



**9th Annual
AIChE Midwest Regional Conference**

**February 28 - March 1, 2017
University of Illinois at Chicago
(Student Center East)**



**Organized by the AIChE Chicago Local Section and
hosted by the University of Illinois at Chicago**



AIChE Midwest Regional Conference
Internet Access and Abstracts

How do I connect to the Internet?

- 1) Using your WIFI enabled device connect to SSID **UIC-Guest**
- 2) Open a web browser and authenticate with the following
Login: **alice_2**
Passcode: **Cra9grat**

How do I find the Presentation Abstracts?

- 1) Go to the conference website - www.tinyurl.com/MRC2017
- 2) Open the link "Book of Abstracts"

AIChE Midwest Regional Conference
Conference Sponsors

The Chicago Section of the AIChE is grateful for the generous support of our Conference and HS Outreach Sponsors!



AIChE Midwest Regional Conference

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Conference Overview

The AIChE Midwest Regional Conference (MRC) continues into its 9th year. Organized by the **AIChE Chicago Local Section** with support from AIChE Technical Programming and hosted by the **University of Illinois at Chicago**, the MRC provides an opportunity for engineers and scientists in the region to learn about new technologies and network with others in the field. A particular objective of the conference is to build technical relationships between industrial practitioners and researchers in the governmental and academic spheres. Statistics of the technical program include:

4 Keynote Lectures:

Sangtae Kim (Distinguished Professor and Head, Purdue University)

Pete Ludovice (Comedian and Associate Professor, Georgia Tech)

Anne Evens (Chief Executive Officer, Elevate Energy)

Mary Ellen Ternes (Environmental Attorney, Earth and Water Group)

5 Plenary Lectures:

David G. Barton (Principal Research Scientist, Dow Chemical Company)

Lisa Long (Director of the Office of Engineering Safety, OSHA)

Jacob Oberholtzer (Director of Specialties Process Technology, SABIC)

Eric Brey, (Professor of Biomedical Engineering, Illinois Tech)

James Rawlings (Professor, University of Wisconsin)

There are **20 technical sessions** featuring over **100 oral presentations** over the 2 days of the conference. The Wednesday evening program is combined with the **AIChE Chicago Local Section Monthly Meeting**.

The conference also features a **Student Outreach Program**, where Chicago-area high school students will become acquainted with the various facets of the chemical engineering profession. The outreach program features *Peter Ludovice* (Georgia Tech) as keynote speaker and includes a special luncheon where students can interact with practicing chemical engineers.

On behalf of the conference planning committee, we welcome you to the 9th Annual AIChE Midwest Regional Conference and hope you will take advantage of all the opportunities it has to offer.

Adam Kanyuh
Conference Chair
UOP/Honeywell

AIChE Midwest Regional Conference Program at a Glance

Tuesday, February 28, 2017

- 7:30 AM - 10:00 AM **Continental Breakfast** (Illinois B)
- 8:15 AM – 9:30 AM **Morning Keynote** (Illinois B)
- *Sangtae Kim, Purdue University*
- 9:30 AM – 9:45 AM **Networking Break**
- 9:45 AM – 11:30 AM **Technical Sessions**
- *Biofuels* (Cardinal Room)
- *Process Modeling and Optimization* (White Oak)
- *Fluid Dynamics and Transport Phenomena I* (Illinois C)
- 11:30 AM – 12:30 PM **Lunch with High School Outreach Participants** (Illinois A and Illinois B)
- 12:45 PM – 1:45 PM **Afternoon Plenary Sessions**
- *David G. Barton, Dow Chemical* (Cardinal Room)
- *Lisa Long, OSHA* (White Oak)
- *Jacob Oberholtzer, SABIC* (Illinois C)
- 1:45 PM – 2:00 PM **Networking Break**
- 2:00 PM – 3:45 PM **Technical Sessions**
- *Catalysis I* (Cardinal Room)
- *Process Safety I* (White Oak)
- *Fluid Dynamics and Transport Phenomena II* (Illinois C)
- *Electrochemical Energy Storage* (Illinois B)
- 3:45 PM – 4:00 PM **Networking Break**
- 4:00 PM – 5:45 PM **Technical Sessions**
- *Catalysis II* (Cardinal Room)
- *Process Safety II* (White Oak)
- *Renewable Energy* (Illinois C)
- *Job Search Strategies* (Illinois B)
- 5:45 PM – 6:30 PM **Poster Session** (East Terrace)
- 6:30 PM – 7:00 PM **Mardi Gras Networking Mixer** (East Terrace)
(Sponsored by Reactor Resources)
- 7:00 PM – 7:30 PM **ChE Comedy Standup** (East Terrace)
- *Pete Ludovice, Georgia Tech*

AIChE Midwest Regional Conference Program at a Glance

Wednesday, March 1, 2017

- 7:30 AM - 10:00 AM **Continental Breakfast** (Illinois B)
- 8:15 AM – 9:30 AM **Morning Keynote** (Illinois B)
- *Anne Evens, Chief Executive Officer, Elevate Energy*
- 9:30 AM – 9:45 AM **Networking Break**
- 9:45 AM – 11:30 AM **Technical Sessions**
- *Biomedical Engineering I* (Cardinal Room)
- *Refining I* (White Oak)
- *Sustainability* (Illinois C)
- 11:30 AM – 12:30 PM **Lunch with High School Outreach Participants** (Illinois A and Illinois B)
- 12:45 PM – 1:45 PM **Afternoon Plenary Sessions**
- *Eric Brey, Illinois Tech* (Cardinal Room)
- *James Rawlings, University of Wisconsin* (Illinois C)
- 1:45 PM – 2:00 PM **Networking Break**
- 2:00 PM – 3:45 PM **Technical Sessions**
- *Biomedical Engineering II* (Cardinal Room)
- *Refining II* (White Oak)
- *Carbon Capture* (Illinois C)
- 3:45 PM – 4:00 PM **Networking Break**
- 4:00 PM – 5:45 PM **Technical Sessions**
- *Biomedical Engineering III* (Cardinal Room)
- *Process Control and Optimization* (White Oak)
- *Environmental Compliance and Remediation* (Illinois C)
- *Reaction Engineering* (Illinois B)
- 5:45 PM – 6:30 PM **Local Section Dinner Reception** (Illinois B)
- 6:30 PM – 7:30 PM **Local Section Dinner** (Illinois B)
- 7:30 PM – 8:30 PM **Dinner Keynote** (Illinois B)
- *Mary Ellen Ternes, Earth and Water Group, LLC*

AICHE Midwest Regional Conference Keynote and Plenary Speakers

Tuesday Morning Keynote: 8:15 AM February 28, 2017 (Illinois B)



Sangtae Kim, Distinguished Professor, Purdue University

Presentation Title: **Deliberate Innovation and Public-Private Partnerships: A New Frontier for Translational Research at Land Grant Universities**

Sponsor: **Biomedical, Pharmaceutical and Nano-Engineering**

Biographical Sketch: Sangtae “Sang” Kim is the Jay and Cynthia Ihlenfeld Head of the School of Chemical Engineering at Purdue University. Dr. Kim’s record of leadership in the public and private sectors includes Division Director, NSF Division of Shared Cyberinfrastructure and Vice President for R&D IT at pharmaceutical companies Eli Lilly and Warner Lambert. His faculty career started at the University of Wisconsin

where he made pioneering discoveries in micro-hydrodynamics and coauthored the 1991 book on this same topic.

Dr. Kim is a member of the National Academy of Engineering, a Fellow of the AIChE and AIMBE, a Trustee of the AIChE Foundation and past member of the Science Board of the Food and Drug Administration. His research recognitions include the 2013 Ho-Am Prize in Engineering, AIChE’s Allan P. Colburn Award (1993), and the Award for Initiatives in Research from the National Academy of Sciences (1992). Dr. Kim received concurrent BSc and MSc degrees (1979) from Caltech and his PhD (1983) from Princeton.

Tuesday Afternoon Plenary Session I: 12:45 PM February 28, 2017 (Cardinal Room)



David Barton, Principal Research Scientist, Dow Chemical Company

Presentation Title: **Shale Gas Influence on Industrial Catalysis R&D**

Sponsor: **Catalysis and Reaction Engineering**

Biographical Sketch: David Barton is a Principal Research Scientist in the Inorganic Materials & Heterogeneous Catalysis Capability of Core R&D. In this role, David is responsible for technical project leadership, developing and shaping new projects, and subject matter expert for commercial catalysts/processes. He joined Dow in 1998 in the Heterogeneous Catalysis organization. His work has focused on discovery of novel heterogeneous catalysts for the utilization of alternative feedstocks and

environmentally benign processes including propylene epoxidation, methane activation, higher alcohol synthesis, propane dehydrogenation, phenol dehydration, and carbonylation reactions. He is the recognized technical expert in the fundamentals of catalyst synthesis, in-situ characterization, mechanistic studies, reactor design for catalyst evaluation and scale-up.

Dr Barton is active in numerous research collaborations: UC-Berkeley, University of Minnesota, Northwestern University, Georgia Tech, National Renewable Energy Laboratory, Argonne National Laboratory, Clariant; and Evonik. He has given invited lectures at universities (Univ of Wisc, Ohio State, Univ of Kansas, and Stevens Inst), the Gordon Research Conference for Catalysis (2012, 2016), and national/international conferences (Heraeus Lecture, ACS, AIChE and NACS). He holds a BS in chemical engineering (Summa Cum Laude) is from the University of Minnesota and a PhD from the University of California Berkeley (advisor: Enrique Iglesia). He is the author of 18 US patents, 18 journal publications (>1800 citations), and >90 internal reports.

AIChE Midwest Regional Conference Keynote and Plenary Speakers

Tuesday Afternoon Plenary Session II: 12:45 PM February 28, 2017 (White Oak)



Lisa Long, Director, Office of Engineering Safety, OSHA

Presentation Title: **OSHA's Process Safety Management– Cause and Effect**

Sponsor: **Process Safety and Occupational Health**

Biographical Sketch: *Lisa is currently the Director of the Office of Engineering Safety at OSHA where she works on standards and guidance for issues related to engineering, and represents OSHA on the National Working Group for Chemical Facility Safety and Security. Prior to her work in the Directorate of Standards and Guidance, Lisa was a Safety Engineer in OSHA's Directorate of Enforcement specializing in process safety. Before coming to OSHA in 2007, Lisa worked for the US Chemical Safety Board for 7 years investigating major chemical accidents. Prior to that, Lisa had ten years of experience in the chemical industry working at several different plants in process engineering and production management. Lisa holds a B.S. in Chemical Engineering from Virginia Tech.*

Tuesday Afternoon Plenary Session III: 12:45 PM February 28, 2017 (Illinois C)



Jacob Oberholtzer, Director of Specialties Process Technology, SABIC

Presentation Title: **Contract Manufacturing: Increasing the Speed of Innovation While Managing Market Uncertainty**

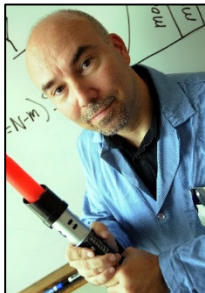
Sponsors: **Fluid Properties, Fluid Dynamics & Transport Phenomena and Process Engineering, Modeling, Optimization & Control**

Biographical Sketch: *Jake Oberholtzer is the Director of Specialties Process Technology for SABIC, a global leader in diversified chemicals that manufactures: chemicals, commodity and high performance plastics, agri-nutrients and metals. Jake leads a global organization that develops and implements new process technologies that deliver unique chemical and resin solutions to a wide variety of markets. This team executes technology development projects in Spain, Netherlands, Saudi Arabia, India, and the US.*

Jake received his bachelor's degree from Purdue University in 1995, and holds multiple patents. He has a 20+ year career with General Electric Plastics and SABIC, developing multiple technologies for polycarbonate and polyetherimide processes, and guiding them through to commercial implementation. He lives in Evansville, Indiana with his wife Stephanie, son and daughter.

AICHE Midwest Regional Conference Keynote and Plenary Speakers

Tuesday Evening Keynote: 7:00 PM February 28, 2017 (East Terrace)



Pete Ludovice, *Comedian and Associate Professor, Georgia Tech*

Presentation Title: **Feel the Power of the Dork Side**

Sponsor: **Young Professionals Committee (YPC), Chicago Section**

Biographical Sketch: *After a Ph.D. from M.I.T. and postdoctoral studies at IBM, NASA and ETH-Zürich, Professor Ludovice joined the School Chemical & Biomolecular Engineering at the Georgia Institute of Technology. His research focuses on computer simulation of synthetic biological macromolecules and block copolymers.*

In the world of standup comedy, he is known as Dr. Pete and performs at colleges, clubs, theaters and conferences across the U.S. He is currently touring with his one-man show "Feel the Power of the Dork Side," a humorous look at science & engineering and their practitioners. It is the funniest STEM outreach program you will ever see. He also lectures on the value of humorous improvisation to catalyze technical innovation. He is currently funded by the National Science Foundation to explore the use of humor to improve engineering education. Dr. Pete also hosts a weekly radio program entitled "Inside the Black Box," whose motto is "Science, only funnier," and "Consilience with Pete & Charlie," a podcast on the intersection of science and the humanities. He also directs a Living/Learning Community at Georgia Tech on student innovation and entrepreneurship.

Wednesday Morning Keynote: 8:15 AM March 1, 2017 (Illinois B)



Anne Evens, *Chief Executive Officer, Elevate Energy*

Presentation Title: **Doing Good and Doing it Well: Smarter Energy Use for All**

Sponsor: **Energy and Sustainability**

Biographical Sketch: *Anne Evens is the Chief Executive Officer of Elevate Energy. In this role she manages a growing staff of over 100 while providing oversight for programs related to energy efficiency retrofits in affordable housing buildings, energy performance of commercial and residential buildings, regional energy and climate planning, as well as smart grid and dynamic electricity pricing initiatives.*

An engineer and public health scientist by training, she easily navigates the intersection of energy efficiency and healthy environments to develop programs that provide comfortable, affordable, and safe living spaces. She was the architect of Energy Impact Illinois and Energy Savers, led the implementation of dynamic electricity pricing for ComEd and Ameren, and has been a leader of regional green and healthy homes initiatives for 18 years. Anne sits on Executive Committee of the Board of the National Center for Healthy Housing and she's an alumni of Goldman Sachs 10,000 Small Businesses program. In addition, she acted as lead researcher on the Chicago Climate Action Plan and the Regional Energy Plan for the Chicago Metro Agency for Planning (CMAP). Anne has a PhD in Environmental and Occupational Health Sciences from the University of Illinois at Chicago, a MS in Energy Management and Appropriate Technology from the University of Pennsylvania and a BS in Applied Engineering and Physics from Cornell University.

AIChE Midwest Regional Conference Keynote and Plenary Speakers

Wednesday Afternoon Plenary Session I: 12:45 PM March 1, 2017 (Cardinal Room)



Eric Brey, Professor of Biomedical Engineering, Illinois Tech

Presentation Title: **Engineering Vascularized Tissues**

Sponsor: **Biomedical, Pharmaceutical and Nano-Engineering**

Biographical Sketch: Eric Brey is Duchossois Leadership Professor of Biomedical Engineering at the Illinois Institute of Technology and Research Health Scientist at Hines Veterans Administration Hospital. He received B.S. and MEng degrees in Chemical Engineering from the University of Louisville and a Ph.D. in Chemical Engineering from Rice University. He served as a National Institutes of Health post-doctoral Fellow in the Departments of Surgery and Cell Biology at Loyola University

Medical Center. Professor Brey has contributed to new methods for engineering vascularized tissues and imaging methods for analysis of engineered tissues. Professor Brey's research has resulted in over 100 peer-reviewed publications, 9 book chapters and one book. He is a fellow of the American Institute for Medical and Biological Engineers. He has received numerous awards, including the 2015 TERMIS Educational Award, a Young Investigator Award from the International Society of Applied Cardiovascular Biology, and a Sigma Xi Award for Excellence in Research.

Wednesday Afternoon Plenary Session II: 12:45 PM March 1, 2017 (Illinois C)



James Rawlings, Professor, University of Wisconsin

Presentation Title: **Application of Economic Model Predictive Control to Large-Scale HVAC Energy Systems**

Sponsor: **Process Engineering, Modeling, Optimization & Control**

Biographical Sketch: James Rawlings received the BS from the University of Texas and the PhD from the University of Wisconsin, both in Chemical Engineering. He spent one year at the University of Stuttgart as a NATO postdoctoral fellow and then joined the faculty at the University of Texas. He moved to the University of Wisconsin in 1995 and is currently the Steenbock Professor of Engineering and W. Harmon Ray

Professor of Chemical and Biological Engineering and the co-director of the Texas-Wisconsin-California Control Consortium (TWCCC). Professor Rawlings's research interests are in the areas of chemical process modeling, monitoring and control, nonlinear model predictive control, moving horizon state estimation, and molecular-scale chemical reaction engineering. He has written numerous research articles and coauthored three textbooks: "Modeling and Analysis Principles for Chemical and Biological Engineers" (2013) with Mike Graham, "Model Predictive Control: Theory and Design" (2009), with David Mayne, and "Chemical Reactor Analysis and Design Fundamentals," 2nd ed. (2012), with John Ekerdt.

In recognition of his research and teaching, Professor Rawlings has received several awards including: "Doctor technices honoris causa" from the Danish Technical University; The inaugural High Impact Paper Award from the International Federation of Automatic Control; The Ragazzini Education Award from the American Automatic Control Council; The Computing in Chemical Engineering Award and Excellence in Process Development Award from the AIChE; The Chancellor's Distinguished Teaching Award and the Byron Bird Award for Excellence in a Research Publication, from the University of Wisconsin; He is a fellow of IFAC, IEEE, and AIChE. In 2016 Professor Rawlings was elected to the National Academy of Engineering.

AIChE Midwest Regional Conference Keynote and Plenary Speakers

Wednesday Dinner Keynote: 7:30 PM March 1, 2017 (Illinois B) – Ticketed Event



Mary Ellen Ternes, *Environmental Attorney, Earth and Water Group, LLC*

Presentation Title: **Adjusting to EPA Policy Changes with the new Trump Administration**

Sponsor: **Environmental Compliance and Remediation**

Biographical Sketch: *With more than 30 years of experience regarding environmental projects throughout the United States, Mary Ellen Ternes began her career as a chemical engineer with U.S. EPA. With her unique background, Ternes specializes in Clean Air Act and hazardous waste management and remediation issues. She also assists with solid and hazardous waste determinations, permitting, regulatory interpretation and enforcement matters. In addition, Ternes has developed a significant practice in drinking water and wastewater treatment, assisting clients with water quality permitting and discharge regulation, such as wetlands and storm water issues, as well as Safe Drinking Water Act permitting and compliance.*

She is listed in Chambers USA Guide to America's Leading Lawyers for Business; Best Lawyers, where she was also named Oklahoma City Environmental Lawyer of the Year in 2011 and 2016; Oklahoma Super Lawyers, where she was selected for inclusion in Top 25: Women Oklahoma Super Lawyers in 2009-12, 2013 and 2015; International Who's Who of Environment Lawyers; Martindale Hubbell AV; and is an American College of Environmental Lawyers (ACOEL) Regent and Fellow. Her specialized knowledge of air quality and hazardous waste issues has allowed Ternes to significantly contribute to both civic and professional organizations through various leadership positions including the SEER and Business Law Section, ACOEL, and the AIChE. Ternes received her Juris Doctor with high honors from the University of Arkansas at Little Rock and her Bachelor of Engineering in chemical engineering from Vanderbilt University.

AIChE Midwest Regional Conference

Session Presentations

Tuesday, February 28, 2017

Tuesday Morning Keynote Session

Tuesday, February 28, 2017 (Illinois B)

8:15 AM **LS Chair's Welcome**

Tom King (UOP/Honeywell)

8:25 AM **Keynote Introduction**

Hamid Arastoopour (Illinois Institute of Technology)

8:30 AM **Deliberate Innovation and Public-Private Partnerships: A New Frontier for Translational Research at Land Grant Universities**

Sangtae Kim (Purdue University)

Biofuels

Tuesday, February 28, 2017 (Cardinal Room, **TueA1**)

Chair: *Victor Sussman* (Dow Chemical)

Co-Chair: *Mustafa Cagdas Ozturk* (Illinois Tech)

9:45 AM **Comprehensive Generation of Libraries of Lignin Structures as an Exploration of Lignin Space** (TueA1a)

Lauren Dellon, Linda Broadbelt (Northwestern University), *Wenjun Li, Ross Mabon* (ExxonMobil)

10:05 AM **Hydrothermal Liquefaction (HTL) of High-ash Algal Biomass: the Effect of Ash Contents in HTL Reactions** (TueA1b)

Wan-Ting Chen (University of Illinois at Urbana-Champaign)

10:25 AM **Organic Waste Management: Modeling and Decision-Making Strategies** (TueA1c)

Apoorva Sampat, Victor Zavala (University of Wisconsin Madison)

10:45 AM **Using the Best of Biology and Chemistry for Sustainable Solutions** (TueA1d)

Mike Schultz (PTI Global Solutions)

11:05 AM **Application of a Simultaneous Biogas Production and Upgrading Process for Renewable Methane Production using Municipal Sludge in Laboratory- and Pilot-Scale Digesters** (TueA1e)

Meltem Urgan-Demirtas (Argonne National Laboratory)

Process Modeling and Optimization

Tuesday, February 28, 2017 (White Oak, **TueA2**)

Chair: *Belma Demirel* (Guidepoint)

Co-Chair: *Jeffrey M. Zalc* (BP)

9:45 AM **Semi-Empirical Modeling of Capacity Fade: A Practical Approach for Battery Pack Manufacturers** (TueA2a)

Bader Jarai, Stephen K. Wilke, Ben Schweitzer, Siddique Khateeb, Said Al-Hallaj (AllCell Technologies)

10:05 AM **Mathematical Modeling and Simulation of Nucleation and Growth of Crystalline Polymorphs** (TueA2b)

Anish Dighe, Meenesh Singh (University of Illinois at Chicago)

10:25 AM **Modelling and Analysis of Solvent Drying in Lithium Battery Electrodes** (TueA2c)

Naresh Susarla, Shabbir Ahmed, Dennis Dees (Argonne National Laboratory)

10:45 AM **Molecular Modeling of Liquid-Liquid Phase Equilibria in Ternary Systems** (TueA2d)

Xiaoyu Wang, Sohail Murad (Illinois Tech)

11:05 AM **A Graph-Based Framework for Hierarchical Modeling and Optimization of Complex Systems** (TueA2e)

Jordan Jalving, Victor Zavala (University of Wisconsin-Madison)

Fluid Dynamics and Transport Phenomena I

Tuesday, February 28, 2017 (Illinois C, **TueA3**)

Chair: *Lewis E. Wedgewood* (University of Illinois at Chicago)

Co-Chair: *Matthew Liberatore* (University of Toledo)

9:45 AM **Evaluation of an Oscillatory Baffled Reactor for Crystallization Systems** (TueA3a)

Claire Y. Liu, Zoltan Nagy (Purdue University), *Alastair Barton, Paul Firth* (Alconbury Weston Ltd)

10:05 AM **Mixing of Viscous, Non-Newtonian Fluids** (TueA3b)

Richard K. Grenville, Jason J. Giacomelli (Philadelphia Mixing Solutions Ltd.)

10:25 AM **Alternating Avalanches of Wetted Particles in Quasi-2D Heap Flow** (TueA3c)

John S. Hruska, Hongyi Xiao, Julio M. Ottino, Richard M. Lueptow, Paul B. Umbanhowar (Northwestern University)

10:45 AM **A Brownian Dynamics Study on Ferrofluids under Nonuniform Magnetic Fields using an Iterative Constraint Method to Satisfy Maxwell's Equations** (TueA3d)

Sean Dubina, Lewis Wedgewood (University of Illinois at Chicago)

11:05 AM **A Universal Interpretation for Transient Nonlinear Rheology** (TueA3e)

Jiho Choi, Simon A. Rogers (University of Illinois at Urbana-Champaign)

Tuesday Plenary Session I

Tuesday, February 28, 2017 (Cardinal Room)

12:45 PM Plenary Introduction

Victor Sussman (Dow Chemical)

12:55 PM Shale Gas Influence on Industrial Catalysis R&D

David G. Barton (Dow Chemical)

Tuesday Plenary Session II

Tuesday, February 28, 2017 (White Oak)

12:45 PM Plenary Introduction

Brenton Cox (Exponent)

12:55 PM OSHA's Process Safety Management– Cause and Effect

Lisa Long (OSHA)

Tuesday Plenary Session III

Tuesday, February 28, 2017 (Illinois C)

12:45 PM Plenary Introduction

Evelyn Pearson (SABIC)

12:55 PM Contract Manufacturing: Increasing the Speed of Innovation While Managing Market Uncertainty

Jacob Oberholtzer (SABIC)

Catalysis I

Tuesday, February 28, 2017 (Cardinal Room, **TueB1**)

Chair: *Feng Xu* (UOP/Honeywell)

Co-Chair: *Masoudeh Ahmadi* (University of Louisville)

2:00 PM Durability Study of Electrocatalysts for Oxygen

Reduction Reaction Using In Situ Quick Scanning Extended X-Ray Absorption Fine Structure (TueB1a)

Thao Ngo, Hong Yang, (University of Illinois at Urbana-Champaign), *Chengjun Sun* (Argonne National Laboratory)

2:20 PM A Mechanistic Study of the Validity of Using Hydroxyl Radical Probes to Characterize

Electrochemical Advanced Oxidation Processes (TueB1b)

Yin Jing, Brian P Chaplin (University of Illinois at Chicago)

2:40 PM Oxidative Dehydrogenation of Ethane to Ethylene over a novel perovskite (TueB1c)

Maasoomeh Jafari, Jason Trembly (Ohio University)

3:00 PM Composite Metal Oxide/Zeolite Monoliths for Catalysts in Alcohols Dehydrations (TueB1d)

Xin Li, Fateme Rezaei, Ali Rowanghi (Missouri University of Science and Technology)

3:20 PM The Effects of Zr Promotion on Co Dehydrogenation Catalysts (TueB1e)

Yiqing Zhao, Adam S. Hock (Illinois Institute of Technology), *Hyuntae Sohn, Massimiliano Delferro* (Argonne National Laboratory)

Process Safety I

Tuesday, February 28, 2017 (White Oak, **TueB2**)

Chair: *Scott M. Wozniak* (UOP/Honeywell)

Co-Chair: *Sonny Sachdeva* (PSRG)

2:00 PM Don't Buy That New Building! (TueB2a)

Ernesto Gasulla (Baker Risk Engineering and Risk Consultants)

2:20 PM Why Risk It?: The Usage and Pitfalls of Risk Based Criteria (TueB2b)

Ryan Terry, Charles King (PSRG)

2:40 PM Combining Traditional UOP HAZOP/PHA Analysis with Dynamic Simulation A New Process Safety / Risk Assessment Tool (TueB2c)

Scott M. Wozniak (UOP/Honeywell)

3:00 PM Evaluating Fire Hazards in Oxygen Enriched Atmospheres (TueB2d)

Sean J. Dee (Exponent)

3:20 PM Analysis of Refinery Pressure Vessels to Prevent Brittle Fracture (TueB2e)

Jerry Wilks (CITGO Petroleum Inc.)

Fluid Dynamics and Transport Phenomena II

Tuesday, February 28, 2017 (Illinois C, **TueB3**)

Chair: *Raj Venuturumilli* (BP)

Co-Chair: *Abdelaziz Lafi Khlaifat* (Abu Dhabi Polytechnic)

2:00 PM Optimization of Binder Addition for Spherical Agglomeration in Oscillatory Baffled Crystallizers (TueB3a)

Kanjakha Pal, Joseph A. Oliva, Ramon Peña, Zoltan K. Nagy (Purdue University), *Christopher L. Burcham, Daniel J. Jarmer* (Eli Lilly and Company)

2:20 PM Visualizations of Local Hydrodynamics for Airlift Reactor: 3D Velocity Domain (TueB3b)

Laith Salim Sabri, Abbas Sultan (Missouri University of Science and Technology)

2:40 PM 4-phase Flow Model for Natural Gas Production from an Unconsolidated Hydrate Reservoir (TueB3c)

Deniz Hinz (Illinois Tech)

3:00 PM Size Segregation in Sheared 3D Granular Flows (TueB3d)

Adithya Shankar, Alex M. Fry, Paul B. Umbanhowar, Julio M. Ottino, Richard M. Lueptow (Northwestern University)

3:20 PM Momentum Transfer with Co-axially Placed Twisted-tape Disc Assembly as Turbulence Promoter in Circular Conduit (TueB3e)

K.Siva Kumar (Samara University), *V.Nageswara Rao, M.Gangadhar* (Andhra University)

Electrochemical Energy Storage

Tuesday, February 28, 2017 (Illinois B, **TueB4**)

Chair: *Jie Xu* (University of Illinois at Chicago)

Co-Chair: *Bader Jarai* (AllCell Technologies)

2:00 PM **Material Design of Low-Dimensional Carbon**

Nanomaterials for Rapid Energy Storage (TueB4a)

Alex Pak (University of Chicago), *Gyeong S. Hwang* (University of Texas at Austin)

2:20 PM **A Rechargeable Membraneless Enzymatic Fuel Cell for use as an Implantable Device** (TueB4b)

Alireza Ahmadianyazdi, *Roberto Preite*, *Jie Xu* (University of Illinois at Chicago), *Ross D. Milton*, *David P. Hickey*, *Shelley D. Minteer* (University of Utah)

2:40 PM **Development of Advanced MnO₂ Nanostructures for Highly Rechargeable Cathodes; Bi Doping and Electrochemical Performance in Aqueous Electrolyte** (TueB4c)

Elahe Moazzen (Illinois Tech)

3:00 PM **Thermal Runaway Mitigation in Lithium-ion Battery Pack using Phase Change Composite Material** (TueB4d)

Siddique Khateeb, *Stephen Wilke*, *Gregory Wilk*, *Said Al-Hallaj* (AllCell Technologies)

3:20 PM **Life Cycle Analysis of the Production of Rare Earth Metals and Alloys via Electrowinning** (TueB4e)

Ehsan Vahidi, *Fu Zhao* (Purdue University)

Catalysis II

Tuesday, February 28, 2017 (Cardinal Room, **TueC1**)

Chair: *Belma Demirel* (Guidepoint)

Co-Chair: *Wan-Ting Chen* (University of Illinois at Urbana-Champaign)

4:00 PM **Oxygen Evolution Reaction Kinetics on Porous LaCoO₃ Perovskite** (TueC1a)

Jaemin Kim, *Pei-Chieh Shih*, *Xuxia Chen*, *Boquan Li*, *Hong Yang* (University of Illinois at Urbana-Champaign)

4:20 PM **Influence of Self-Assembling Redox Mediators on Charge Transfer at Hydrophobic Electrodes** (TueC1b)

Timothy J. (Tim) Smith, *Nicholas L. Abbott*, *Chenxuan Wang* (University of Wisconsin - Madison)

4:40 PM **Fluorination of Boron-doped Diamond Film Electrodes for Minimization of Perchlorate Formation** (TueC1c)

Pralay Gayen, *Brian P Chaplin* (University of Illinois at Chicago)

5:00 PM **The Effect of Support Morphology on Co/CeO₂ Catalysts for the Reduction of NO by CO** (TueC1d)

Louisa Savereide, *Justin M. Notestein* (Northwestern University)

5:20 PM **Development of 3D-Printed Monolithic Adsorbents and Evaluation of CO₂ Adsorption Performance** (TueC1e)

Harshul Thakkar, *Harshul Thakkar*, *Stephen Eastman*, *Amit Hajari*, *Ali Rownaghi*, *Fateme Rezaei* (Missouri University of Science and Technology)

Process Safety II

Tuesday, February 28, 2017 (White Oak, **TueC2**)

Chair: *Brenton Cox* (Exponent)

Co-Chair: *Brian Slusar* (BP)

4:00 PM **Maintaining a Positive Process Safety Culture** (TueC2a)

Sonny Sachdeva (PSRG)

4:20 PM **Near Misses and Where to (Not) Find Them** (TueC2b)

Mike Moosemiller (Baker Risk Engineering and Risk Consultants)

4:40 PM **Emergency Isolation Valves (EIVs) and its impact on Process Safety** (TueC2c)

Scott M. Wozniak (UOP/Honeywell)

5:00 PM **Hazardous Area Electrical Classification/Zoning and its Role in a Process Safety Program** (TueC2d)

Stephen Garner, *Justin Bishop*, *Jay Prigmore*, *Brenton Cox* (Exponent)

5:20 PM **Lessons Learned During the Hydraulic Testing of Firewater Systems** (TueC2e)

Nicolas Guzman (Baker Risk Engineering and Risk Consultants)

Renewable Energy

Tuesday, February 28, 2017 (Illinois C, **TueC3**)

Chair: *Diane Graziano* (Argonne National Laboratory)

Co-Chair: *Shweta Singh* (Purdue University)

4:00 PM **Evaluate Performance of a Phase Change Composite (PCC) Material as an Energy Storage Medium for Cold Thermal Energy Storage (TES) Applications** (TueC3a)

Ahmed Aljehani (University of Illinois at Chicago), *Siddique Khateeb*, *Said Al-Hallaj* (AllCell Technologies)

4:20 PM **Operation of Grid Scale Energy Storage Systems: Comparison of Multi-Stage Stochastic Programming and EMPC** (TueC3b)

Oluwasanmi Adeodu, *Donald J Chmielewski* (Illinois Tech)

4:40 PM **Stochastic Optimization of Energy Storage Systems** (TueC3c)

Ranjeet Kumar, *Victor M. Zavala* (University of Wisconsin-Madison)

5:00 PM **Stochastic Optimization to Reduce Cost of Energy for Parabolic Trough Solar Power Plant** (TueC3d)

Urmila Diwekar (Vishwamitra Research Institute), *Dev Parikh* (University of Illinois at Chicago)

5:20 PM **Clean Energy & Sustainable Water Treatment** (TueC3e)

Suresh Jambunathan (Veolia)

Job Search Essentials

Tuesday, February 28, 2017 (Illinois B, **TueC4**)

Chair: *Akshar Patel* (Illinois Tech)

4:00 PM Job Searching Essentials: Utilizing Technology to
Strengthen Your Job Search (**Laptops Recommended**)
(TueC4a)

Akshar Patel (Illinois Tech)

Mardi Gras Poster Session and Social

Tuesday, February 28, 2017 (East Terrace)

Chair: *Rachel Brenc* (LanzaTech)

5:45 PM **Poster Session**

Poster Session Chair: *Meenesh R. Singh* (University of
Illinois at Chicago)

Poster Session Co-Chair: *Aditya Prajapati* (University of
Illinois at Chicago)

6:30 PM **Networking Mixer**

7:00 PM **Keynote Introduction**

Rachel Brenc (Lanzatech)

7:05 PM **ChE Comedy Standup “Feel the Power of the Dork
Side”**

Pete Ludovice (Georgia Tech)

AIChE Midwest Regional Conference

Session Presentations

Wednesday, March 1, 2017

Wednesday Morning Keynote Session

Wednesday, March 1, 2017 (Illinois B)

8:15 AM **Recognition for Volunteers**

Adam Kanyuh (UOP/Honeywell)

8:25 AM **Keynote Introduction**

Dan Hryhorczuk (University of Illinois at Chicago)

8:30 AM **Doing Good and Doing it Well: Smarter Energy Use for All**

Anne Evens (Elevate Energy)

Biomedical Engineering I

Wednesday, March 1, 2017 (Cardinal Room, **WedA1**)

Chair: *Jesper Madsen* (University of Chicago)

Co-Chair: *Daniel Young* (Illinois Tech)

9:45 AM **Molecular Modeling as a Screening Tool to Separate**

Enantiomers of Chiral Compounds Using Polysaccharide-based Chiral Stationary Phases for Orphan Drugs

(WedA1a)

Binwu Zhao, Priyanka Sharma (Orochem Technologies Inc.), *Xiaoyu Wang, Sohail Murad* (Illinois Tech)

10:05 AM **Absolute EPR Oxygen Imaging for the Assessment of Oxygen Pressure and Local Oxygen Consumption Rate in Tissue Grafts** (WedA1b)

Mrignayani Kotecha (University of Illinois at Chicago), *Boris Epel, Howard Halpern* (University of Chicago)

10:25 AM **Tunable Gradient Hydrogel for Vascularization**

(WedA1c)

Yusheng He, Georgia Papavasiliou (Illinois Tech)

10:45 AM **Probiotic Escherichia Coli Outcompetes Pathogens During Biofilm Formation** (WedA1d)

Kuili Fang, Seok Hoon Hong (Illinois Tech)

11:05 AM **Development of Novel Metabolite-responsive Transcriptional Factors via High-throughput, Combinatorial Protein Fusion** (WedA1e)

Peter Y. Su, Joshua N. Leonard, Keith E.J. Tyo, Andrew K.D. Younger (Northwestern University)

Refining I

Wednesday, March 1, 2017 (White Oak, **WedA2**)

Chair: *Sravan Pappu* (Johnson Matthey)

Co-Chair: *Juan Salazar* (UOP//Honeywell)

9:45 AM **BP Whiting Refinery Modernization Project** (WedA2a)

John Bartels (BP)

10:05 AM **Sulfur Unit Equipment Problems and Low Silicon Carbon Steel Corrosion** (WedA2b)

Jerry Wilks (CITGO Petroleum Inc.)

10:25 AM **Coking Mechanism in Refinery Fractionator Wash Beds** (WedA2c)

Lowell Pless (Johnson Matthey Process Technologies), *Gregory A Cantley, James F Johnson* (Marathon Petroleum Corporation)

10:45 AM **Impeller Performance Characteristics: Flow, Shear and Efficiency** (WedA2d)

Richard K. Grenville, Jason J. Giacomelli (Philadelphia Mixing Solutions Ltd.)

11:05 AM **Flow Dynamics in High-velocity and -solids Flux Circulating Fluidized Bed Risers of FCC Catalyst Particles** (WedA2e)

Allan Issangya, Ray Cocco, Reddy SB Karri (Particulate Solid Research, Inc)

Sustainability

Wednesday, March 1, 2017 (Illinois C, **WedA3**)

Chair: *Rae Mindock* (Rae Mindock Consulting)

Co-Chair: *Elena Savona* (Elevate Energy)

9:45 AM **Mixing of Red Sea and Dead Sea Waters** (WedA3a)

Abdelaziz Lafi Khlaifat, Mufeed Batarseh, Khalid Nawayseh, Jamal Amira, Emad Talafeha (Abu Dhabi Polytechnic)

10:05 AM **A review of the book on "Energy: Sources, Utilization, Legislation, Sustainability, Illinois as Model State" G.A. Mansoori, N. Enayati and L.B. Agyarko** (WedA3b)

L. Barnie Agyarko, G.Ali Mansoori (University of Illinois at Chicago)

10:25 AM **Squeezing More Out of C&I Energy Audit Programs: How to Increase Conversion Rates towards Savings** (WedA3c)

Chris Philbrick (CB&I)

10:45 AM **Emerging Technology for Buildings – Predictive Optimization** (WedA3d)

Dan Docel (BuildingIQ Inc.)

11:05 AM **Recent Developments in Modeling CHP in DOE's eQuest Software** (WedA3e)

W. Ryan, A. Crino, F. Cicciarella, P. Galli (University of Illinois at Chicago)

Wednesday Plenary Session I

Wednesday, March 1, 2017 (Cardinal Room)

12:45 PM **Plenary Introduction**

Vince Turitto (Illinois Tech)

12:55 PM **Engineering Vascularized Tissues**

Eric Brey (Illinois Tech)

Wednesday Plenary Session II

Wednesday, March 1, 2017 (Illinois C)

12:45 PM Plenary Introduction

Jeffrey Kantor (University of Notre Dame)

12:55 PM Application of Economic Model Predictive Control to Large-Scale HVAC Energy Systems

James Rawlings (University of Wisconsin Madison)

Biomedical Engineering II

Wednesday, March 1, 2017 (Cardinal Room, **WedB1**)

Chair: *Atul Khare* (Pfanstiehl)

Co-Chair: *Ying Liu* (University of Illinois at Chicago)

2:00 PM Use of Acoustic Microstreaming for Drastic Sensing Enhancement (WedB1a)

Dmitry Gritsenko, Andrea De Vellis, Yang Lin, Jie Xu (University of Illinois at Chicago)

2:20 PM Engineering Red Blood Cell-Based Biosensors for Physiological Monitoring (WedB1b)

Taylor Dolberg, Kelly Schwarz, Joshua Leonard (Northwestern University)

2:40 PM Cancer Cell Hyperactivity and Membrane Dipolarity Monitoring via Raman Mapping of Interfaced Graphene: Towards Non-Invasive Cancer Diagnostics (WedB1c)

Bijentimala Keisham, Arron Cole, Phong Nguyen, Ankit Mehta, Vikas Berry (University of Illinois at Chicago)

3:00 PM Estimation of Oxygen Consumption for People with Type 1 Diabetes Based on Exercise Pattern (WedB1d)

Sediqeh Samadi, Nicole Frantz, Kamuran Turksoy, Ali Cinar (Illinois Tech)

3:20 PM Controlled Delivery of a Pro-Angiogenic Peptide from Hydrogel Nanoparticles for Therapeutic Neovascularization (WedB1e)

Daniel Young, Georgia Papavasiliou (Illinois Tech)

Refining II

Wednesday, March 1, 2017 (White Oak, **WedB2**)

Chair: *Hadjira Iddir* (UOP/Honeywell)

Co-Chair: *Allan Issangya* (PSRI)

2:00 PM Production of Renewable Diesel and Jet Fuels (WedB2a)

Henrik Rasmussen (Haldor Topsoe Inc.)

2:20 PM Redefining Operability in Hydrogen Plants (WedB2b)

Abigail Sup, Susan Simpson (Johnson Matthey)

2:40 PM Integrating Economic MPC and RTO (WedB2c)

Douglas A. Allan, James B. Rawlings (University of Wisconsin Madison)

3:00 PM Natural Gas Sweetening and Dehydration Process Simulation and Optimization using MEG Solution (WedB2d)

Firas Alnili (Curtin University of Technology)

3:20 PM Remaining Life Assessments of Refinery Furnace Tubes Using Omega Simulations (WedB2e)

Jerry Wilks (CITGO Petroleum Inc)

Carbon Capture

Wednesday, March 1, 2017 (Illinois C, **WedB3**)

Chair: *Naresh Susarla* (Argonne National Laboratory)

Co-Chair *Nishith R. Patel* (University of Wisconsin)

2:00 PM CO₂ Capture in a Multistage CFB with Sorbent Regeneration using Waste Heat (WedB3a)

Dimitri Gidaspow (Illinois Tech), *Sutthichai Boonprasop, Benjapon Chalermssinuwat, Pornpote Piumsomboon* (Chulalongkorn University)

2:20 PM Integrated Process of CO₂ Capture and Conversion to Alkyl Carbonate (WedB3b)

C. B. Panchal, John C. Prindle, Rachel Strutz, Richard Doctor (E3Tec Service, LLC)

2:40 PM 3D-Printed Monoliths for CO₂ Removal from Enclosed Environments (WedB3c)

Harshul Thakkar (Missouri University of Science and Technology)

3:00 PM Efficiency of Artificial Photosynthetic Devices for Integrated Carbon Capture and Reduction (WedB3d)

Aditya Prajapati, Meenesh R. Singh (University of Illinois at Chicago)

3:20 PM Simultaneous Adsorption of SO_x, NO_x, and CO₂ on Bimetallic MOFs (WedB3e)

Amit Hajari, Harshul Thakkar, Shane Lawson (Missouri University of Science and Technology)

Biomedical Engineering III

Wednesday, March 1, 2017 (Cardinal Room, **WedC1**)

Chair: *Mrignayani Kotecha* (University of Illinois at Chicago)

Co-Chair: *Claire Y. Liu* (Purdue University)

4:00 PM Polyphosphate Loaded Poly(ethylene) Glycol Hydrogel Nanoparticles Targeting Bacterial Collagenase Suppression for Intestinal Healing (WedC1a)

Dylan Nichols, Fouad Teymour, Georgia Papavasiliou (Illinois Tech), *Melissa Arron, Olga Zaborina, John Alverdy* (University of Chicago)

4:20 PM Designing a Microfluidic Platform for High-Throughput Screening of Pharmaceutical Polymorphs (WedC1b)

Paria Coliaie, Meenesh R. Singh (University of Illinois at Chicago)

4:40 PM Mechanistic Study on Co-agglomeration of Active Pharmaceutical Ingredients and Excipients (WedC1c)

Kanjakha Pal, Ramon Peña, Zoltan K. Nagy (Purdue University), *Christopher L. Burcham, Daniel J. Jarmer* (Eli Lilly and Company)

5:00 PM Multiscale Models for Insulin Secretion and Autoimmunity in Islets of Langerhans (WedC1d)

Mustafa Cagdas Ozturk, Qian Xu, Ali Cinar (Illinois Tech)

5:20 PM Nip the Bud: Aggregation Hierarchy of Influenza M2 Scission Proteins in Membrane Necks (WedC1e)

Jesper J. Madsen, John M. A. Grime, Gregory A. Voth (University of Chicago)

Process Control and Optimization

Wednesday, March 1, 2017 (White Oak, **WedC2**)

Chair: *Yankai Cao* (University of Wisconsin Madison)

Co-Chair: *Ha Dinh* (UOP/Honeywell)

4:00 PM **Model Predictive Control for Tracking Zones with Discrete Actuators** (WedC2a)

Nishith R. Patel, James B. Rawlings (University of Wisconsin Madison)

4:20 PM **Multi-level Supervision and System Modification for Artificial Pancreas** (WedC2b)

Jianyuan Feng, Ali Cinar (Illinois Tech)

4:40 PM **The Extended and Unscented Kalman Filtering Methods for Real-Time Estimation of Plasma Insulin Concentration in an Artificial Pancreas System** (WedC2c)

Iman Hajizadeh, Kamuran Turksoy, Ali Cinar (Illinois Tech),
Eda Cengiz (Yale University)

5:00 PM **Synthesizing optimal nuclear waste blends using Multi-agent optimization framework** (WedC2d)

Berhane Gebreslassie, Urmila M. Diwekar (Vishwamitra Research Institute)

5:20 PM **On the Alleviation of Inventory Creep in Process Scheduling** (WedC2e)

Yazeed Aleissa, Donald J Chmielewski (Illinois Tech)

Environmental Compliance and Remediation

Wednesday, March 1, 2017 (Illinois C, **WedC3**)

Chair: *Amid Khodadoust* (University of Illinois at Chicago)

Co-Chair: *Jarad Champion* (Geosyntec Consultants)

4:00 PM **Optimizing Spatio-temporal Sensor Placement for Nutrient Monitoring: Algorithmic Framework** (WedC3a)

Urmila Diwekar, Kinnar Sen (Vishwamitra Research Institute)

4:20 PM **Integrated Livestock Wastewater Treatment System for Simultaneous Destruction of Bioactive Microconstituents from Biosolids and Bioenergy Recovery** (WedC3b)

Young Hwan Shin, Peng Zhang, Michael Plewa, Yuanhui Zhang (University of Illinois at Urbana - Champaign),
Lance Schideman, John Scott (Illinois Sustainable Technology Centre)

4:40 PM **Hierarchical Mixed-Metal Oxide Adsorbents for Formaldehyde Abatement** (WedC3c)

Anirudh Krishnamurthy (Missouri University of Science and Technology)

5:00 PM **Coal Power Plant Compliance with New USEPA Effluent Limit Guidelines Rule - Water Balance Study and Computational Model Development** (WedC3d)

Jarad L. Champion, Mike Hickey, Bruce Sass, Brianna Wallace, Allison Kreinberg, Chriso Petropoulou (Geosyntec Consultants)

5:20 PM **Combined Flue Gas Cleanup Process for Simultaneous Removal of SO_x, NO_x, and CO₂—A Techno-Economic Analysis** (WedC3e)

Amit Hajari, Marktus Atanga, Jeremy L. Hartvigsen (Missouri University of Science and Technology)

Reaction Engineering

Wednesday, March 1, 2017 (Illinois B, **WedC4**)

Chair: *Michael Driscoll* (Stepan)

Co-Chair: *Brian Slusar* (BP)

4:00 PM **Conveyer Transport System as a Continuous Process for the Production of Supported and Structurally Complex Catalysts** (WedC4a)

Kai-Chieh Tsao, Hong Yang (University of Illinois at Urbana-Champaign)

4:20 PM **Engineering Porous Polymer Hollow Fiber Flow Reactor for Sustainable C-H Functionalization** (WedC4b)

Yingxin He, Ali Rownaghi, Fateme Rezaei (Missouri University of Science and Technology)

4:40 PM **Computational Fluid Dynamics of Slurry Bubble Column Reactor Operating at High Pressure** (WedC4c)

Mohammed Al Saraj (Ministry of Higher Education and Scientific Research)

5:00 PM **Developing a Novel Hydrothermal Process for Continuous Manufacturing of Thermochromic VO₂ Nanomaterials** (WedC4d)

Xiaojie (Alina) Yan, Ralph T. Muehleisen, Leah B. Guzowski, Jie Li (Argonne National Laboratory),
Sam Dull (Northwestern University),
Yungang Sun (Temple University)

5:20 PM **Detailed Modeling of LDPE Autoclave Reactors** (WedC4e)

Alejandro Cano, Thomas Lafitte, Shashank Maindarkar (Process Systems Enterprise)

Local Section Dinner and Keynote – Ticketed Event

Wednesday, March 1, 2017 (Illinois B)

5:45 PM **Reception**

6:30 PM **Dinner**

7:30 PM **Local Section Announcements**

Tom King (UOP/Honeywell)

7:40 PM **Keynote Introduction**

Annette Johnston (Abbott Laboratories)

7:45 PM **Adjusting to EPA Policy Changes with the new Trump Administration**

Mary Ellen Ternes (Earth and Water Group, LLC)

AIChE Midwest Regional Conference

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Conference Planning Chair

Adam Kanyuh (UOP/Honeywell)

AIChE National Liaison

Stephanie Orvoine-Couvrette (AIChE Global)

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HSO logistics: *Rosanna Granata (University of Illinois at Chicago)*
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Poster Session:	<i>Meenesh Singh</i> , <i>Aditya Prajapati</i> (University of Illinois at Chicago)

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Ha Dinh (chair, UOP/Honeywell), *Michael Driscoll* (Stepan), *William Hollar* (SABIC Innovative Plastics), *Victor Zavala* (University of Wisconsin), *Carl Laird* (past chair, Purdue University)
- Process Safety and Occupational Health
Brenton Cox (chair, Exponent) *Peter Herena* (BakerRisk), *Sherice Randick* (BP), *Qingsheng (Sam) Wang* (Oklahoma State University), *Robert J. Weber* (Process Safety and Reliability Group), *Scott M. Wozniak* (UOP/Honeywell), *Janet Evans* (past chair, CF Industries)
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AIChE Midwest Regional Conference High School Outreach Program

This special high school program is being run in parallel with the American Institute of Chemical Engineers (AIChE) 9th Annual Midwest Regional Conference, the objective of which is to build technical relationships between industrial practitioners and governmental and academic researchers. AIChE and UIC would like to expose students to the profession of chemical engineering and engineering in general, and give them the opportunity to interact with professional engineers, engineering students, and faculty. We hope you come away from this program with some idea of what chemical engineers do, how they touch your life, and whether you would like to pursue an engineering career. We encourage you to stay engaged, ask questions, and have fun!

- 8:30-9:15 **Engineering Expo** (Floor 3 Hallway)
- Meet with current engineering students and see some of their projects
- 9:15-10:45 Groups will split into two groups and rotate through the following 40 minute activities
Presentation on Engineering Careers (Room 605)
- Learn about how engineers contribute to all aspects of society
- Presented by Tiep Pham (University of Illinois at Chicago)
Team Building Exercise (Rooms 603 and 613)
- Work with other students to complete a hands-on engineering-related task
- 10:45-11:30 **Engineering Panel Session** (Room 302)
- Learn about the day-to-day activities of practicing engineers and engineering students. Time to ask your most burning questions.
- 11:30-12:30 **Engineering Lunch** (Illinois A & Illinois B)
- Opportunity for one-on-one discussions with engineering professionals and students.
- 12:30-1:30 **Keynote Speaker** (Room 302)
- Dr. Pete Ludovice – Comedian and Chemical Engineering Professor at Georgia Tech
- 1:30-2:30 **Tours of the UIC Campus** (Meet in Room 302)

Dr. Pete Ludovice

The world's only touring comedian with a Ph.D. from M.I.T., Pete has performed internationally as a comedian for over a decade, and taught Georgia Tech Chemical Engineers for over two decades. His research activities include the computer modeling of synthetic and biological macromolecules, and the use of humor to improve technical innovation, communication, and education (ludovice.chbe.gatech.edu). One of his National Science Foundation projects examines the use of humor in engineering education. He co-directs the Humor Genome Project (humorgenome.org) and the Geekapalooza Comedy Tour (pwp.gatech.edu/geekapalooza) at Georgia Tech. Pete also hosts a weekly radio show on science and technology whose motto is "Science, only funnier" (WREK-Atlanta, 91.1FM, insidetheblackbox.org), and a podcast on the intersection of science and the humanities (www.peteandcharlie.libsyn.com/).

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Marketing: Oscar Rodriguez (University of Illinois at Chicago)

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MRC 2018

10th Annual AIChE Midwest Regional Conference



Chicago - Spring 2018

**For programming and volunteer opportunities
please contact Professor Chmielewski at
chmielewski@iit.edu**

AIChE Midwest Regional Conference
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Please provide us your feedback about the 2017 MRC.

This 5-minute survey will help improve future conferences.

Use your Smartphone to scan this QR-code:



Or point your browser to this link:

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