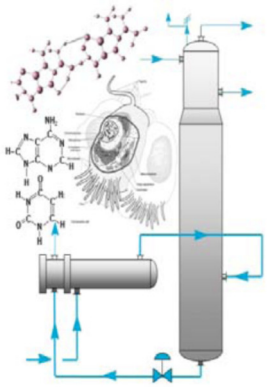
AIChE Chicago Section

# January Newsletter

Chicago Section www.aiche.org/Chicago January 2020



*Inside this issue:*



## AIChE Chicago January Joint Meeting with ACS

### *Guest Speaker*

### *Dan Marginean*

***Date:*** ***Friday, January 24th, 2020***

***Where:*** ***Alumni Hall, Roosevelt University***

***Address:*** ***1400 N. Roosevelt Rd. Schaumburg, IL-60173***

***Cost:***

- ***$25 AIChE Global and Chicago Section Member***
- ***$25 AIChE Global Member Only***
- ***$25 Non-Member***
- ***$25 Unemployed or Retired AIChE Chicago Section Member***
- ***$15 Student***

*Registration and Information:* http://www.cvent.com/d/nhqybl

**Agenda**

5:30-6:30 PM: Registration, Networking

6:30-7:30 PM: Dinner

7:30-7:45 PM: Section Announcements (ACS and AIChE)

7:45-9:00 PM: Technical presentation, Q&A

AIChE® MIDWEST REGIONAL CONFERENCE

DON'T FORGET! EARLY BIRD REGISTRATION ENDS

***FEBRUARY 1ST!***

Register Here: http://www.cvent.com/d/jhqp8f/4W

# Chair Corner

**HAPPY NEW YEAR!**

**I hope that you, your families, and your colleagues are doing well. As you reflect this month about 2020, the AIChE Chicago Section is always interested in new ideas from our members to help meet their membership needs.**

**The AIChE Chicago Section begins to focus more closely on preparing for the AIChE Midwest Regional Conference (MRC) on March 11th and 12th. This will be the 12th MRC, which is entirely prepared by a large volunteer base spread across an efficient organizational structure. The AIChE Global organization has minimal involvement with the MRC, and we are dependent on local resources to sustain it. In many ways, sustaining the MRC is vital to sustaining chemical engineering at a local level.**

**I would like to encourage everyone who is interested in chemical engineering at being involved in MRC. Local high school students have a chance to learn about a personal future in engineering. Students and researchers have a friendly Chicago venue to present their best ideas. Experienced practitioners have a convenient opportunity to network with their peers.**

**The MRC faces increased costs from the Chicago universities who host it. In order to continue providing discounts for students and speakers, we need financial sponsors to keep the MRC on sound financial footing. If you or your company would be interested in donating, please reach out to aichechicago@gmail.com. Every level of donation count, and financial sponsors are recognized for their contributions.**

**There is a lot to look forward to as we enter 2020. I wish you all the best!**

**Jarad L. Champion, P.E., BCEE**
**AIChE Chicago Section Chair**
**AIChE Senior Member**

## *NOMINATIONS REQUESTED FOR*

## *THE ERNEST W. THIELE AWARD*

The Ernest W. Thiele award is sponsored by BP and recognizes the outstanding contributions to our profession by a Midwest region chemical engineer. This award was established by the AIChE Chicago Section and is presented annually to a Midwest region AIChE member. This internationally recognized award consists of an engraved plaque and $1000 honorarium presented at our sectional meeting.

Nomination forms and additional information can be obtained from the Thiele Committee Chair.

Completed nominations are due to the committee chair no later than April 01, 2020.

One of the highest honors a distinguished chemical engineer can receive is our Chicago Section Thiele award. Please consider nominating a deserving engineer for this prestigious award.

Jim Simnick
BP Amoco Complex, 603-2W 150 W
Warrenville Road, Naperville, IL 60566
Ph 331-702-4071 (office) , Ph 630-269-8662 (cell)

# *January Joint Meeting with ACS*

*Dan Marginean*

*Polymer Chemist, Electron Beam Technologies Inc*

**Mr. Dan Marginean is a Polymer Chemist in the R&D Polymer Lab at Electron Beam Technologies Inc. in Kankakee, Illinois. He is Responsible for CPE Based formulations for Welding Cables and in charge with QC of Production Compounding and Extrusion and Regulatory Compliance: RoHS, REACH.**

**Prior to that, Dan held various positions in the industry. Dan was a Senior Formulation Scientist /Process Engineer at MonoSol RX LLC., Portage, Indiana , performed polymer scientist tasks for Films Formulation/Fusion for Buccal/Sublingual Controlled Substances ,drug administration. Dan was also the owner/Senior Consultant on Engineering Design and Prcessing/Polymers Engineering, performed work on Quenched Epoxy System Molding, Created Prototype Project on gas Purification in Coal Power Plant by using Electrostatic Precipitator, Fiber Glass Demisters System. He presided UW Madison School of Engineering 's Annual Chemical Engineering Student's Scientific Research Paper Competition and provided Consultation work to Pharmaceutical Companies on Strips/Patches API Delivery.**

**Dan Marginean received a BS in Inorganic Chemical Engineering from Technical University "Gh. Asachi" Romania and a Master at Ministry of Chemistry, Romania. He had taken graduate coursework in Colloidal and Free Radical Chemistry at UW Milwaukee, and done post-university studies on polymers at Lehigh University, Virginia Tech, UW Madison, McMaster University, and University of Southern Mississippi. Dan is Green Belt Six Sigma Certified, and the Past Chair of AIChE Wisconsin Section.**

## ***A Study of Crosslinking by Electron Beaming of Polymeric Composition for Welding Cables***

**The Scope of Presentation was to emphasize the importance of the Electron Beam Crosslinking, advanced technology of the future as stated by the Fermi National Accelerator Laboratory publication "Accelerator's for AMERICA' S Future", about our Company. We produce crosslinked polymeric systems by means of very environmentally friendly outcome. No Byproducts to release and pollute the medium, low heat products to come out of the Electron Beam Accelerator, easy to handle by operators and easy to store and preserve as well as easy to transport worldwide**

**The presentation is sequenced in. five Chapters;**
**I. Short History of Electron Beaming Technology**
**II. Beaming Principle**
**III. Crosslinking Project**
**IV. Crosslinking Calculations**
**V. Bibliography**

**Our Company is willing to promote this Technology to expand and help other Companies and End Users to Prosper and use an environmentally friendly technology.**

**Our Goal is to provide value added solutions to our customers' wire, cable, tubing and accessory needs. Our Team promotes a safe, quality driven, efficient and globally responsible work environment while leveraging our technologies to be a Market Leader.**

# MIDWEST REGIONAL CONFERENCE 2020
# KEYNOTE SPEAKERS MRC 2020

AIChE MIDWEST REGIONAL CONFERENCE

## *Keynote Speakers*

**Jeff Garascia**

**Chief Innovation Officer, Marmon Holdings**

***Jeff Garascia*** has been the Chief Innovation Officer of Marmon Holdings since July 2017. In this position, Jeff advises presidents of Marmon's ten operating sectors to help stimulate product innovation in their businesses, create new ideas and approaches, and identify innovation talent. Additionally, he is responsible for various "think tank" initiatives, the Marmon Innovation Council, and the Marmon Patent Society. Prior to this Jeff was the Senior Vice President, Growth & Innovation for Marmon Beverage Technologies, leading strategy and innovation teams in areas including engineering, product management, marketing, and consumer research, as well as the research and development center in India. Before joining Beverage Technologies in 2013, Jeff spent seven years with Scotts Miracle-Gro in senior management positions in global strategy, R&D, and business development. He previously was with the Booz, Allen & Hamilton consulting firm for eight years in progressive roles culminating in his appointment as a Principal in the firm. Jeff earned a B.S. in Electrical Engineering from the University of Houston and a M.S. and Ph.D. in Industrial Engineering, both from the University of Cincinnati.

# MIDWEST REGIONAL CONFERENCE 2020
## KEYNOTE SPEAKERS, MRC 2020

### Michael J. Graff,

### Chairman, CEO and President, American Air Liquide

### Executive Vice President, Air Liquide Group

Mike Graff joined Air Liquide in 2007 and currently serves as executive vice president and executive committee member of Air Liquide S.A., chairman and chief executive officer of American Air Liquide Holdings, Inc., chairman of the board of Airgas, and board member of Air Liquide Sante Intl. As executive vice president of the Group's Americas Hub, Graff leads business operations for North America, South America, Central America, and the Caribbean from its Houston, Texas headquarters. He is also the global chairman of the Group's Electronics business line and has oversight for safety and industrial systems worldwide. Graff is a senior executive with over 30 years of experience in the energy, chemicals and polymers industries across the Americas, Asia, and Europe. He began his career with Amoco and BP, plc. and went on to serve as president or chief executive officer of several global chemical and polymer businesses. Graff serves on the board of directors of Westlake Chemical Corporation and is a former director of the Lubrizol Corporation. He also serves on a number of industry and civic boards including as an executive committee member of the American Chemistry Council and as a principal of the Bipartisan Policy Center's American Energy Innovation Council. Graff was a 2016 recipient of the Illinois Institute of Technology's Alumni Association's Professional Achievement Award and is a member of both the University's Board of Trustees and the Armour College of Engineering Board of Advisors. He has served on the New Directions Industrial Advisory Board of Purdue University's department of Chemical Engineering, where he has also been recognized as a recipient of the University's Outstanding Chemical Engineer and Distinguished Engineering Alumni awards. He also serves on the board and executive committee of Children at Risk, and is an active member of The Baker Institute of Rice University, Junior Achievement of Southeast Texas, and the Barbara Bush Literacy Foundation. Graff holds a bachelor's degree in chemical engineering from the Illinois Institute of Technology and a master's degree in chemical engineering from Purdue University. He studied business at the University of Chicago and completed executive management programs at the Wharton School of the University of Pennsylvania, the University of Cambridge, and the Stanford University Law School. Along with his family, Graff participates in a variety of community service programs and activities. He is a strong advocate for STEM education, literacy and youth athletics.

# MIDWEST REGIONAL CONFERENCE 2020
## KEYNOTE SPEAKERS

### Matthew Tirrell

**Professor and Dean Pritzker School of Molecular Engineering, University of Chicago**

Matthew Tirrell's research has been in the fields of polymer interfaces, dynamics, fluid phase behavior and nanomedicine. He is particularly known for his work on polymer brushes, surface force measurement, peptide amphiphiles and polyelectrolyte complex phase behavior. In 2011, Matthew Tirrell was appointed as the founding Pritzker Director and Dean of the Faculty of the Institute for Molecular Engineering and established the first University of Chicago engineering program, which he continues to oversee (now the Pritzker School of Molecular Engineering). Professor Tirrell simultaneously served as Deputy Laboratory Director for Science (September 2015 - April 2018) and Chief Research Officer (January 2017 - March 2018) at Argonne National Laboratory. Immediately prior to joining the University of Chicago, he was the Arnold and Barbara Silverman Professor and Chair of Bioengineering at the University of California, Berkeley, with additional appointments in chemical engineering and materials science & engineering, as well as a Faculty Scientist appointment at the Lawrence Berkeley National Laboratory. Dr. Tirrell completed ten years as Dean of Engineering at the University of California, Santa Barbara on June 30, 2009. From 1977 to 1999, he was on the faculty of Chemical Engineering and Materials Science at the University of Minnesota, where he served as department head from 1994 to 1999. Tirrell received a B.S. in Chemical Engineering at Northwestern University in 1973 and a Ph.D. in 1977 in Polymer Science from the University of Massachusetts. He has co-authored about 400 papers and one book, has supervised about 100 Ph.D. students and 50 postdoctoral researchers. Professor Tirrell is a member of the National Academy of Engineering, the National Academy of Sciences, the American Academy of Arts & Sciences and the Indian National Academy of Engineering, and is a Fellow of the American Institute of Medical and Biological Engineers, the AAAS, and the American Physical Society.

# MIDWEST REGIONAL CONFERENCE 2020
## KEYNOTE SPEAKERS,

AIChE MIDWEST REGIONAL CONFERENCE

### *Keith A. Couch*

Senior Director, Technology Sales and Integrated Projects

Honeywell UOP, Des Plaines, Illinois, USA

Keith A. Couch is Senior Director of global Technology Sales and Integrated Project Solutions (IPS) teams within UOP's Petrochemicals & Refining Technologies (PRT) business. Keith's team spans the US, UK, India, China and Malaysia offices. The focus of the organization is to drive improved client value creation and business operations for both discrete and integrated projects. He has over 28 years of international experience that has included Manufacturing, R&D, Field Service, Technical Service, Technical Sales and Business Management. Keith is recognized as a technologist and author with 27 patents and 18 industry publications. He holds a B.S. degree in Chemical Engineering from Louisiana Tech University and a Master of Business Administration from the University of Chicago, Booth School of Business.


## Save the Date - Volunteers Needed for DuPage STEM Expo

AIChE is planning on participating at the Annual DuPage STEM Expo on the IIT Rice Campus in Wheaton, IL. Check out the flyer for the event here. This event is geared towards K-12, and it's a great opportunity to educate a younger generation about chemical engineering! This event will be held Saturday, February 22, 2020. Stay tuned to the February Newsletter for more information!

# BECOME A SPONSOR/ EXHIBITOR AT 2020 AIChE Midwest Regional Conference

## MARCH 11-12, 2020

### Illinois Institute of Technology · CHICAGO

Organized by Chicago Local Section of AIChE

Exhibiting and sponsoring at the conference not only showcases your latest technology, but also works to establish a long-term relationship with both the university & conference attendees.
Various levels are available!

For questions and additional information, please contact the **Corporate Sponsorship Committee**:

**Azita Ahmadzadeh** at
azita.ad@gmail.com
**Janet Werner** at
janet.werner8@gmail.com
**Belma Delmirel** at
belma.demirel@bp.com

AIChE
MIDWEST
REGIONAL
CONFERENCE

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|---|---|---|
| **March 11 - 12, 2020**<br>**IIT, IL**<br>**2020 Midwest Regional Conference** | | |
| **Day 1 - Wednesday March 11, 2020, Track 1** | | |
| 7:30 | 10:30 | Registration (Open all day) & Breakfast |
| 8:15 | 8:30 | Chairman's Introduction |
| **8:30** | **9:30** | **Keynote: Jeff Garascia,**<br>Chief Innovation Officer, Marmon Holdings |
| 9:30 | 9:45 | Coffee Break |
| **9:45** | **11:30** | **Session I: Catalysis and Reaction Engineering I**<br>Chair: Malek Ibrahim (UOP/Honeywell) |
| 9:45 | 10:05 | **Improved Catalyst Selectivity and Longevity Using Atomic Layer Deposition**<br>Zheng Lu, Christopher L. Marshall (Argonne National Laboratory), Arrelaine Dameron (Forge Nano), Christopher P. Nicholas, Leigh M. Abrams, Paul T. Barger (UOP/Honeywell) |
| 10:05 | 10:25 | **Site-averaged kinetics for catalysts on amorphous supports: an importance learning algorithm**<br>Craig Vandervelden (University of California, Santa Barbara) |
| 10:25 | 10:45 | **Deciphering the hidden complexity of heterogenous nanoparticles**<br>Cecilia Gentle, Yuanheng Wang, Tyler N. Haddock, Conner P. Dykstra, |
| 10:45 | 11:05 | **Investigating Isobutane Dehydrogenation over Molybdenum Oxides and Sulfides**<br>Emily Cheng, Justin Notestein (Northwestern University) |
| 11:05 | 11:25 | **Enhancing Photocatalytic Activity of BODIPY–based Porous Organic Polymers (POPs) through Post-Synthetic Modification for Decontamination of a Sulfur Mustard Simulant**<br>Ahmet Atilgan, Mustafa M Cetin, Yassine Beldjoudi (Northwestern University) |
| 11:30 | 12:30 | Lunch, |

## DON'T FORGET! EARLY BIRD REGISTRATION ENDS

## ***FEBRUARY 1ST!***

Register Here: http://www.cvent.com/d/jhqp8f/4W

| Day 1 - Wednesday March 11, 2020, Track 1 | | |
|---|---|---|
| **12:45** | **1:45** | **Keynote: Matthew Tirrell**<br>Pritzker School of Molecular Engineering, University of Chicago |
| 1:45 | 2:00 | Coffee Break |
| **2:00** | **3:45** | **Session II: Catalysis and Reaction Engineering II**<br>Satish Parulekar (Illinois Institute of Technology) |
| 2:00 | 2:20 | **A New Catalytic Way to Make Hydrogen Upgrades Achievable**<br>Isaac Niekamp (Johnson Matthey) |
| 2:20 | 2:40 | **Grafting metal complexes onto amorphous supports: from elementary steps to catalyst site populations via kernel regression**<br>Salman A. Khan (University of California, Santa Barbara), Baron Peters |
| 2:40 | 3:00 | **Core-Shell SiO2/Nb2O5 and SiO2/TiO2 for Bronsted Acid Catalysis**<br>Andrew Wolek, Justin M. Notestein (Northwestern University) |
| 3:00 | 3:20 | **Reactive, High-Valent Metal-Oxo Species Incorporated within Metal−Triazolate Frameworks**<br>Andrew Rosen, Justin M. Notestein, Randall Q. Snurr (Northwestern University) |
| 3:20 | 3:40 | **The Fate of the Hole Scavenger in Plasmon-Excitation-Mediated Chemistry**<br>Varun Mohan, Eric Wu, Jaeyoung Heo, Prashant K. Jain (University of Illinois at Urbana-Champaign) |
| 3:45 | 4:00 | Coffee Break |
| **4:00** | **5:45** | **Session II: Process Engineering and Optimization**<br>Chair: Ha Dinh (UOP/Honeywell), Co-Chair: Norah Ghazinoor (UOP/Honeywell) |
| 4:00 | 4:20 | **Microkinetic Model Reduction and Reactor Optimization for Oligomeriza-**<br>Kanishka Ghosh, Alexander Dowling (University of Notre Dame) |
| 4:20 | 4:40 | **Personalized Medicine for In-vitro Fertilization Procedure using Modeling and Optimal Control**<br>Apoorva Nisal (University of Illinois at Chicago) Urmila Diwekar (Vishwamitra Research Institute) |
| 4:40 | 5:00 | **Multi-Rate Data-Driven Models for Lactic Acid Fermentation - Parameter**<br>Jingwei Gan, Satish J. Parulekar (Illinois Institute of Technology) |
| 5:00 | 5:20 | **Integration of Molecular Simulations and Computer-Aided Design to Ena-**<br>Bridgette Befort, Edward Maginn, Alexander Dowling (University of Notre Dame) |
| 5:20 | 5:40 | **Parametric Sensitivity and Runaway in Fixed-Bed Reactors: Example of**<br>Yang Xiao (Purdue University) |
| 6:00 | 7:30 | **Poster Reception, Gallary Lounge**<br>Session Chair: Adam Kanyuh, UOP |

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|---|---|---|
| **March 11 - 12, 2020**<br>**IIT, IL**<br>**2020 Midwest Regional Conference** | | |
| **Day 1 - Wednesday March 11, Track 2** | | |
| 7:30 | 10:30 | Registration (Open all day) & Breakfast |
| 8:15 | 8:30 | Chairman's Introduction |
| **8:30** | **9:30** | **Keynote: Jeff Garascia,**<br>Chief Innovation Officer, Marmon Holdings |
| 9:30 | 9:45 | Coffee Break |
| **9:45** | **11:30** | **Session I: Industrial Crystallization I**<br>Chair: Meenesh Singh (University of Illinois at Chicago |
| 9:45 | 10:05 | **A Industrial Crystallization: Challenges and Opportunities**<br>Nandkishor K. Nere (AbbVie) |
| 10:05 | 10:25 | **Towards Design of Synthetic Routes of Molecular Crystals and Co-crystals using Molecular Simulations and Machine Learning Approach**<br>Santanu Chaudhuri (Argonne National Laboratory) |
| 10:25 | 10:45 | **Computer-aided-molecular design for Crystallization**<br>Urmila Diwekar (Vishwamitra Research Institute), Anish Dige, Meenesh Singh (University of Illinois at Chicago) |
| 10:45 | 11:05 | **Screening of Polymorphs and Measurement of Growth Rates of L-Histidine at Controlled Supersaturation using Continuous-Flow, Microfluidic Device**<br>Paria Coliaie, Meenesh Singh (University of Illinois at Chicago) |
| 11:05 | 11:25 | **Micellar structures, stepwise thinning and nanoscopic thickness variations in foam films formed by aqueous sodium naphthenate solutions**<br>Chrystian Ochoa, Vivek Sharma (University of Illinois at Chicago) Shang Gao, Samanvaya Srivastava (University of California at Los Angeles) |
| 11:30 | 12:30 | Lunch, |

## Don't Forget! Early Bird Registration Ends

## ***February 1st!***

Register Here: http://www.cvent.com/d/jhqp8f/4W

| Day 1 - Wednesday March 11, Track 2 | | |
|---|---|---|
| **12:45** | **1:45** | **Keynote: Matthew Tirrell**<br>Pritzker School of Molecular Engineering, University of Chicago |
| 1:45 | 2:00 | Coffee Break |
| **2:00** | **3:45** | **Session II: Industrial Crystallization II**<br>Aditya Prajapati (University of Illinois at Chicago) |
| 2:00 | 2:20 | **Continuous Crystallization: Case Studies in Pharma Applications**<br>Manish S Kelkar, Moussa Boukerche, Daniel Pohlman, Nandkishor Nere |
| 2:20 | 2:40 | **On application to population balances in continuous crystallization**<br>Christopher Burcham (Eli Lilly and Company) |
| 2:40 | 3:00 | **Exploring nucleation mechanism and polymorph selection in nuclea-**<br>Pelin Bulutoglu, Doraiswami Ramkrishna (Purdue University) |
| 3:00 | 3:20 | **Identification of Polymorph Specific Molecular Interactions during the**<br>Anish Dighe, Meenesh Singh (University of Illinois at Chicago) |
| 3:20 | 3:40 | **Three-dimenstional supercrystals formed by controlable oversatura-**<br>Elena Shevchenko, Byeongdu Lee (Argonne National Laboratory) Mattew Pelton (University of Maryland, Baltimore County) |
| 3:45 | 4:00 | Coffee Break |
| **4:00** | **5:45** | **Session III, Biomedical Engineering** |
| 4:00 | 4:20 | **A Novel Microfluidic Device to Study Intestine-Bacteria-Drug Metabo-lism**<br>Chengyao Wang, Thao Dang, Jasmine Baste, Daniel Martin, Shanie Scole, Abhinav Bhushan (Illinois Institute of Technology) |
| 4:20 | 4:40 | **Drainage of Protein Foams and Foam Films**<br>Lena Hassan, Chenxian Xu, Vivek Sharma (University of Illinois at Chicago) |
| 4:40 | 5:00 | **Development of Sprayable, Thermoreversible Hydrogels for Burn Wound Applications**<br>Riannon Smith, Nicole Brogden, Jennifer Fiegel (University of Iowa) |
| 5:00 | 5:20 | **Lost in Translation: Engineering ribosomes with combinations of ac-**<br>Alysse DeFoe, Anne E d'Aquino, Tasfia Azim, Adam J Hockenberry, Michael C Jewett (Northwestern University), Kim Hoang (Johnson and Whales University) |
| 5:20 | 5:40 | |
| 6:00 | 7:30 | **Poster Reception, Gallary Lounge**<br>Session Chair: Adam Kanyuh, UOP |

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|---|---|---|
| **March 11 - 12, 2020**<br>**IIT, IL**<br>**2020 Midwest Regional Conference** | | |
| **Day 1 - Wednesday March 11, Track 3** | | |
| 7:30 | 10:30 | Registration (Open all day) & Breakfast |
| 8:15 | 8:30 | Chairman's Introduction |
| **8:30** | **9:30** | **Keynote: Jeff Garascia,**<br>Chief Innovation Officer, Marmon Holdings |
| 9:30 | 9:45 | Coffee Break |
| **9:45** | **11:30** | **Session I: Transport Phenomena** |
| 9:45 | 10:05 | **Pinch-off dynamics, shear and extensional rheology, and dispensing of polymer-surfactants complexes**<br>Carina Martinez, Vivek Sharma (University of Illinois at Chicago) |
| 10:05 | 10:25 | **Flow of biomass in a compression screw feeder**<br>Ehsan Akbari Fakhrabadi, Matthew Liberatore (University of Toledo), Jonathan Stickel (National Renewable Energy Laboratory) |
| 10:25 | 10:45 | **Rheology of Bogger Fluids and Elastic Instabilities**<br>Alexander Kubinski, Fahed Albreiki, Vivek Sharma (University of Illinois at Chicago), Prerana Rathore (University of Massachusetts at Amherst) |
| 10:45 | 11:05 | **Tuning the Solubility of Uranyl Peroxide Clusters Through Ligand Exchange**<br>Mengyu Xu, Peter Burns (University of Notre Dame) |
| 11:05 | 11:25 | **Modelling the transport and reactions in the electrochemical reduction of dinitrogen to ammonia at ambient conditions**<br>Nishithan C Kani, Meenesh R Singh (University of Illinois at Chicago) |
| 11:30 | 12:30 | Lunch, |

## Don't Forget! Early Bird Registration Ends

## ***February 1st!***

Register Here: http://www.cvent.com/d/jhqp8f/4W

| Day 1 - Wednesday March 11, Track 3 | | |
|---|---|---|
| **12:45** | **1:45** | **Keynote: Matthew Tirrell**<br>Pritzker School of Molecular Engineering, University of Chicago |
| 1:45 | 2:00 | Coffee Break |
| **2:00** | **3:45** | How to Engineer Your Success |
| 2:00 | 2:20 | |
| 2:20 | 2:40 | |
| 2:40 | 3:00 | |
| 3:00 | 3:20 | |
| 3:20 | 3:40 | |
| 3:45 | 4:00 | Coffee Break |
| **4:00** | **5:45** | **Session III, Product and Process Characterization**<br>Chair: Limin Lu (Anton Paar) |
| 4:00 | 4:30 | **Anton Paar and Solutions in the Petroleum Industry**<br>Shelby Voorhees (Anton Paar) |
| 4:30 | 5:00 | **Powder Characterization: From Macroscale to Nanoscale**<br>Mark R Haase (Anton Paar) |
| 5:00 | 5:30 | **Rheology Testing in Polymers**<br>Limin Lu (Anton Paar) |
| 6:00 | 7:30 | **Poster Reception, Gallary Lounge**<br>Session Chair: Adam Kanyuh, UOP |

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|---|---|---|
| 3:45 | 4:00 | Coffee Break |
| **4:00** | **5:45** | **Session III, YP Session: Job Search Skills**<br>Chair: Ruben Barajas (Honeywell), Connor Wegner (Leister Technologies) |
| 4:00 | 4:30 | **Job Searching (A Recruiter's Advice)**<br>Adam Krueger (Sun Recruiting, Inc.) |
| 4:30 | 5:00 | **You Big Softy! - Improving Soft Skills in the Workplace and Life**<br>Ruben Barajas (Honeywell) |
| 5:00 | 5:30 | **Resume Reviews**<br>Adam Krueger (Sun Recruiting, Inc.), Ruben Barajas (Honeywell), Connor Wegner (Leister Technologies) |
| 6:00 | 7:30 | **Poster Reception, Gallary Lounge**<br>Session Chair: Adam Kanyuh, UOP |

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|---|---|---|
| **March 11 - 12, 2020**<br>**IIT, IL**<br>**2020 Midwest Regional Conference** | | |
| **Day 2 - Thursday March 12, Track 1** | | |
| 7:30<br>8:15 | 10:30<br>8:30 | Registration (Open all day) & Breakfast<br>Chairman's Introduction |
| **8:30** | **9:30** | **Keynote: Michael J. Graff**<br>CEO, American Air Liquide |
| 9:30 | 9:45 | Coffee Break |
| **9:45** | **11:30** | **Session I: Bio-films**<br>Chair: Seok Hoon Hong (Illinois Institute of Technology) |
| 9:45 | 10:05 | **Elucidating a new extracellular function of DegP inhibiting biofilm formation of enterohemorrhagic Escherichia coli O157:H7**<br>Kuili Fang, Seok Hoon Hong (Illinois Institute of Technology) |
| 10:05 | 10:25 | **Accurate Identification of the Differentiation Stages of Living Hematopoietic Stem and Progenitor Cells on Biomaterial Substrates using Raman Micro-Spectroscopy and Multivariate Analysis**<br>Isamar Pastrana-Otero, Sayani Majumdar, Aidan Gilchrist, Brendan A. C. Harley, Mary L. Kraft (University of Illinois at Urbana-Champaign) |
| 10:25 | 10:45 | **Engineering colicins for target-specific control of biofilms**<br>Xing Jin, Seok Hoon Hong (Illinois Institute of Technology) |
| 10:45 | 11:05 | **Graphene-Interface with Electrogenic Bacterial Membrane: Electron Transport and Energetics**<br>Sheldon Cotts, Vikas Berry (University of Illinois at Chicago) |
| 11:05 | 11:25 | **Characterizing biofilm formation on carbon-foam electrodes**<br>Jiacheng Zhou, Kuili Fang, Seok Hoon Hong (Illinois Institute of Technology), Gregg P. Kotchey, David V. P. Sanchez (University of Pittsburgh) |
| 11:30 | 12:30 | Lunch, |

## DON'T FORGET! EARLY BIRD REGISTRATION ENDS

## ***FEBRUARY 1ST!***

Register Here: http://www.cvent.com/d/jhqp8f/4W

| Day 2 - Thursday March 12, Track 1 | | |
|---|---|---|
| **12:45** | **1:45** | **Keynote: Keith A. Couch**<br>Senior Director, Honeywell UOP |
| 1:45 | 2:00 | Coffee Break |
| **2:00** | **3:45** | **Session II: Refining & Petrochemical Technology**<br>Chair: Belma Demirel (BP), Co-Chair: Hadjira Iddir (Honeywell/UOP) |
| 2:00 | 2:20 | **Findings from MTO Commercialization – Don't Forget About the Small Stuff**<br>Joe Montalbano (UOP Honeywell) |
| 2:20 | 2:40 | **Inteligent Operations in Refining: Digital Technologies to Support Fuels Production**<br>Martin R. Gonzalez (BP) |
| 2:40 | 3:00 | **Honeywell Forge for Industrial- Process Reliability Advisor**<br>Abhishek Pednekar (Honeywell) |
| 3:00 | 3:20 | **Opportunity crudes and renewable feedstocks in refining**<br>Henrik Rasmussen (Haldor Topsoe, Inc.) |
| 3:20 | 3:40 | **Technology Advances and Commercialization of Second Generation Biofuels – 2G Ethanol**<br>Mukund Yallambalse (Axens North America) |
| 3:45 | 4:00 | Coffee Break |
| **4:00** | **5:45** | **Session III: Process and Environmental Safety** |
| 4:00 | 4:20 | **Why Storage Tanks Leak and How to Stay Safe**<br>Jessica M. Morris PhD |
| 4:20 | 4:40 | **Back to Basics: Protecting Tanks from Overpressure and Vacuum**<br>Todd W. Drennen, P.E. |
| 4:40 | 5:00 | **Flammable liquid spills**<br>David C Hietala |
| 5:00 | 5:20 | **Stochastic optimization for real-time spatiotemporal sensor placement to monitor air pollutant through health impact assessment**<br>Urmila Diwekar |
| 5:20 | 5:40 | **Good Practices for the Control of Hazardous Waste Emissions**<br>Matthew Walters |
| 6:00 | 6:45 | Reception |
| 6:45 | 7:25 | Local Section Dinner |
| 7:25 | 7:30 | Local Section Announcement |
| 7:30 | 9:00 | Keynote Presentation |
| | | |

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|---|---|---|
| **March 11 - 12, 2020**<br>**IIT, IL**<br>**2020 Midwest Regional Conference** | | |
| **Day 2 -Thursday March 12, Track 2** | | |
| 7:30 | 10:30 | Registration (Open all day) & Breakfast |
| 8:15 | 8:30 | Chairman's Introduction |
| **8:30** | **9:30** | **Keynote: Michael J. Graff**<br>CEO, American Air Liquide |
| 9:30 | 9:45 | Coffee Break |
| **9:45** | **11:30** | **Session I: Energy and Sustainability** |
| 9:45 | 10:05 | **Carbon Dioxide Capture and Utilization: Technology Challenges and Opportunities**<br>C. B. Panchal, Kruti Goyal, Richard Doctor (E3Tec Service, LLC) |
| 10:05 | 10:25 | **Single-atoms Synthesized via a Novel Method as the Active Site with Highly Efficient Electrocatalytic Conversion of CO2 to Ethanol**<br>Haiping Xu (Northern Illinois University), Di-Jia Liu (Argonne National Laboratory) |
| 10:25 | 10:45 | **Copper (II) Oxide Nanoparticles for Electrochemical Conversion of CO2 to Value-added Chemicals in a Flow Cell**<br>Mohammadreza Esmaeilirad, Alireza Kondori, Andres Ruiz Belmonte, Mohammad Asadi (Illinois Institute of Technology) |
| 10:45 | 11:05 | **The Recell Center: DOE's advanced battery recycling program**<br>Bryant Polzin, Jeff Spangenberger, Linda Gaines (Argonne National Laboratory) |
| 11:05 | 11:25 | **Lead-Based composites as Anode material for Sodium-Ion Batteries**<br>Jehee Park, Jinhyup Han, Shabbir Ahmed, Eungje Lee, Christopher Johnson (Argonne National Laboratory), Youngsik Kim (Ulsan National Institute of Science & Technology) |
| 11:30 | 12:30 | Lunch, |

## DON'T FORGET! EARLY BIRD REGISTRATION ENDS

## ***FEBRUARY 1ST!***

Register Here: http://www.cvent.com/d/jhqp8f/4W

| Day 2 -Thursday March 12, Track 2 | | |
|---|---|---|
| **12:45** | **1:45** | **Keynote: Keith A. Couch**<br>Senior Director, Honeywell UOP |
| 1:45 | 2:00 | Coffee Break |
| **2:00** | **3:45** | **Session II, Electrochemical Engineering I**<br>Hakim Iddir (Argonne National Laboratory) |
| 2:00 | 2:20 | **A Systematic Approach for a Mechanistic Study on Electrochemical Oxidation of Methane over Transition metals and Bi-metallic Catalysts**<br>Aditya Prajapati, Meenesh R. Singh (University of Illinois at Chicago) |
| 2:20 | 2:40 | **Silicon in Next Generation Batteries: Stabilizing the Li-Si chemistry for Long Cycle and Calendar Life**<br>Baris Key, Jack Vaughey, Binghong Han, Fulya Dogan, Chen Liao, Saul Lapidus (Argonne National Laboratory) |
| 2:40 | 3:00 | **Improving Li-ion batteries: A density functional theory study of electrolyte breakdown on the anode surface**<br>Lynza Sprowl (Honeywell UOP), Liney Arnadottir (Oregon State University), Maria Chan (Argonne National Laboratory) |
| 3:00 | 3:20 | **Graphite Lithiation Under Fast Charging Conditions: Atomistic Modeling Insights**<br>Juan Garcia, Ira Bloom, Christopher Johnson, Dennis Dees, Hakim Iddir (Argonne National Laboratory) |
| 3:20 | 3:40 | **Tri-molybdenum Phosphide (Mo 3 P) Catalyst for Electrocatalytic Hydrogen Evolution Reaction**<br>Alireza Kondori, Mohammadreza Esmaeilirad, Mohammad Asadi (Illinois Institute of Technology) |
| 3:45 | 4:00 | Coffee Break |
| **4:00** | **5:45** | **Session III, Electrochemical Engineering II**<br>Chair: Mohammad Asadi (Illinois Institute of Technology) |
| 4:00 | 4:20 | **Detecting Lithium Plating Using Raman Spectroscopy**<br>Marco Rodrigues (Argonne National Laboratory) |
| 4:20 | 4:40 | **The Quest for Next Generation Cathodes for Multivalent Batteries**<br>Prakash Parajuli, Bob Jin Kwon, Ian D. Johnson, Jack Vaughey, Jordi Cabana (University of Illinois at Chicago) |
| 4:40 | 5:00 | **Transition Metal Dissolution from Li(Ni,Mn,Co)O2 cathodes**<br>Ira Bloom (Argonne National Laboratory) |
| 5:00 | 5:20 | **An investigation on ORR and OER behaviors of Lithium Oxygen battery cathode**<br>Yang Liu, Jai Prakash (Illinois Institute of Technology) |
| 5:20 | 5:40 | **Characterization Assisted Material Design: Application of Solid-State Nuclear Magnetic Resonance on Li-ion Cathodes**<br>Fulya Dogan (Argonne National Laboratory) |
| 6:00 | 6:45 | Reception |
| 6:45 | 7:25 | Local Section Dinner |
| 7:25 | 7:30 | Local Section Announcement |
| 7:30 | 9:00 | Keynote Presentation |

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|---|---|---|
| **March 11 - 12, 2020**<br>**IIT, IL**<br>**2020 Midwest Regional Conference** | | |
| **Day 2 -Thursday March 12, Track 3** | | |
| 7:30<br>8:15 | 10:30<br>8:30 | Registration (Open all day) & Breakfast<br>Chairman's Introduction |
| **8:30** | **9:30** | **Keynote: Michael J. Graff**<br>CEO, American Air Liquide |
| 9:30 | 9:45 | Coffee Break |
| **9:45** | **11:30** | **Session III, Multiphase Modeling and Simulation**<br>Chair: Allan Issangya (Particulate Solid Research, Inc), Co-Chair: Reza Mostofi (Honeywell UOP) |
| 9:45 | 10:05 | **CFD Modeling of a Bioreactor**<br>Reza Mostofi, Azita Ahmadazdeh, Steve Poklop (Honeywell UOP) |
| 10:05 | 10:25 | **Numerical Simulation of Concentrated Solar Energy Adsorption by Packed and Fluidized Bed**<br>Zeyuan Gao, Javad Abbasian, Hamid Arastoopour (Illinois Institute of Technology) |
| 10:25 | 10:45 | **Performance of Fluidized Bed Strippers**<br>Allan Issangya (Particulate Solid Research, Inc) |
| 10:45 | 11:05 | **Multiphysics Modeling of Reactors for Fuel & Chemical Production**<br>Joel Paustian (Honeywell UOP) |
| 11:05 | 11:25 | **A Comprehensive Analysis of Transient Heat Conduction in Composite Solid Slabs Using Tailor-Made Integral Transforms**<br>Satish J. Parulekar (Illinois Institute of Technology) |
| 11:30 | 12:30 | Lunch, |

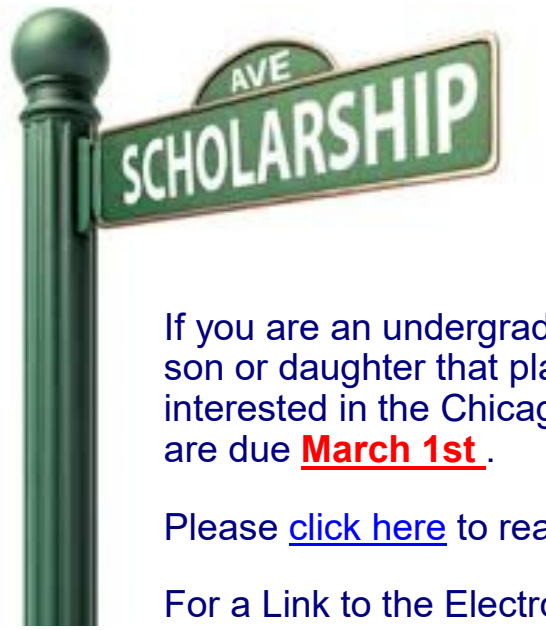
## DON'T FORGET! EARLY BIRD REGISTRATION ENDS

## ***FEBRUARY 1ST!***

Register Here: http://www.cvent.com/d/jhqp8f/4W

| Day 2 -Thursday March 12, Track 3 | | |
|---|---|---|
| **12:45** | **1:45** | **Keynote: Keith A. Couch**<br>Senior Director, Honeywell UOP |
| 1:45 | 2:00 | Coffee Break |
| **2:00** | **3:45** | **Session I: Directed Self-assembly of Nanostructures**<br>Chair: *Shafigh Mehraeen (University of Illinois at Chicago)* |
| 2:00 | 2:20 | **Atomistic Modeling of Nanoparticles Lattices Formed at Surfaces and Bulks of Liquids**<br>Petr Kral (University of Illinois at Chicago) |
| 2:20 | 2:40 | **Direct Imaging of Nanoparticle Self-Assembly in Solutions Using Liquid-Phase TEM**<br>Qian Chen (University of Illinois at Urbana-Champaign) |
| 2:40 | 3:00 | **Impact of confinement on directed self-assembly of sub-10 nm particles into textured substrates**<br>Shafigh Mehraeen, Zhen Luo (University of Illinois at Chicago) |
| 3:00 | 3:20 | **Active Magnetic Colloids: Multi Vortex States in Swarms Of Magnetic Rollers**<br>Alexey Snezhko (Argonne National Laboratory) |
| 3:20 | 3:40 | **Formation, Growth and Coalescence of Nanoscopic Mesas in Stratifying Foam Films**<br>Chenxian Xu, Subinuer Yilixiati, Chrystian Ochoa, Yiran Zhang, Vivek Sharma (University of Illinois at Chicago) |
| 3:45 | 4:00 | Coffee Break |
| **4:00** | **5:45** | **Session III, Panel discussion: Big Data in Industry & Academia**<br>Chair: *Matthew Liberatore (University of Toledo)* |
| 4:00 | 4:25 | |
| 4:25 | 4:50 | |
| 4:50 | 5:10 | |
| 6:00 | 6:45 | Reception |
| 6:45 | 7:25 | Local Section Dinner |
| 7:25 | 7:30 | Local Section Announcement |
| 7:30 | 9:00 | Keynote Presentation |
| | | |

# Attention Students and Parents!




If you are an undergraduate chemical engineering student or have a son or daughter that plans to study chemical engineering you may be interested in the Chicago Section's scholarship program. Applications are due **March 1st** .

Please click here to read rules and eligibility.

For a Link to the Electronic Version of the AIChE Chicago Scholarship Application Form, Click on the Link Below:

http://form.jotform.us/form/42814483647159

## *Reminder—Use your credits!*

***AIChE Global professional members get six free credits each year, good for live or archived content, with permanent access to the content selected. If you haven't used all your credits, they will expire at the end of the year.***


***Check out the archived webinars and conference presentations available at the AIChE website, and be sure to renew your membership to get six free credits good for next year!***

# Volunteers Needed for Chicago Local Section

How many opportunities can you find to learn project management, delegation and leadership skills for free? Volunteering with the Chicago Section of AIChE is such an opportunity. While you're learning new skills, your local network grows.

Volunteers are needed to help with:

- Programming – arrange speakers for monthly meetings, and arrange catering and venues
- Logistics – arrange catering and venues
- Newsletter Editor – prepare and publish ten monthly newsletters
- Newsletter Contributions – write meeting summaries, contribute photos, and more
- Engineering Outreach – coordinate three annual K-12 outreach events with high schools and colleges
- Professional Development and Sponsorship – arrange companies to sponsor pre-meeting talks to help fund student dinners
- Awards and Scholarship Committees – Review applications for local Section award and scholarships
- Midwest Regional Conference – many opportunities including programming, logistics, website, advertising, sponsorship, high school outreach, poster session and more!
- Young Professionals – plan socials and programming for young professionals (under 35)

If you are interested in any of these positions, please contact us *aichechicago@gmail.com*.

## Why Renew Your AIChE Membership?

**Renew your membership now to keep learning and growing.**

Renew Membership

**Stay Connected to 40,000+ international members who take advantage of:**

- Subscription to AIChE's flagship publication: CEP*
- Education—Access to e-learning courses and instructor-led training, offering Continuing Educations Units and PDHs
- Access to CareerEngineer—a comprehensive job site tailored to chemical engineers
- Access to the AIChE eLibrary—a wealth of information from Knovel Life Sciences and the McGraw-Hill AccessEngineering Library collections

**View COMPLETE benefits**

## Connect with members & participate in discussions on Engage!

Check out AIChE's member benefit, AIChE Engage. Use the robust directory search to find and connect with members. Participate in technical, career, and academic discussions about chemical engineering.

# Upcoming AIChE Conferences, Meetings & Webinars

| Chicago Local Meetings | |
|---|---|
| January 24, 2020 | Speaker: Dan G. Marginean, Electron Beam Technologies, Inc. |
| ***AIChE Conferences*** | |
| March 11-12, 2020 | Midwest Regional Conference 2020, Chicago, IL<br>https://www.aiche.org/community/sites/local-sections/chicago/mrc12-2020 |
| March 26-29, 2020 | 2020 Southern Student Regional Conference , Auburn, AL |
| March 27-29, 2020 | 2020 Southwest Student Regional Conference , Beaumont, TX |
| March 29-April 2, 2020 | 2020 AICHE Spring Meeting and 16th GCPS, Houston, TX |
| April 3-4, 2020 | 2020 Western Student Regional Conference , Davis, CA |
| April 3-4, 2020 | 2020 Rocky Mountain Student Regional Conference , Socorro, NM |
| April 3-4, 2020 | 2020 Mid-America Student Regional Conference , Lincoln, NE |
| April 4-5, 2020 | 2020 Eckhardt Northeast Student Regional Conference , Boston, MA |
| April 10-12, 2020 | 2020 Pacific Northwest Student Regional Conference , Pullman, WA |
| April 17-18, 2020 | 2020 North Central Student Regional Conference , Akron, OH |
| ***AIChE Webinars*** | |
| January 29, 2020 | Troubleshooting for Combustion and Air Pollution Control Equipment |
| February 26, 2020 | Advantages of Remote Proof-Testing for Level Control |

Officers and Contact Information

| | |
|---|---|
| Chair | Jarad Champion |
| Chair Elect | Jeff Zalc |
| Chair Programming | Ha Dinh |
| | Sarika Goel |
| Secretary | Ben Ketter |
| Treasurer | McKay Rytting |
| Directors at Large | Adam Kanyuh |
| | Pat Shannon |
| | Olha Zvarych |
| House Committee | Paolo Palmas |
| | Lance Baird |
| | Asmara Soomro |
| Newsletter Editors | Riya Narjari rnarjari@hawk.iit.edu |
| | Azita Ahmadzadeh azita.ad@gmail.com |

# AICHE CHICAGO SECTION

**AIChE Chicago Section**
**13964 Doral Lane Homer Glen, IL 60491**
**aichechicago@gmail.com**

**We are on the web**
**www.aiche.org/Chicago**

## We want you for AIChE-Chicago!

## We need your help!

How many opportunities can you find to learn project management, delegation and leadership skills for free? Becoming an officer in the Chicago Section of AIChE is such an opportunity. While you're learning new skills, your local network grows. Just about all of us are either undergoing a career change, contemplating a career change, or are wondering if our career will be changed for us. Volunteering with AIChE is a way to add skills and accomplishments to your resume.

aichechicago@gmail.com

http://www.aiche.org/community/sites/local-sections/chicago/announcements/volunteerism

# Submitting Articles to AIChE Columns

We welcome email submissions for our monthly newsletter. Commercial announcements are subject to the fee schedule below. News stories, editorials, technical or career related non-commercial contributions are always welcome with no charge. We consider job postings, announcements of for-fee training courses, expositions, conferences as commercial. Categorization of announcements is at the sole discretion of the Chicago AIChE Board of Directors. Chicago AIChE may publicize activities of interest to our members by cooperating professional societies and other non-profits without charge.

Please submit your material to **aichechicago@gmail.com** with "newsletter article" as a subject line.

| ***AICHE Publicity Committee Fees*** | ***Academic (non-AICHE)*** | | ***Company*** | | ***Recruiters*** | |
|---|---|---|---|---|---|---|
| | Per Month | Per Year | Per Month | Per Year | Per Month | Per Year |
| ***Advertisements (3X3)*** | 100 | 450 | 150 | 675 | N/A | N/A |
| ***Half-Page (~7"x 4.5")*** | 280 | 1260 | 420 | 1890 | N/A | N/A |
| ***Job Posting (Size?)*** | 50 | 225 | 100 | 450 | 250 | N/A |
| ***Special Sizing*** | Contact Publicity Committee aichechicago@gmail.com | | | | | |

For the purchase of a year ad, customers have the option of changing ads/jobs month to month.
Online payment can be done using http://www.cvent.com/d/9cq5pw/4W

Student and AICHE Member Related Postings are Free.