero.....	54ak	Colegrove, Lloyd.....	17a	Dechelotte, Stephane.....	39b	Duran, Jairo A.....	66a
Castaneda, Ricardo.....	5d	Coletti, Francesco.....	42, 42b, 99b, 100, 125, 137c, 148a	Decker, Douglas.....	201e	Dutcher, Dabrina.....	58h
Castillo, Ivan.....	17, 51, 177a, 199a	Collins, Erin.....	54ar	Dee, Sean J.....	134b, 181a	Dutschmann, David.....	5c
Celenza, William.....	171c	Collins-Chase, Charles.....	85c, 114a	del Din, Carolina.....	54bn	Dutta, Subhash.....	59d
Celse, Benoit.....	199c	Concibido, Neil.....	182	Delpero, Philip.....	54ai	Dwight, Henry.....	8
Cernik, Randy J.....	15b	Conley, Matthew.....	54cv	Demirel, Belma.....	40	Dyal, Shyam.....	54be
Cerqueira, Ivone C. S.....	54o, 54bg, 54cq	Conrad, Marie.....	5c	Depree, Nick.....	38c	E	
Chainet, Fabien.....	199c	Cook, Elizabeth.....	54ar	Dervaux, Bart.....	32a	Eaton, Scott.....	191a
Chaisoontornyotin, Wattana.....	66f	Coolbaugh, Anika.....	164c	DeSisto, William J.....	191a	Eberhardt, Gene.....	16d
Chakra, Dona.....	10c	Corbett, Brandon.....	59a	Desrosiers, Brian.....	54bb	Ede, Rubem.....	54bp
Chakraborty, Sudipto.....	58u	Corleto, Carlos.....	128b	Devakottai, Bala.....	128b, 211	Edgar, Thomas F.....	106c
Chambers, Simon.....	31c, 172a	Cormier, Addie.....	113a	Dever, Jack.....	20a	Edwards, Victor.....	9a, 89
Champion, John W.....	9, 26, 26a, 145, 198e	Cornwell, John B.....	54k, 54cf	Dhaliwal, Sam.....	202b	Effiom, Francis.....	54ab
Chan, Calvin.....	45b	Cowley, Charles Ian.....	54p	Dharmavaram, Seshu.....	41c, 54bf, 65, 88, 152	El-Halwagi, Mahmoud.....	201b, 207e, 208f
Charlton, Bill.....	129d	Cox, Brenton L.....	181a, 198c	Dhaygude, Ameya.....	51i, 199	Elbashir, Nimir.....	149c
Charvat, Jiri.....	28c	Cox, Pelin.....	200e	Di Benedetto, Almerinda.....	54bu	Eldridge, R. Bruce.....	79b, 172c
Chastain, J. Wayne.....	135	Cramer, Joseph.....	168, 179	Di Sarli, Valeria.....	54bu	Eljack, Fadwa T.....	156c, 165c
Chastain-Knight, Denise.....	176a	Creemers, Carsten.....	141a	Diaz-Bejarano, Emilio.....	42b, 99b, 137c, 148a	Elsharkawy, Adel.....	52a
Chavez-Segura, Griselda.....	4b	Crews, Aaron.....	70c	Dickson, Brian.....	109	Elvin, Frank J.....	58k, 194a
Chaw, Juan.....	11b	Cross, James.....	38, 51e, 84b, 123, 123a, 199	Dietsche, Laura.....	50	Emerson, Rachel.....	108b
Chen, Chau-Chyun.....	66c, 107a, 184a, 184c	Cruz, Ana Maria.....	158	DiGiulio, Christopher.....	19a	Emerson, Steven D.....	120
Chen, Daniel.....	44c, 58g	Cuffy, Graeme.....	54cz	Diller, Tim.....	51d, 84a, 169c	Engel, Derek M.....	22c
Chen, Feng.....	130c	Curtis, Rick.....	46a	Dimick, Paul S.....	93b, 190b	Enqvist, Kari J.....	78f
Chen, Guofu.....	27c	Cusimano, John.....	113b	Ding, Dong.....	121a	Enright, Tom.....	146b
Chen, Lu.....	99a, 148c	Cutchen, Steve.....	109a	Ding, Fangfang.....	54dk	Eppinger, Thomas.....	58w, 194c, 195a
Chen, Min.....	195b	D		Ding, Yulin.....	54dm	Erfan, Mani.....	151b
Chen, Sixue.....	54dr	D'Ottaviano, Fabio.....	37c	Djokic, Marko R.....	129c, 129f	Escobar-Hernandez, Harold U.....	181c
Chen, Xuemin.....	88c	Da Costa, Jean Jérôme.....	199c	Doctor, Richard.....	206b, 206c	Esparza, Alejandro.....	126b
Cheng, Zhengdong.....	54ce	Dagle, Robert A.....	204a	Donahue, Melissa.....	79b	Espinat, Didier.....	199c
Cheung, Cho Nai.....	54br	Dagle, Vanessa Lebarbier.....	204a	Donnelly, Jill.....	43b	Ettehad, Amin.....	58r
Cheung, Daniel.....	54a	Dahiya, Rajender.....	152c	Donovan, Lori.....	208e	Eun, Chonghwa.....	54d
Chheda, Juben.....	55	Dai, Koji.....	183c	Doong, Shain.....	16a, 36a	Evans, Geoffrey M.....	36b
Chialva, Fernando.....	126a	Dai, Wei.....	62	Dor, Amos.....	119a	Evans, Jim.....	197b
Chianelli, Russell R.....	151c	Danzi, Enrico.....	54bu	Dorofeev, Sergey B.....	65a	Eze, Valentine C.....	163a, 173a
Chiang, Leo H.....	17, 118, 119, 142, 177a, 196, 199a	Dara, Sepehr.....	22b	Dowell, Art.....	54m, 101c, 176b	F	
Childs, Merrill.....	111b	Darby, Mark.....	15, 35, 96, 122, 202	Downes, Anthony.....	176c	Factor, Matthew.....	54cv
Chin, Swee-Teng.....	38, 38a, 177a	Darynova, Zhuldyz.....	58o	Dowty, Lauren.....	85c	Fadal, Doug.....	88c
Chittibabu, Haribabu.....	183a	Das, Dilip.....	10a	Dr. Davies, Michael.....	27a, 45a	Falin, James.....	69a
Cho, Dong-Woo.....	16c	Das, Shankhadeep.....	208d	Drabish, David.....	49	Fan, Yajun.....	54dg, 54dh
Cho, Kanghee.....	16c	Datta, Aniruddha.....	187c	Drew, David W.....	41c	Fan, Yi.....	188c
Choi, Sun.....	52d	Davanlou, Ashkan.....	58w	Drigo, Edmara.....	54bg, 54cq	Fang, Yan.....	64b
Chosnek, Jack.....	132, 159b	Dave, Sanjay.....	96a	Driscoll, Aaron.....	55c, 64, 64c, 86b, 161a	Farag, Hany.....	203d
Chotiwiriyakun, Kritsada.....	123b	David, Brad.....	51, 51h	Drummond, Gabriel.....	89b	Faulk, Nancy.....	54t
Choudhury, Hanif.....	149c	Davidson, Chet.....	172f	Duan, Yuhua.....	206a	Fazlollahi, Farhad.....	106b
Chun, Changmin.....	173d	Davis, Ana.....	18a	Duarte, Thaiane.....	54at	Fegade PhD, Swapnil.....	153, 178
Cialkowski, Edward.....	8b						

SESSION PARTICIPANTS



Feiring, Andrew.....129d
 Feist, Shawn D. **93**
 Feld, Peter E..... 32a
 Feng, Maoqi **58i, 204d, 208b**
 Ferguson, Andrew..... **142a**
 Fernandez B, Juan M **29b**
 Fernández, Katherina.....58c
 Fernandez, Sergio..... **11, 29, 48,**
 48b, 126, 174b
 Ferreira, Alysson **45c, 54ay**
 Ferreira, Jose Filipe
 Michel Gagliano 54bg
 Ferrer, Alberto..... **119b**
 Finstad, Megan..... **78e**
 Fish, Doug **118c**
 Flechas-Moreno, L. Tatiana.....54h, **54cd**
 Fleming, Brad106d
 Fleming, Michael..... **54u**
 Flowers, Joseph..... **197b**
 Fogang, Lionel 56f, 90c
 Fontenot, Eddy4
 Forde, Kelsey **53dh, 53di,**
 **53dj, 53dk**
 Forest, Jerry J. **26b, 145b,** 187
 Foshee, Charles **159a**
 França, Sandro **54at**
 Francisco, Eduardo M. **147, 147b**
 Frank, Walter L. 22, 41
 Freiburger, Eric..... **43, 110b,** 110c
 Froeyen, Marc **128g**

G

Gaalswyk, Mark..... 87b, **190b**
 Gable, Preston A.87b
 Gaffney, Anne..... **173b**
 Gai, Huihong..... **36c**
 Galymzhanov, Nursultan58y
 Ganjam, Sanjay **54by**
 Gao, Na **54bq**
 Gao, Zhuwei **56e**
 García Torrent, Javier.....54bw
 Garcia Triñanes, Pablo **188b**
 Garcia, Antonio..... **6d**
 Garcia, Miguel132b
 Garg, Ashutosh..... **99c, 125b**
 Garrison, Jim **69**
 Garvin, Chris..... 38b
 Gaspard, Jeffery.. **74, 92, 114, 114b,** 201
 Gates, Ian D..... 207b
 Gaurav, Aashish 59d
 Gawas, Kiran **90**
 Ge, Sijie **194b**
 Geng, Jihui 41a
 Gent, David.....211e

Gentry, Joseph C..... **79c**
 Getu, Mesfin **81b**
 Ghaleb, Ahmed..... 54f
 Ghezzi, Sergio **33b**
 Ghorbanian, Mahyar..... 82b
 Gilbert, Kevin L..... 41c
 Gildert, Gary 151, 151b, 174
 Gill, Shabroz 202d
 Glasgow, Ian M.74
 Glüer, Sven..... 197a
 Go, Kang Seok200f, **200g**
 Goble, William M.9c
 Goddard, Andrew110
 Goel, Pankaj **187c**
 Goetheer, Earl L.V.58y
 Gonçalves, Alice 58j
 Gopalakrishnan, Murali **55f,** 207c
 Gopaldaswami, Nirupama 10, **92b,**
 **156,** 181c
 Gopaluni, Bhushan **196a**
 Gorawara, Jay 16a
 Gordon, Christopher Kwadwo **54al**
 Gorimbo, Joshua19c, **149d**
 Gorski, Gene..... 22a
 Goteti, Prasad..... 176c
 Govindarajan, Anand..... 31
 Graham, Glenn 146a
 Gray, Keri..... **112a**
 Gray, Michel J.....40a, 204a
 Graziano, Diane J. **118b**
 Green, Micah J. 54n
 Gregory, Frederick 198
 Griffin, Derek.....165b
 Grim, Lauren..... **203e**
 Groce, Bernard..... 98
 Gross, Robert E.9c
 Grounds, Cheryl **43c,** 120c
 Grubbe, Deborah **85a, 85b**
 Guerra, Carlos Espinosa..... 54au
 Guittard, Philippe 39b
 Gunukula, Sampath.....191a
 Guo, Mond.....40a
 Guss, David **54bj**
 Gutierrez, William **29a**
 Guzmán-Fierro, Víctor58c

H

Habibullah, Arif..... **114c**
 Haddix, Martin..... 107a
 Hague, John **51a, 63a**
 Hale, Justin..... **143a**
 Halim, Syeda Zohra **54au**
 Hall, Stephen..... **148b, 185a**
 Hallen, Richard T..... 186a

Hampel, Uwe.....193a
 Han, Sang-Sup 16c
 Han, Xiaopeng 58a
 Hangal, Sunil179, **194**
 Hanna, Tracey **54ci**
 Hanning, David..... **175a**
 Hansen, David **54bl**
 Hao, Yifan **66c**
 Haque, Md Emdadul..... **201a**
 Haraguchi, Marcio Issamu **6c**
 Harding, Brandon..... **115, 115a**
 Harmantoro, Akhmad..... **54ch**
 Harris, Stephen P.9c
 Harrison, Donnie **120a**
 Hart, Ryan J..... 65b, **132b**
 Harvey, Adam P..... 173a
 Harvey, Shane 5, 33, **33a**
 Hasan, A. Rashid 54bc
 Hasse, Hans 16b
 Hatfield, Joe B..... 6d
 Hawkins, Steve..... **54aa**
 Hay, Glen..... 66b
 Haydock, Paul 54p
 Hazewinkel, Philip..... 6b
 Hazzan, Michael 30, **54ct, 156a**
 He, Ting121a
 Hedlund, Matthew..... **175c**
 Hegely, Laszlo 172d
 Heidermann, Dr.rer.nat. Thomas 45a
 Heniford, Richard R. **124c**
 Henselwood, Fred..... **110**
 Herber, John **120b**
 Hernandez, Sergio108b
 Heron, Ted **58ad,** 171, 208
 Herrick, Aaron 123c, 183c, 184b
 Hershkowitz, Frank 173d
 Hess, Dennis W. **144c**
 Hildebrandt, Diane149d
 Hildenbrandt, Kate..... **91c,** 98a
 Hill, A. Daniel..... 90a
 Hill, David **183c**
 Ho, Thomas 194b
 Hobson, Christine..... **80c**
 Hochleitner, Monica **147c**
 Hodge, Phillip R..... 54ci
 Hoefel, Torben **33e**
 Hoefler, Richard 204b
 Hoepfner, Michael P. **66e, 66f**
 Hoff, Rainer **73, 159c, 187**
 Holladay, Jamelyn D.108a
 Holland, Andrew **58aa**
 Hollar, William **20,** 100
 Holmstrom, Donald 30a
 Holsinger, Marabeth 54
 Holt, David..... **157b**

Hong, Seokyoung..... 54d, **62a**
 Horn, Brad **88b**
 Horng, Jao-Jia **54ds**
 Horsch, Steven88c
 Howard, Humbert..... **7c**
 Howat, Colin S..... **159**
 Howes, Steve **64, 64a**
 Hsu, Bor-Yea 164b
 Hu, Sibe **54de**
 Huang, Biao **142b**
 Hubbs, Christian D. **177b**
 Hughes, Philip 58aa
 Humble, Paul.....131b
 Hurban, David **54as**
 Hussain, SM Shakil 90c
 Hussein, Ibelnelwaleed..... **56b**
 Hwang, Sungwon193d
 Hwang, Young Jae160a, 207a

I

Ibarreta, Alfonso F..... 134b, 54bx
 Iguchi, Msaki **158a**
 Iles, Chris..... 69
 Iliastigui, Fidel **11a, 54i, 54v**
 Imran, Muhammad **78b**
 Inamdar, Shailendra.....128
 Iranipour, Gita 64c, 86b, 161a
 Irfan, Muhammad16b
 Irvine, Yene 9b
 Ishii, Benjamin 22b, 54k
 Islam, M. R.....66c
 Ismail, Manaf..... 66e
 Israni, Chris (Kumar)..... **54ah, 176**
 Iurisci, Giuseppe..... 33b

J

Jacob, Karl **188c**
 Jahn von Arnswaldt, Wolfram11, 29,
 48, **126**
 Jaimes, Luis..... **48c**
 Jain, Perna **54ap,** 181c
 Jallais, Simon 41a
 James, Mike 41b
 James, Nick **171d**
 James, Phillip 32f
 Jammula, Anil Krishna..... **59, 81, 107**
 Janardan, Sunder..... 54h
 Jang, Ha-Na..... **108c, 179c**
 Jansen, Christopher R.....174c
 Jensen, Cory 58, **139**
 Jeong, Min-Jae..... 108c, 179c
 Jeong, Sung Woo 200f, 200g
 Jha, Meha..... **80b, 124a, 144b**



SESSION PARTICIPANTS

Ji, Fangang..... **54di**
 Ji, Zhongli..... 130c
 Jiang, Juncheng..... 54j
 Jiang, Kun 44a
 Jiang, Xue **54ck**
 Joback, Kevin G. **81a**
 Johannesdahl, Harri..... **129a**
 Johnson, Eric..... 78a
 Johnson, John J..... **112b**
 Johnson, John M..... 167b
 Johnson, Matt 54l
 Johnson, Michael 88a
 Johnson, Robert W..... 2
 Jones, Daniel..... **33c**
 Jones, Patti..... **89b**
 Jones, Susanne B..... 186a, 204a
 Jones, William **105c**
 Jordan, Terry..... 193b
 Josefczyk, Ronald **33c**
 Joshi, J. B. 165b
 Jubin, Robert..... 70a
 Jung, Seunggho 54bo
 Jurzinsky, Tilman..... 141a

K

Kakkanattu, Ajay 187a
 Kalafatis, Alex..... **202e**
 Kalaga, Dinesh V..... 165b
 Kalish, Peter **37b, 70b**
 Kalita, Roomi 79d, 131a
 Kamal, Muhammad Shahzad 56c,
 56f, **90c**
 Kamann, Martin..... 33e
 Kang, Yong..... 58x
 Kangas, Nathan..... **54cg**
 Kanitkar, Swarom..... **19b**
 Kao, Jen-Hsiang..... 208d
 Karamad, Mohammadreza..... 44a
 Karambelkar, Shruti 82b
 Karibayev, Mirat..... 58n
 Karim, M. Nazmul 15, 35, 54q,
 96b, 122c, 202, 202f
 Kasick, Andrew..... **95c**
 Kauer, Robert..... 54cp
 Kaur, Harnoor..... **184a**
 Kaviani, Shayan..... 81d
 Kazarians, Mardy..... 54z
 Kazi, Monzure-Khoda..... **156c**
 Ke, Jia..... **168a**
 Kelley, Gwen **203**
 Kelly, Jeffrey D..... 35b, 35d
 Kerin, Trish **43a, 54ba**
 Kessler, Elmar **16b**
 Khakharia, Purvil..... 58y

Khamphasith, Martin..... 6b
 Khan, Faisal I..... 9b, 12
 Khan, Rafaqat A **54ac**
 Khanlari, Anahita..... **5e**
 Khanna, Vikas **105, 130**
 Khare, Chaitanya..... **51h**, 63,
 84, **169a**, 210
 Khogeer, Ahmed 124, 148,
 166, **166a**, 185
 Khraisheh, Majeda 56d, 66g, 66h
 Kidd, Mike 208d
 Kikkawa, Yoshitsugi..... **114c**
 Kim, Hae Yong 6c
 Kim, Hee Kyung..... **52c**
 Kim, Jong-Nam 16c
 Kim, Kwang Ho..... 200f, 200g
 Kim, Sun Hyung..... 16c
 Kim, Tae Young..... 52c
 Kim, Woohyun 160a, **200f**,
 200g, **207a**
 Kim, Yong Ku..... 200g
 Kim, Yong-Goo 200f
 Kim, Young Hoo 52c
 Kim, Youngjin **54d**, 62a
 Kimani, Martin K..... **144a**
 Kindgen, Axel 169f
 Kirkes, Toni **107a, 184c**
 Kirs, Luis..... 126a
 Kister, Henry Z. 6e
 Kityanyong, Pheeraya 123b
 Kiyama, Adan 54l
 Klein, James A..... 26a, **98**
 Klein, Michael T..... 191b, 200d
 Klein, Ruediger..... **58ae**
 Klembara, Melissa..... **68a**
 Klinger, Jordan..... 108b
 Kloppenborg, Ellen..... 99, **124, 148**
 Koch, James F..... 188c
 Koirala, Yogesh..... 54cx
 Kokosimos, Konstantinos..... 54bz, 92b
 Kolenc, Josh..... **175b**
 Kolodji, Brian..... **201c**
 Kolomeisky, Anatoly..... 58e, 208a
 Konakbayeva, Dinara..... 58n
 Konovessis, Dimitrios 54af
 Kooijman, Harry 79e
 Korf, Stefan 32a
 Korkmaz, Sahika **43b**
 Kosek, Juraj..... 28c, 47a, 47b
 Koselek, Mike..... **203d**
 Kovalev, Alexey..... 66d
 Kracker, Gunther..... 33e
 Kratzer, Richard..... **203c**
 Krause, Ulrich..... 134c
 Krinock, Robert 129

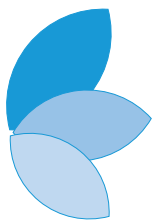
Krishna, Kiran..... 54p
 Krishnamoorthy, Niveditha **193c**
 Krishnan, Pratik..... **54ce**
 Krishnaswamy, Meenakshi
 Sundaram 176c
 Krueger, Artur W. 42
 Ku, Jae Won 52c, **52d**
 Kuchibhatla, Sarat Chandra **59c**
 Kuettel, Mark..... 208d
 Kulhanek, Devon..... 54n
 Kulkarni, Jayant..... **54cm**
 Kulmukanova, Lyazzat 58o
 Kumar, Amit..... 90e
 Kumar, Prashant..... **151b**
 Kumari, Pallavi..... **54q**
 Kuramoto, Yuji..... **5a**
 Kurle, Yogesh..... **165a**
 Kwabi, David 28b
 Kwaspen, Peter..... 37a
 Kwon, Oh Chae 52c, 52d

L

Labanca, Leandro 99
 Laboureur, Delphine 54bc, 54cd
 Lacoue Negre, Marion 199c
 Ladevie, Bruno 52e
 Lai, Hsiang Yee **39**
 Lakhe, Pritishma..... 54h, **54n**
 Lally, Joe 32, 32f
 Lam, Bruce 37a
 Lamb, Justin..... **171d**
 Lammens, Mieke..... 88c
 Lampertius, Johnny..... 54cw
 Lapekas, Sean P..... **132**
 Laporte, Laurent..... **51f, 84c**
 Larkin, T. J..... **54ax**
 Larrad Moreno, María 54bw
 Laskar, Sandipan..... **30**
 Lattner, James..... 173d
 Launay, Helene **32a**
 Law, Richard..... **55a**
 LC, Mutharasu **36b, 165b**
 Le Roux, Galo A. C. 35b
 Le, Amy..... 164b
 Le, Peter..... **169d**
 Lee, Byung-Don..... **55b**
 Lee, En-Song 108c, 179c
 Lee, Hong Jin **160a**
 Lee, Inkyu 62a
 Lee, Kune Woo..... 208c
 Lee, Kyu Bock 160a
 Lee, Sang-Yup..... 108c, 179c
 Lee, Sunggyu 54cv, 60c, 95c,
 107b, 107c, 149b

Lennon, Keith **41b**
 Lepore, Janarde..... 64a
 Lertpukpon, Wipada..... 123b
 Lewinski, Nastassja..... **154c**
 Lewis, Meagan **23a**
 Li, Fadong 97a
 Li, Fuyue Stephanie 16, 36, 191, 204
 Li, Jiayi 54dl
 Li, Min-Chang 54ds
 Li, Mingwei..... 119a
 Li, Mosong..... 54dq
 Li, Ting..... 67a
 Li, Tingwen..... 193b
 Li, Xianchang..... 44c
 Li, Xiangyang..... 58i
 Li, Xueliang..... 165b
 Li, Yuxiao **54dc**
 Liang, Huirong..... **58x**, 66d
 Liang, Shuang **52b**, 97b
 Liang, Zongzhong **54dh**
 Liao, Kuang-Yu 54ds
 Libansky, Ondrej 47a
 Lieberman, Norman 78a
 Lilga, Michael A..... 108a
 Lim, Siang..... 196a
 Lindenberger, Amy L..... **107c**
 Ling, Kegang 58x, 66d
 Liserio, Frank F..... 8c
 Liu, Baoyi..... **54do**
 Liu, Guanlan 92a
 Liu, Guanyang **54w**, 92a
 Liu, Liyan 54s
 Liu, Pan..... 54dr
 Liu, Shengli..... **58ag**
 Liu, Tony..... 201, 202
 Liu, Yi..... 54cu, 54dc, 72, 72a, 168a
 Lochbaum, Michael..... **127c**
 Lodal, Peter N. **12a**, 154
 Lombana, Stefany C..... 54au
 Long, Lisa **75**
 Lopes, Jose Rafael Nascimento..... 54bg
 Lopez Cristeche, Juan Mario **48b**
 Loprete, Ken..... 129d
 Lou, Helen 36c, 44c
 Lou, Renjie **54dr**
 Lousenberg, Dan..... 129d
 Lozano, Federico..... 148a
 Lu, Bo 199a
 Lu, Mingder 123c, 184b
 Lu, Shuai..... 54db
 Lucas, Patrick **32b**
 Lucchese, Fabrizio 32b
 Lucio-Vega, Juan..... **191b**
 Lucke, Eberhard **166, 185**, 208
 Lueth, Chris **141c**

SESSION PARTICIPANTS



Luhrs, Claudia141d
Luijten, Stef **128d**
Lulbadda Waduge, Lahiru
Lakshan188b
Luo, Fangwei **54dq**
Luo, Yang **93a**
Lv, Dong54s
Lynch, David151b

M

M. Wassick, John 177b
Ma, Denglong **54aq**
Ma, Duanzhu **54dd**
Ma, Huitao **97c**
Macchietto, Sandro ...42b, 99b, 137c, 148a
MacGregor, John **39a, 59a, 83c**
MacNguyen, Richard54co
Madden, Lauren **18b**
Maganti, Srihari K.27, **54bd**
Magzoub, M.I.56b
Mah, Evan203d
Mahajan, Sarang **54c**
Mahan, Patrick **8c**
Maher, Steven T. **7b, 54br, 167b**
Mahmoud, Mohamed56b
Mahoney, Elizabeth G.173d
Majoe, Nampe **19c**
Majumdar, Sudip129d
Maksot, Aigerim58o
Malaibari, Zuhair **179b**
Malhotra, Avinash122b
Malik, Darren88b
Manchenahalli, Manohar82b
Mancik, Ralph54co
Maniar, Kartik **45c**
Manisali, Ahmet Y. **204c**
Manivannan, Raj Ganesh **197e**
Mannan, M. Sam54h, 54j, 54n,
54q, 54w, 54ak, 54al, 54am, 54ap, 54au,
54bc, 54cd, 54ce, 54cs, 54cx, 92a, 92b,
181c, 187c
Mansouri, Majdi96b
Mansurov, Ulan206f
Manthanwar, Amit100a
Mao, Yu56e
Mao, Zai-Sha58i
Marin, Guy B.4a, 129c
Marmo, Luca54bu
Maroor, Sreekumar **123b**
Marquez Socorro, Andres **66b**
Martin, Christopher44c
Martin, Paul F. **146c**
Marx, Jeffrey D.22b
Massant, Marc **54ah**

Massengale, Roy **171e**
Masuku, Cornelius Mduzuzi19c, **149a**
Mata, Oswaldo **11b**
Mathew, Tony Joseph **197d**
Mathews, Jayce **99**
Matsuoka, Kenichi183c
May, Eric F. **6b**
Mayer, Gerd **134a**
Mazumder, Mozammel **201d**
Mazur, Petr28c, 47a, **47b**
McBride, Erika **17a**
McBride, Kerry **10b**
McBride, Will **15c**
McCarley, Ken C.6a, **31b**,
.....172a, **172b**, 197e
McCavit, Jack **120c**
McDavid, Ben **198g**
McDowell, Lori **23**
McDunn, Kevin **118, 118a**
Mckay, Gordon149c
McKnight, Peter A.8a, 54ar
McNeilly, Adam201e
Md Jalil, Abdullah Al Mubarak **54bm**
Medic Pejic, Ljiljana **54bw**
Medina, Rixio E. **75c**
Mehta, Anil **39c**
Meikap, Bhim Charan58u
Melhem, Georges **10**
Mendenhall, Jonathan D.37c
Mendez Alvarez,
Julian Enrique29c, 54cn
Mendez, Edna **54ak**
Mendoza, Joseph Albert **193d**
Menezes, Brenno C. **35b, 35d**
Meng, Yifei72, **72a**, 97
Mentzer, Ray A. **181**
Mercer, Lauren **30b**
Merenov, Andrei55f, 207c
Mergenbayev, Askhat M.15b
Messer, Barry **203b**
Metulev, Aleksandar54br
Mielke, Louis **52f**
Miller, Dan **101**
Miller, Dennis206c
Miller, Derek **8, 41a**
Miller, Lindsey **43c**
Mishra, Srishti **40b**
Mistry, Priyan58aa
Mistry, Shashi **35c**
Miyake, Atsumi182, **182b**
Mize, Jennifer **110a**, 198
Mizuta, Yuto **182a**
Mo, Hua32e
Mobed, Parham **79a**, 197d
Modi, Kay **54bs**

Mohamed, Nasr149c
Mohammad, Sayeed197e
Mohammed, Mutala **52g**
Mohedas, Sergio125c
Moideenkutty, Kabier **54f**
Moir, Michael66e
Moncalvo, Dr. Davide **27a, 45**, 45a
Monnier, John R.58af
Monroe, Todd5a
Monti, Francesca33b
Moon, Il54d, 62a
Moore, David A.7, **156b, 188**
Moosemiller, Michael D. **175**
Morey, Andrew **26c**
Morgan, Jason **28, 47, 52, 60, 82, 108**,
..... **121, 133, 141, 186, 193, 206**
Morris, Jessica M. **54cj**
Morris, Michael75
Morrison, Trey **12, 65b**, 132b
Mosier, Bill150
Mountziaris, T. J. **68c**
Moyer, Lauren54, **175c**
Moyers, Joshua120
Moyné, James **119a**
Mrlik, Jindřich47b
Mu, Shanjun181c
Muhammad, Arslan172d
Mukherjee, Ron46c
Muleja, Adolph149d
Mulford, Luke64c, 86b, 161a
Mulligan, Katie **88c**
Mullins, Kimberly135
Mummudi, Mothivel **62**
Muñoz G., Andres E.4a, **58ac**
Muñoz Giraldo, Felipe11, 29, **29c**, 48,
.....54bv, 54cn, 126
Munsil, John Michael **54bn**
Muqet, Mohammad A.201a
Murata, Rene **111b**
Muraza, Oki179b
Murdadi, Dedi54ch
Murillo, Carlos H.54bv
Murnen, Hannah129d
Murphy, John F.58ad, 175
Murphy, Michelle **45b, 111a**
Murphy, Tim73
Murphy-Ortega, Cynthia76
Murray, Megan18
Muschelknautz, Sebastian **105a, 129b**
Musse, Amanda54bp
Mustaffar, Ahmad163a, **163b**
Myers, Philip M. **9, 26, 89a**
Myers, Timothy J.54bx, 134b
Mylenbusch, Ian S.46

N

Nagapurkar, Prashant **204b**
Nagpurkar, Sailee **55c**
Nair, Pratap **169b**
Nair, SreeRaj54a
Najafi, Bijan8a, **54I**
Nakagawa, Masaki **158**
Nanda, Rajeev79f
Nandakumar, Krishnaswamy ..36b, 165b
Nandlal, Mark **92c**
Nara, Louisa **75a**
Narani, Akash **146d**
Nare, David N. **95e**
Nasir Janjua, Aneeq56c, 56f
Nasser, Mustafa56b
Ndlela, Siphon C. **116**
Nedeltchev, Stoyan **193a**
Nejati, Siamak81d
Nemser, Stuart129d
Neron, Rene **115b**
Newman, Brad156
Ng, Christopher **113a**
Ng, E.Y.K.54af
Ng, Samson66f
Nho, Nam Sun200f, 200g
Ni, Lei54j
Nichols, Jeff78a
Nieuwoudt, Izak **197c**
Ninni Schäfer, Luciana16b
Nino, Sigifredo **172e**
Nishino, Tomoaki **158b**
Niu, Yun **97b**
Nolan, Tom **202c**
Nordh, Perry **35c**
Norinder, Jonas **83a**
Norman, Tatiana54p
Norris, John128a
Nounou, Hazem96b, 122c
Nounou, Mohamed96b, 122c
Nouri, Mahdi **16, 36**, 114
Nuernberger, Conner204b
Nunley, Mark **164a**
Nunley, Rob **71c, 146a, 164**, 164a
Nwanosike-Warren,
Quinta **44, 67, 106, 131**
Nørskov, Jens44a

O

O'Hern, Sean C. **54bx**
O'Neal, Anne120c
Oatley, Karl58aa
Ocampo Gómez, Ana María29c
Ochoa-Estopier, Lluvia M.137, **148c**



SESSION PARTICIPANTS

Odell, Albert **130b**
 Ogbongbemiga, Raphael 54ay
 Ogle, Russell 134b, 181a, 198c
 Ogumerem, Gerald S. 100a
 Oh, Seunghyeon..... 54d
 Okasinski, Matthew J..... **183**
 Olahova, Natalia..... 129c
 Olarte, Mariefel V..... 133b
 Olayiwola, Bolaji..... **203d**
 Olsen, Tim 42a, **137, 137a**
 Olsson, Matthew **6e**
 Onome, Akpomiemie Mary **99a**
 Oppedahl, Max 54br
 Ortiz-Cruz, Jesus Alejandro..... **4b**
 Osta, Sebastien **35a**
 Ostraat, Michele L. 174b
 Othman, Nurzatil Aqmar..... 54bm
 Ouertani, Zied **210a**
 Ovalles, Cesar 66e

P

P, Vasudevarao 47c
 Padmaperuma, Asanga B **108a, 133b**
 Page, Jessen 52e
 Pagliaro, John 88a, 198f
 Pagnini, Marco **54y**
 Pajalic, Oleg **190c**
 Palaniappan, Visalatchi..... **54am**
 Palanki, Srinivas..... 165a, 201a, 201d
 Palluzi, Richard..... **20b, 71a**
 Panchal, C. B. **206b, 206c**
 Pandya, Deval **37a, 83, 137, 177**
 Papadaki, Maria 54j
 Parikh, Chirag..... **54aw**
 Park, Chan Woo 208c
 Park, Chi-Kyun..... 55b
 Park, Sang Ho 160a, 207a
 Parker, Melahn..... **60b**
 Parker, Robin Z. 60b
 Parker, Scott..... 206c
 Pasquali, Matteo 58e, 208a
 Patel, Anil 187b
 Patel, Rajen M. 20c
 Pathath, Prasanna..... 55f, **207c**
 Paul, Brian 190, **205c**
 Payn, Clyde 58ad
 Pearson, Katherine E. **65, 88, 198e**
 Peereboom, Lars..... 206c
 Pendse, Hemant P. 191a
 Peng, Guilin..... **54dj**
 Pennisi, Kenneth J. 129d
 Pereira, Luis 58c
 Peres, S.Camille 54cs
 Perlmutter, Barry A..... **20d**

Peters, Joseph **207d**
 Peterson, Chad..... 173c
 Peterson, Eric..... 65b, 167
 Peterson, Sandra..... **128c**
 Petrusich, Dana 51c, **63c**
 Petrusich, Jim..... 169a
 Pham-Huy, Minh..... 41a
 Phan, Anh 163a, 163b, **204f**
 Phan, Trien (Mikey) **172c**
 Phark, Chuntak..... **54bo**
 Philippidis, George..... 55c, 55d, 204c
 Phillips, Chris..... **211b**
 Phillips, Steven D. **204a**
 Pickett, Thomas..... **78b**
 Pico, Paula..... **54bv**
 Pierre, Kiesha..... 64c, 161a
 Pillai, Unni **55e**
 Pinappu, Sai Reddy **32e**
 Pistikopoulos, Efstratios N. **100a**
 Pitblado, Robin **54p**
 Player, Michael..... **5c**
 Pless, Lowell **31e, 172f**
 Pocedic, Jaromir 28c, 47a, 47b
 Pollock, Greg..... **112c**
 Polin, Joseph..... 87b
 Pon Kumar, Steven Spielberg..... 196a
 Pope, Christopher **112**
 Postula, Walter S. **57, 58**
 Powell, Joseph B..... **58d, 95a**
 Powell, Michael R..... 131b
 Prasertcharoensuk, Phuet..... 204f
 Prashant, Kumar..... 148b
 Pray, Todd 146d
 Prem, Katherine **46**
 Pressler, Jim..... 59c
 Prigmore, Jay R..... 198c
 Prince-Pike, Arrian 38c
 Prindle, John C..... **161b, 206c**
 Pritchard, Michelle **54ao**
 Prophet, Neil 22a, 65c
 Prugh, Richard..... **54ca, 54cb**
 Puckett, Tony 54cf
 Puerto, Gldys..... 29c
 Puerto, Pablo..... **52e**
 Puma, Cesar Augusto..... **49a**

Q

Qi, Meng..... **54cu**
 Qi, Qiangqiang 130c
 Qi, Ruifeng "Ray" 109
 Qian, Chen..... 54dk
 Qian, Feng..... 4a
 Qiblawey, Hazim **58t**
 Qin, Hailiang..... **54df**

Qu, Honglin **86a, 86c, 161, 184, 195**
 Quasem, Imran..... 55c, **55d**
 Quazi, Hebab..... **149**
 Quddus, Noor **54h**
 Qureshi, M. Fahed..... **56d, 66g, 66h**
 Qureshi, Muhammad Mushahid..... **132a**

R

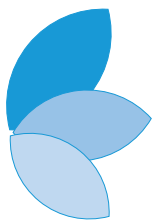
Rabbow, Thomas **28a**
 Rader, Jeremy 164c
 Raftery, Jonathan P..... 96b, **202f**
 Rager, Jakob..... 52e
 Rajab, Hamad..... 54aw
 Rajan, Neha Suresh..... 159
 Rajkumar, Vinod..... 183
 Rallapalli, Phani B. S. 16c
 Raman, Rahul **89**
 Ramanan, Raghavan **116c**
 Ramanujam, Kothandaraman **47c**
 Ramasamy, Karthikeyan K. **40a, 204a**
 Ramirez Gomez, Alvaro..... 54bw
 Ramirez, Donald..... 107a
 Ramkumar, Shwetha **106a**
 Randall, Tatiana **128e**
 Randhawa, Dishoo 203b
 Rao, Samvith **125a**
 Rasel, M.a.K. 64b
 Rasmussen, Kent H. 15b
 Rasmussen, Kurt 154b
 Ratan, Sanjiv 200, **200c**
 Rathgeber, Dan..... 176
 Rathore, Komal 64c, **161a**
 Raymond, Timothy M. **58h**
 Razzak, Shaikh **133c**
 Reay, David A..... 55a
 Reed, Morgan..... 65b, 198
 Regalbuto, John R..... 58af
 Reinhardt, Gerard..... **157a**
 Reis, Marco..... 177a, 199a
 Rekoske, Jim **13a**
 Ren, Hong **67a**
 Rendall, Ricardo 177a, **199a**
 Resetarits, Michael R. 31d
 Revankar, Shripad T..... 141b
 Reyes, Sandra **112d**
 Ribeiro, Antonio 58j
 Rice, Steve 51b, 63b
 Rice, Trevor 123, **123c, 184b**
 Richmond, Peyton C..... 64b
 Rigby, Amy **54bt**
 Ritter, Jim **205d**
 Rivera-Jimenez, Sindia..... 76, **94**
 Robertson, Michael E. **54az**
 Robinson, Clive 54a

Roche, Eloise..... **132c**
 Rodgers, Samuel A..... **22, 41**
 Rodriguez Mendoza,
 Roberto Jesus Prisciliano..... 211c
 Rodriguez, Raymundo..... 54by
 Rodriguez, Romel..... **126c**
 Rodriguez, Sandra..... 66b
 Roeckel, Marlene **58c**
 Roesler, John **172d**
 Rogel, Estrella 66e
 Rojas, Pedro **81c**
 Rolke, Richard **78, 169a**
 Rolker, Jörn..... 16b
 Rollins, Derrick K. **196b**
 Romagnoli, Jose A. 62c
 Ronco, Josh..... 80c
 Ronk, Christopher **152a**
 Rooney, William..... 74
 Rossana, Debby 5e, 32c
 Rostani, Khairul 54bm
 Rostick, Paul..... 113
 Rover, Marge..... 87b
 Roy, Nitin..... 181c
 Rubinstein, Shmuel 28b
 Rubio, Xavier..... 127c
 Ruckebusch, Cyril..... 199c
 Rueda, John **11c**
 Ruiz, Leandro Ruiz 211c
 Ruzzarin, Narciso **54bi**

S

S. Ikarimoto, Cesar..... 35b
 Sachdeva, Sonny..... **54ad**
 Sadler, Clayton..... **19**
 Sadowski, Gabriele 58q
 Sadrameli, Seyed Mojtaba..... **58m**
 Sage, Valerie..... 6b
 Saha, Biswajit..... **58p**
 Salcedo, Carlos **126c**
 Salter, Jim 54a
 Sambandam, Satheesh **32c**
 Samuel, Robello **90e**
 Sanchirico, Roberto..... 54bu
 Sandford, Neil A. 197c
 Santino, Carine N. 54cq
 Sardeing, Rodolphe 39b
 Sarrafi, Şahin..... 169c
 Sasangohar, Farzan 54cs
 Sastri, Bhima **68b**
 Sathe, Mayur 36b, 165b
 Satyadileep, Dara..... 195c
 Saud, Yaneira **54co**
 Saudagar, Munawar..... **100b, 125c**
 Scalza, Amanda..... **103**

SESSION PARTICIPANTS



Schmidt, Alix.....	83, 177, 177a	Smith, Danny.....	51b, 63b	Summers, Patty.....	78	Thomason, Jeff.....	171b
Schmidt, Andrew J.....	186a	Smith, Joseph D.....	58z, 67c, 82b, 204b	Sun, Guogang.....	58a	Thorat, Sameer.....	177c
Schmidt, Mark.....	171	Smith, Kris.....	54cm	Sun, Kefu.....	88c	Thorpe, Patrick.....	202d
Schmidt, Michael S.....	61a	Smith, Michael.....	203	Sun, Liqiang.....	58s	Threatt, Timothy.....	95d
Schmitz, Juliana.....	89b	Smith, Robin.....	25c, 99a	Sun, Ning.....	146d	Tian, Xiaoying.....	54dw
Schneider, Rolf.....	16b	Smith, Ryan G.....	87b	Sun, Wanmei.....	54n	Tiensai, Nattawat.....	123b
Schoeggl, Florian F.....	66a, 66b	Smith, Steve.....	171a	Sun, Yong.....	54dm	Timsina, Hemanta.....	58h
Schroeder, Scott.....	166b, 174c	Smith-Schoettker, Ashley.....	205, 205a	Sundaram, Kandasamy M.....	32d	Tipler, Scott.....	10b, 88c
Schubert, Markus.....	193a	Snajdr, Ivo.....	47a	Sunol, Aydin K.....	55c, 55d, 58aj , 64c, 86,	Tirano, Joaquin.....	121b, 141d
Schultz, Michael A.....	44b	Sneddon, James.....	30c, 49c	86b, 161a, 191c, 204c	Tong, Liuchuan.....	28b
Schwartz, Nicholas R.....	87a , 163c	Snowden-Swan, Lesley J.....	186a , 204a	Sutherland, Vanessa A.....	198b	Torrado, David Eduardo.....	54bv
Scruggs, Samantha.....	43, 54av	Snyder, Michael.....	154b	Sutton, Elliot.....	204b	Tourani, Chandra.....	193c
Seasholtz, Mary Beth.....	169a	Soczek, Charles A.....	54bf	Suursula, Sander.....	37a	Trahan, Daniel W.....	37c
Seay, Jeffrey.....	194	Soliz, Edward.....	211d	Suzuki, Norihito.....	79c	Traina, Nicholas A.....	198c
Seiple, Timothy E.....	186a	Soltaninia, Shahab.....	203b	Swett, Lara.....	61c	Trainor, Michael.....	71d, 146
Self, Freeman.....	27b , 45	Sommer, Virginia.....	100, 106, 131	Swientoniewski, Mark.....	85	Trenchard, Andrew.....	96a
Senetar, John.....	40	Son, Changwon.....	54cs			Trillos, Maria.....	29a
Sengupta, Debalina.....	24	Sorroche, Nicolas.....	126a			Trivedi, Kirtan K.....	106, 131
Sengupta, Sonali.....	58p	Sosa, Leticia Forrer.....	147b			Tsuchiya, Yuji.....	182c
Seo, Dong Joo.....	160a, 207a	Souza, Maria Lorena.....	54o			Tulsyan, Aditya.....	38b , 119, 142, 196
Sernaglia, Julio.....	126a	Spatenka, Stepan.....	123b			Tumbalam Gooty, Radhakrishna.....	197d
Serrano, Jose.....	54bv	Sperry, Jeffrey.....	181b			Turkay, Metin.....	62b
Shah, Ashish.....	25b	Spicer, Thomas O.....	54cj			Turner, Nathan.....	73c
Shah, Dhawal.....	206f	Spitzenberger, Cynthia.....	61b , 101				
Shangguan, Ning.....	129d	Spivey, James J.....	19b				
Shank, Sarah.....	171c	Sposito, Nestor H.....	48a , 147				
Sharon, Robinson.....	70a	Sreeram, Arvind.....	59, 81, 107				
Shatto, Don P.....	106a	Srinivas, Girish.....	204e				
Shawabkeh, Reyad.....	206e	Srinivas, Mahesh Kumar.....	116a, 131c				
Shell, Kathy.....	2	Srivastava, Annant.....	187b				
Shelton, Al.....	124b	Staats, Jeremy.....	203a				
Shen, Yueqi.....	54r	Stack, Robert J.....	91b				
Sheridan, William.....	208e	Stancato, Barbara.....	32d				
Sheriff, M. Ziyen.....	122c	Stanford, John.....	87b				
Shiau, Lie-Ding.....	58b	Stark, Addison K.....	68d				
Shin, Dongil.....	54g	Staszak, Andrew.....	54by				
Shire, Tim.....	25a	Stawicki, Jeff.....	54				
Short, Lawrence S.....	145a	Steffan, Andy.....	69c				
Shuang, Bo.....	37c	Stern, Michael C.....	54bx, 134b				
Shupp, Josh.....	51c, 63c	Stirrup, Timothy.....	53dh, 53dj, 53dk				
Siahrostami, Samira.....	44a	Study, Karen.....	9a, 61				
Sierra Llorens, Livia.....	130a	Stueckrath, Karsten.....	169f				
Sierra, Diego Alejandro.....	54cn	Sturnfield, James.....	37c				
Silva, Kristin.....	208b	Sturtz, Rachel.....	206b, 206c				
Simanzhenkov, Vasily.....	203d	Su-Feher, Denis.....	54cx				
Simmons, Kevin.....	88c	Suarez, Oscar.....	152b				
Simoes, Vinicius.....	30c, 49c, 54cm	Subramaniam, Ramakrishnan.....	78b				
Singh, Ravinder.....	36c	Subramaniam, Senthil.....	40a				
Singh, Surendra.....	10c , 45b	Subramaniam, Arun K.....	210b				
Skelton, David.....	113c , 181	Sukhram, Bhushan.....	127a				
Skote, Martin.....	54af	Sultan, Abdullah S.....	56b, 56c, 56f ,				
Slim, David.....	32f	90c, 90d				
Sloley, Andrew W.....	6, 25, 42c , 79, 80 ,	Summers, Angela E.....	69b , 132c				
.....	80a, 127, 166b , 172, 174c , 197, 197f	Summers, Daniel R.....	6, 25, 31a ,				
Smith, April.....	120a	79, 127, 127b , 127c, 172, 197 , 197a				

T

T Lam, Ruben.....	38a
Taghikhani, Vahid.....	56a
Tague, Kenneth.....	75b
Takagi, Youhei.....	158b
Takalkar, Gorakshnath.....	60a, 82a,
.....	121c, 206d
Tallman, Michael J.....	211b
Tamim, Nafiz.....	54bc
Tan, Wei.....	54s, 54aq
Tancredi, Karen.....	110c
Tavakkoli, Mohammad.....	56
Tang, Xuexiang.....	54dn
Tanjore, Deepti.....	146d
Tatarchuk, Bruce J.....	93b, 190b
Tavakoli Mehrabadi,	
Bahareh Alsadat.....	58af
Tavakoli, Elham.....	81d
Taveau, Jérôme.....	111, 134, 188a
Tawarmalani, Mohit.....	79a, 197d
Taylor, Michael.....	18c
Taylor, Ross.....	79e
Taylor, Shawn D.....	66b
Tegrotenhuis, Ward E.....	131b, 190
Tejada Vaprio, Rita.....	77
Tejada-Martinez, Andres.....	64c, 161a
Ternes, J.D. Mary Ellen.....	24
Terpenning, Darrell.....	54cw
Teumim, Dave.....	21
Tew, Revonda.....	54x, 167c
Thackston, Bill.....	153c
Thakore, Sameera.....	183a
Theis, Amy.....	12b
Theunick, Greg.....	190a
Thomas, J. Kelly.....	88b
Thomas, Jeff.....	49b , 54bk
Thomas, Stephen.....	91a

U

Üçyiğitler, Sinan.....	169c
Ulas Acikgoz, Saadet.....	200
Ulrich, Mark.....	171
Umeozor, Evar C.....	207b
Undey, Cenk.....	38b
Uzman, Firat.....	62b
Uzoh, Chigozie.....	54e

V

Vahle, Lisa.....	58q
Valentine, Julie.....	80, 80b, 124a
Vallee, Steven J.....	201, 201e
van Beurden, Iwan.....	91c, 98a
van Driel, Coen.....	54cp, 73a
Van Geem, Kevin M.....	4a, 129c, 129f
Van Roosmalen, Marinus.....	4c
Van Walsum, G. Peter.....	191a
Van Westendorp, Henk Bert.....	197a
Van Wingerden, Kees.....	22c
VanEssendelft, Dirk.....	193b
Vargas, Francisco.....	66
Varraveto, Dominic.....	185b
Vassillo, Oreste.....	32b
Vasuthevan, Muhielaan.....	204b
Vaughen, Bruce K.....	26a
Vaz, Carlos André.....	58j
Vechot, Luc.....	54bz
Vega-Westhoff, Maria.....	61a



SESSION PARTICIPANTS

Velegol, Darrell **59b**
 Venkat, Aswin N. **122a**
 Venkatadri, Ramraj 211c
 Venkatakrisnan,
 Vinod Kumar..... 146, **191, 204**
 Vennavelli, Anand N..... **6a, 31, 31b,**
 31c, 59, 81, 107, 172b
 Vercruyssen, Geert..... **98c**
 Verma, Satyajit..... 27b
 Vestal, Tab **69a, 69c, 91**
 Vickery, James 54bx
 Victor, Glenn..... 127a
 Vigliarolo, Michael..... 54br
 Vijfhuizen, Pieter 32a
 Villarreal, Jose..... **48c**
 Vincik, Florine..... **101a, 154a**
 Viswanath, Shekhar **37**
 von Harbou, Erik 16b
 Vragolic, Sasha..... **4, 169**
 Vrana, Jiri **28c, 47a, 47b**
 Vu, Tran L. **54af**
 Vupputuri, Sravanthi 31, 59, 81, 107

W

Wadas, Brian **5, 33**
 Wagner, Andrew L..... 87a
 Waldrop, Terry..... **113**
 Walker, Justin..... 59c
 Wan, Huijie 67a
 Wan, Lu 54aj
 Wang, Anan..... **44c**
 Wang, Chao..... 31b, 172b
 Wang, Chia-Chung 79f
 Wang, Di **58v**
 Wang, Haoshui **72b, 72c**
 Wang, Haotian..... 44a
 Wang, Jiangyun..... 56e
 Wang, Juan 56e
 Wang, Libo **54dv**
 Wang, Penghong..... 54dm
 Wang, Qingsheng..... **27, 54ag, 54aq**
 Wang, Sai 66d
 Wang, Song..... **86c**
 Wang, Sujing 15a, 194b
 Wang, Tunyu 58t
 Wang, Xiao **54cl**
 Wang, Xingchun **183b**
 Wang, Yang..... **54s**
 Wang, Yutai..... **97a**
 Wang, Zhiquan 54dm
 Wang, Ziyuan..... 194b
 Warren, Quina **44d, 144**
 Wasel, Wahed 54cy

Wattis, Zoë 54a
 Webb, Christopher **96a**
 Webb, John L. 211b
 Webb, Marcus 38a
 Webb, Zachary **62c**
 Weber, Robert..... 54ad, **54an**
 Wei, Yaodong..... 56e, 58s, 58v
 Weidenfeller, Joerg..... 128b, **169f**
 Weidner, John W. 58af
 Weinberg, Michael D..... **54cc**
 Weiss, Brian M..... 173d
 Wesevich, James..... **22b**
 Westad, Frank 51g, 210c
 Westover, Tyler L. **108b**
 Wheeler, M. Clayton..... **191a**
 White, Rembert 58af
 Whitmer, Lysle..... 87b
 Whitney, Mark **211a**
 Wieslaw, Thomas **78a, 211d**
 Wilczynski, Dan **101b, 188**
 Wilhite, Benjamin..... **205b**
 Willey, Ronald J..... **12c**
 William, Whyman..... **200b**
 Williams, C. Luke..... 108b
 Williams, Christopher 51a, 63a
 Willis, Steve..... **143b**
 Willy, Benjamin..... 16b
 Wilson, David I..... 38c
 Wilson, Michael P. **30a**
 Winckel, John..... 7, **49**
 Wincure, Benjamin 39b
 Wingate, Kyle **145c**
 Wingerden, Kees van 88a
 Wold, Kjell **42a**
 Wolf, Elliot **18a, 101a, 154**
 Wong, Andrew..... **28b**
 Wong, Renato..... 123b
 Worden, Kathryn **128f**
 Worstell, Jonathan H..... 95d, 164b
 Wozniak, Scott M. **187a**
 Wu, Wei 121a
 Wu, Zuoxiang **54dl**
 Wünnig, Joachim G. 105a

X

Xiao, Yiting 58i
 Xie, Minghui 58i
 Xin, Baoquan **54aj**
 Xing, Jianmin..... **105b**
 Xu, Jialin **15a, 207**
 Xu, Kexin 99a
 Xu, Liang **90b**
 Xu, Qiang..... 15a, 58g, **86,**

86a, 86c, 130b, 130d, 165a, 183b, 194b,
 195b, 201a, 201d, **207**
 Xu, Simon **79f**
 Xu, Wei 97a, 181c
 Xu, Yiling **130d**

Y

Yagi, Fuyuki..... **129e**
 Yan, Fang **54db**
 Yan, Lingqing **106c**
 Yan, Xiaoming 72a
 Yang, Chao..... **58i**
 Yang, Hee-Man **208c**
 Yang, Hongyun..... 93b
 Yang, Lu **66d**
 Yang, Xiao **25c**
 Yang, Yuan 66e
 Yang, Zhigang..... **54dm**
 Yao, Min **54dp**
 Yap, Eddy **4c**
 Yarranton, Harvey W..... 66a, 66b
 Ye, Lujie..... **60c, 149b**
 Ye, Minghua 100, 100b, **125, 125c**
 Yeh, Norman K. 106a
 Yelvington, Paul E. **87, 87a, 163c**
 Yi, Hang..... **54ag**
 Yoon, Hyung Chul **16c**
 Yoon, Hyungjoon..... 62a
 Yoon, Wang Lai 160a, 207a
 Yoshida, Satoru..... **33d**
 Young, Brent R. 38c
 Young, Wendy 123a
 Yu, Jing..... **54ae**
 Yu, Li..... **195b**
 Yuan, Quan..... **208**
 Yue, Jinping 67a
 Yue, Sun **54j, 181c**
 Yuqiang, Li 8b

Z

Zea Ramirez, Hugo Ricardo 121b, 141d
 Zhang, Bin 54n, 54ak,
 54ce, 54cx, **92a, 181c**
 Zhang, HAN **67c**
 Zhang, Jian..... 15a, 86c, **54dg**
 Zhang, Jingzhou..... 66f
 Zhang, Joyce..... 88c
 Zhang, Ke **174b**
 Zhang, Long **54cy**
 Zhang, Nan..... 25c
 Zhang, Pengchong **45c**
 Zhang, Shuai 58x



AIChE Academy
Connect | Learn | Solve

TRAIN-A-TEAM

SET THE STAGE FOR SUCCESS WITH AIChE® ACADEMY.



EDUCATION

TRAINING FOR CHEMICAL ENGINEERS AND THOSE THEY WORK WITH

Your success depends on employees who are trained and up-to-date on what's new and what's changing, relevant to their complex and critically important jobs. But providing that training when and how they need it and within your budget can be difficult.

AIChE Academy's Train-a-Team approach makes training your staff easier. Choose from two group training solutions that are cost-effective and convenient, eliminate travel costs and give you confidence knowing your staff is performing at the top of their game.

SELECT THE TRAIN-A-TEAM SOLUTION THAT FITS YOUR NEEDS:



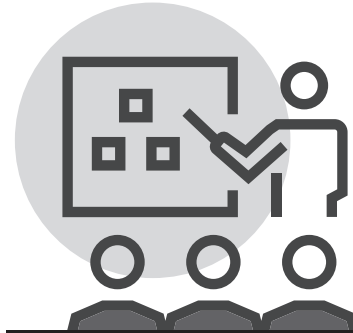
On-Site Training Delivered at Your Location

Face-to-Face training customized to address your specific needs. Simplify scheduling, train more employees and get them on the same page at a reasonable cost.



Online eLearning Delivered to Your PCs

Easily accessible online training, anytime and anywhere. Start right away with just a click and return to the course for review, at your convenience.



**Minimize costs.
Maximize learning.
Start today.**

**Make AIChE Academy Your
Complete Group Training
Resource Starting Today!**

To learn more email academy@aiche.org or visit aiche.org/academy/train-team-aiche-academy

© 2018 AIChE 2324_18 • 03.18



See you
in New
Orleans

March 31 - April 4, 2019
Hilton New Orleans Riverside

19 AIChE
Spring Meeting, New Orleans, LA

15TH GLOBAL
CONGRESS
ON PROCESS
SAFETY

© 2018 AIChE 2139-18 • 03.18



AIChE[®] VOLUNTEER + MEETING ATTENDEE CONDUCT GUIDELINES

AIChE's volunteers are the core of the Institute and make all of its programs, conferences and educational efforts possible. These offerings provide excellent opportunities for AIChE members and meeting attendees to gain greater technical expertise, grow their networks, and enhance their careers. AIChE events provide engineers, scientists, and students a platform to present, discuss, publish and exhibit their discoveries and technical advances.

At all times, volunteers and meeting attendees should act in accordance with AIChE's Code of Ethics, upholding and advancing the integrity, honor and dignity of the chemical engineering profession. AIChE's Board of Directors has developed these guidelines to foster a positive environment of trust, respect, open communications, and ethical behavior. These guidelines apply to meetings, conferences, workshops, courses and other events organized by AIChE or any of its entities and also to volunteers who conduct other business and affairs on behalf of AIChE.

SPECIFICALLY:

1. Volunteers and meeting attendees should understand and support AIChE's Code of Ethics.
2. Volunteers and meeting attendees should contribute to a collegial, inclusive, positive and respectful environment for fellow volunteers and attendees, and other stakeholders, including AIChE staff.
3. Volunteers and meeting attendees should avoid making inappropriate statements or taking inappropriate action based on race, gender, age, religion, ethnicity, nationality, sexual orientation, gender expression, gender identity, marital status, political affiliation, presence of disabilities, or educational background. We should show consistent respect for colleagues, regardless of discipline, employment status, and organizations for which they work, whether industry, academia, or government.
4. Disruptive, harassing or other inappropriate statements or behavior toward other volunteers, members, another stakeholders, including AIChE staff, is unacceptable.
5. Volunteers and meeting attendees should obey all applicable laws and regulations of the relevant governmental authorities while volunteering or attending meetings. Volunteers and meeting attendees taking part in any AIChE event, including the Chem-E-Car Competition[®], should also comply with all applicable safety guidelines.

Any violations of the foregoing should be reported to the President or the Executive Director of the Institute.



AIChE® gratefully acknowledges Chevron's ongoing commitment to the ScaleUp program as the Platinum Sponsor.



© 2017 AIChE 2428_18 • 03.18

Navigate the Spring Meeting & GCPS Like a Pro with the AIChEvents App



18 AIChE
Spring Meeting

ORLANDO FLORIDA 2018

14TH GLOBAL CONGRESS ON PROCESS SAFETY

Download the AIChEvents App to get access to everything you need to have a better meeting.

SEARCH. SCOPE OUT. PREVIEW. LEARN MORE. FIND. PLAN, STORE AND UPDATE YOUR SCHEDULE.

See the past, present and upcoming events all in one place. Whether you carry an Android or iOS device, the AIChEvents app delivers the same native functionality.

Blackberry and other smartphone users can access the Spring & GCPS content via the new online planner available on www.aiche.org/spring or www.aiche.org/gcps.



© 2018 AIChE 2250-18 • 03.18

Members of the American Institute of Chemical Engineers shall uphold and advance the integrity, honor and dignity of the engineering profession by:

- Being honest and impartial and serving with fidelity their employers, their clients, and the public;
- Striving to increase the competence and prestige of the engineering profession;
- Using their knowledge and skill for the enhancement of human welfare.

TO ACHIEVE THESE GOALS, MEMBERS SHALL:

- Hold paramount the safety, health and welfare of the public and protect the environment in performance of their professional duties.
- Formally advise their employers or clients (and consider further disclosure, if warranted) if they perceive that a consequence of their duties will adversely affect the present or future health or safety of their colleagues or the public.
 - Accept responsibility for their actions, seek and heed critical review of their work and offer objective criticism of the work of others.
 - Issue statements or present information only in an objective and truthful manner.
 - Act in professional matters for each employer or client as faithful agents or trustees, avoiding conflicts of interest and never breaching confidentiality.
 - Treat fairly and respectfully all colleagues and co-workers, recognizing their unique contributions and capabilities.
 - Perform professional services only in areas of their competence.
 - Build their professional reputations on the merits of their services.
 - Continue their professional development throughout their careers, and provide opportunities for the professional development of those under their supervision.
 - Never tolerate harassment.
 - Conduct themselves in a fair, honorable and respectful manner.

SEXUAL HARASSMENT TRAINING

Mandatory sexual harassment training for all Board members, Operating Council Chairs and full-time AIChE Staff members is required by AIChE. The training program is coordinated by AIChE's Human Resources Department. For more information on this topic, please contact humanresources@aiche.org.

We're in it together.

Join the Team of Champions
Doing a World of Good



Andreas & Juana Acrivos

Joan F. Brennecke &
Mark A. Stadtherr

California Community
Foundation

Katherine L. Chen

David R. &
Karen Eckhardt

Thomas F. Edgar

Karen A. Fletcher

H. Scott Fogler

Eduardo D. Glandt

Deborah L. Grubbe

Raj & Kamla Gupta
UJALA Family Foundation

Dale L. Keairns

Peter B. & Sue Lederman

Gerald A. Lessells

Norman N. Li

Scott D. Love

Syamal K. &
Susmita Poddar

James B. Porter, Jr.

Joe B. Powell

Eric Reiner

Otis A. & Phyllis Shelton

Gregory N.
Stephanopoulos

John Y. Televantos

Levi T. Thompson

James A. Trainham

Alfred E. Wechsler

Vern W. Weekman, Jr.

June C. Wispelwey &
Mark B. Bradley

S. Shariq Yosufzai

Let's show the world how chemical engineers
are Doing a World of Good.

#AllforGood | www.DoingaWorldofGood.org

AIChE 
The Global Home of Chemical Engineers

**DOING
A WORLD
OF GOOD**



It's Never Been Easier to Get Engaged with AIChE® Members.



IT IS SIMPLE TO PARTICIPATE.
Visit AIChE Engage to Find Your Microvolunteering Opportunity.



Connect with AIChE® members and benefits through AIChE Engage, the powerful community platform built just for AIChE members.

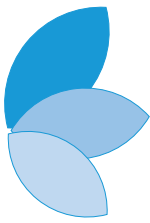
- **Connect** with other AIChE Members from anywhere in the world.
- **Share Knowledge** with your peers through Discussion Central.
- **Manage Your Member Profile** with biographical information and a photo.
- **Keep Track of Your Member Benefits** and what you could be getting more of.

Find Microvolunteering Opportunities on Volunteer Central

Short on time but want to get involved? AIChE now offers microvolunteering opportunities that fit into a busy schedule. Fill out your volunteer profile to see volunteer opportunities tailored to your interests, or browse all AIChE volunteer opportunities.

Start the conversation and volunteering today at engage.aiche.org





A series of 28 horizontal lines for writing notes, starting from the top of the page and ending near the footer.



OUR TEAM'S
ENERGY

DELIVERS THE
WORLD'S

ENERGY.

WE AGREE.

**Chevron is proud to be a sponsor of the
AIChE Spring Meeting & Global Congress on Process Safety.**

Supplying enough energy to a constantly growing world is one of the great challenges of our lifetime. It requires skilled people with diverse perspectives, all working together. You could be one of them. Bring your talent to a team with the technology to take on big challenges, the integrity to do it responsibly, and the drive to keep the world moving forward.

Learn more at chevron.com



human energy[®]

**We power progress
together by providing
more and cleaner
energy solutions.**

#makethefuture

