AIChE Process Development Division

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Spring 2015

In this issue

Message from the Chair

Welcome to the Spring 2015 edition of the AIChE Process Development Division (PDD) Newsletter. First of all, an apology for not issuing the newsletter back in Fall 2014. We were searching for a new editor. I'm pleased to announce that Nitin Tople from SABIC is our new newsletter editor. Welcome Nitin! Here are some highlights for the PDD in 2015:

- The 2015 Spring Meeting (including the 11th Global Conference on Process Safety) on April 26-30th at the Hilton Austin Convention Center in Austin, TX.
- The 2015 Process Development Symposium (Emerging Trends in Process Research) on June 2-4th in the Greater Houston TX area.

(Continued on p.2)

Austin, TX - DID YOU KNOW?

- Austin has been the site of human habitation since at least 9200 BC
- Austin is home to ~750,000 bats in spring & summer & up to 1.5 million at the peak of bat-watching season
- Austin is one of the safest major cities in the U.S
- Austin is one of the sunniest cities in America with an average of 300 clear days a year
- Austin actually grew during the Great Depression. Throughout its history, Austin has doubled in population every 20 years
- The greater Austin area contains 10 extinct volcanoes
- Austin ranks first in Texas for its number of artists and musicians per capita.
- Austin really is the Live Music Capital of the World
- In more recent years, Austin has been ranked the No. 1 city in the U.S. for dogs and dog owners by the Pets at Home website

Message from the Chair (Cont.)

- The 2015 Annual Fall Meeting on Nov. 8-13th at the Salt Palace Convention Center in Salt Lake City, UT.

The Spring Meeting is only a couple of weeks away! Please register soon if you're planning to attend. You're welcome to attend our division meetings during the conference to learn more about the division and consider becoming involved in the technical programming or leadership of the Division. Also consider joining us for our PDD dinner. You can purchase tickets for the dinner when you register for the conference (or separately, if you've already registered). Details on the PDD meetings and dinner follow in the newsletter. More details on the Process Development Symposium and Fall meeting are also included.

Thanks to all for your interest and support of the Division. Although I cannot attend the Austin Spring meeting, our Division chair-elect, Bill Hollar, will host the various division meetings. I hope to see many of you at the Fall meeting in Salt Lake City. If you have any questions about the division, please feel free to e-mail me at John.Peragine@bms.com or call me at (732)-227-5688.

Best regards,
John Peragine
Process Development Division Chair

Interested in nominating yourself or a colleague for the following categories

- Excellence in Process Development Research Award
- Process Development Practice Award
- Process Development Division Student Paper Award

Please fill out the Nomination form at

http://www.aiche.org/community/awards/awards-provisions-eligibility#division-forum-nomination

http://www.pd-aiche.com/awards.html (Student Award)

2015 Process Development Practice Award

The PD Division is proud to announce that the winner of the 2015 Process Development Practice Award, Sponsored by Zeton, is Mr. Bipin Vora who is retired from UOP. He has over 100 patents and he has led process development and scale-up activities for many successful commercial processes, most notably:

- UOP DeFineR Process
- UOP/Cepsa DetalR Process
- UOP OleflexR Process
- UOP InAlkR Process
- UOP/Hydro MTO Process

Products derived from these processes are valued at more than 15 billion US dollars and will account for more than 30 billion US dollars by 2017 when plants currently in design and construction come on stream.

Join Process Development Division (PDD)

The PD division promotes networking and communication among engineers and scientists interested in process development through meetings, seminars, courses, and publications. This division also organizes AIChE activities in the field, and materials with other related societies.

In addition, the PD division provides a forum for the engineer and educator to exchange information and ideas.

Chartered: 2000, Dues: $10

2015 Process Development Symposium

Emerging Trends in Process Research

June 2-4, 2015
The Westin, Houston - Memorial City

WHY PDS 2015?

The Process Development Symposium is a specialized conference held each year focusing on specific topics of importance to those chemical engineers working in the process industries. The Symposium is limited to approximately one hundred attendees. Almost all of these attendees are from industry making the Symposium not only a great place to learn but also a great place to network with your professional colleagues.

Process Research is a wide-reaching and essential part of process development: from improving the safety, efficiency, and reliability of operations, to reducing costs or maximizing profits and minimizing environmental impact. With the continuous progress and innovation in process engineering techniques, it is important to consistently analyze and evaluate current research methods to best address the needs of an ever-expanding global arena.

Keynote Speaker: David West

David West is currently the Corporate Fellow and Director of Global Corporate Research and Innovation for SABIC. He joined SABIC in 2012 after 31 years with The Dow Chemical Company. While at Dow, David contributed to the development of a variety of process technologies and new products which became the basis for several new manufacturing plants. He held various technical and leadership positions in Business and Corporate R&D labs. His interests include development of new materials, physical chemistry, fluid dynamics, transport phenomena and non-linear dynamics.

Who should attend?

- Engineers and Managers Working on Product and Process Development
- Process Engineers
- Process Improvement Managers
- Researchers and Development Specialists
- Consultants

The Technical Program includes the following topics:

- Process Modeling and Optimization
- Career Growth / Leadership and Career Progression
- Process Intensification
- Best Practices in Managing Process Research
- Process Development Case Studies
- Process Research Fundamentals
- Designing Sustainable Process
- Pilot Plant in Process Research
- War Stories: An Interactive Discussion

Register by April 20th 2015 to save!
Registration fees include breakfasts, lunches, receptions, and symposium materials. Hotel rooms are not included.

Spring Meeting – What you need to know

Process Development Division (PDD) Dinner

The Process Development Division Dinner provides an excellent opportunity for networking. Plan to attend and become more engaged in the Division!

When: Tuesday April 28, 2015
Time: 7:00 – 9:30 PM
Where: Moonshine Patio Bar & Grill
Address: 303 Red River St.
Austin, TX 78701
Phone: 512.236.9599
Cost: $65 per person (Limit 52 people)
Will appreciate early registration

Bring a Young Colleague

.Are you looking for one more good reason to register for the 2015 AIChE Spring Meeting?

Here's one: you can bring a young colleague with you for half price.

Simply invite a co-worker, friend or industry newcomer to join you at the Meeting. Your colleague can attend for 50% off the registration fee. That's a savings of $300 or more.

You are welcome to bring any colleague who passes this simple "test":

- Your colleague is 35 or under
- Has never before attended the Spring Meeting
- And would benefit from attending the year's premier event for chemical engineers and the learning, networking

AIChE Spring Meeting's Student Program April 26-27, 2015

The Spring Meeting's Student Program will focus on networking, career information and social events. Students will celebrate the Chemical Engineering profession with young professionals, AIChE leaders and industry professionals.

Featuring:

Round Table Discussion 2:45 – 4:30PM (Sunday)

Young Professionals from both industry and academia will provide insight on topics including resume review, interview preparation, graduate school, internships, and leadership.

Student Networking Session 4:30 – 6:30 (Sunday)

Multiple Student-Related Technical Session 10:00 – 5:00 PM (Monday)

Spring Meeting Highlights

- Executive Panel: Opportunity Crudes in a Changing Market and Process Safety Considerations
- Fuels and Petrochemicals Division Welcome Session and Keynote Address: David Rosenthal
- Featured Speakers: Al Sacco, Markus E. Scheller, Marvin O. Schlanger
- 2015 AIChE Spring Meeting and 11th GCPS Keynote Address
- Exhibitor Happy Hour
- High School Outreach Program

Spring Meeting Highlights

- 2015 AIChE & 11th GCPS Dual Poster Session & Cocktail Reception
- Big Data Analytics Panel
- Wednesday Spring and GCPS Joint Luncheon
- Career Service Workshop

15 AIChE
Spring Meeting, Austin, TX

SPRING MEETING – WHY??

The AIChE Spring Meeting is the year's key technical conference for practicing chemical engineers. A wide range of subjects relevant to the current needs of industry is covered. Plus, GCPS covers the critical needs of process safety practitioners more broadly and deeply than any other conference.

THINGS TO DO WHILE IN AUSTIN …

We all know that Austin has a lot to offer - from world-famous barbecue, tex mex, to stunning lakes and landscapes, just to name a few. Below is a list of some of the exciting things to do that are a walking distance from the hotel!

WHAT TO DO?

Austin City Limits: Live at The Moody Theater! The longest running music series in American television history. Here's your chance to see it live.

Alamo Drafthouse: Cinema when there's so much to do in Austin, why go to the movies? This movie theater is unlike any other - from almost 30 beers on tap, great food, comfortable seating, and fun pre-show entertainment. Reserve your tickets early for a leather loveseat recliner spot in the balcony!

Milk + Honey Spa: Austin's favorite spa offers luxurious treatments and healing therapies.

Esther's Follies: Modern day vaudeville theater offering up a variety of entertainment from magic, singing and dancing, to sketches on pop culture.

WHAT TO EAT?

Parkside: Small plates with an extensive cocktail menu in an upscale setting. If it's nice out, be sure to ask for rooftop seating.

Swift's Attic: Retro-chic hot spot in an historic space serving up inventive small plates, craft beer and cocktails.

G'Raj Mahal Cafe: Former Indian food truck turned brick and mortar restaurant with a gorgeous tented outdoor space.

Easy Tiger: It has has it all - bakery/cafe/outdoor beer garden nestled along a creek crafting delicious baked goods and meats, all prepared in-house. Did we mention they have ping pong tables as well?



AIChE Strategic Meeting Planning and Operating Councils

I have had the privilege of serving as Meeting Program Chair (MPC) for the Spring 2015 Meeting in Austin, following a tradition of Process Development Division leaders progressing to broader roles within AIChE. The spring meeting has broad participation from industry, and is held in concert with the Global Congress on Process Safety (GCPS). My approach to coordination has been to solicit and put forth a number of topical themes, and facilitate communications between the various divisions and forums to coordinate programming within these themes. One of the inputs received from membership was a desire to see a more coherently organized meeting, including more co-programming between the Spring meeting and the GCPS, and reduced conflicts between sessions with overlapping themes. Pre-setting of themes and co-sponsorship has provided a means to achieve this goal.

One of the outcomes from this was the first ever topical on Big Data Analytics and its impact in chemical engineering, emphasizing the prowess of Austin, TX as a center of excellence in information technology.

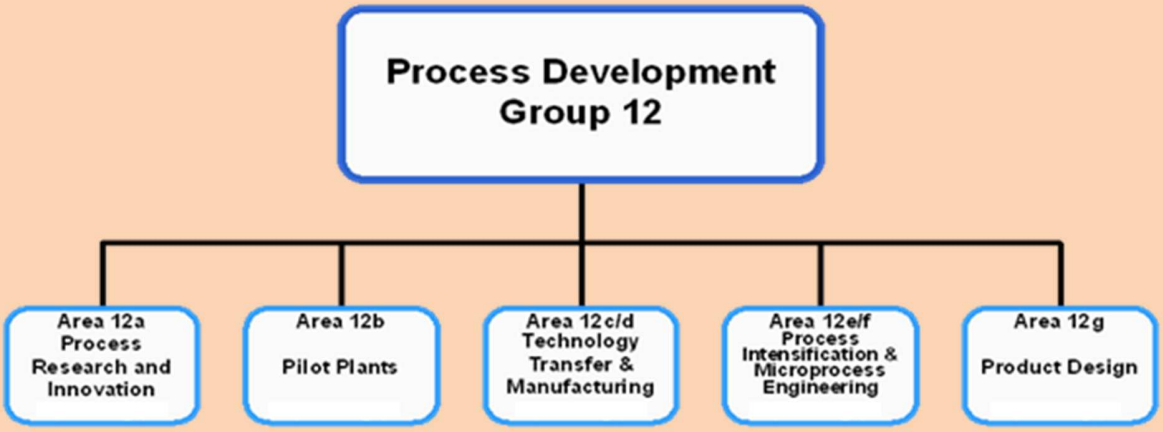
As MPC, I also participate on the Executive Board of the Program Committee (EBPC). Emphasis there has been to improve session quality for oral sessions (fewer papers, emphasizing appeal to larger audience) with meeting attendees as customer, and also to improve the quality and aura of poster sessions as a valuable medium for more interactive discussions to include a broader set of presentations. Posters are organized under themes. In addition to chairing the general (but thematic) poster sessions, I will be presenting a poster for Spring 2015 on the value of modeling skills in a Process Development Career, to complement our division's Plenary Oral session on process development career perspectives. Master class programming of interest to Young (and older) Professionals is another emphasis item for the EBPC.

I also serve on the Chemical Engineering Technology Operating Council, who advises on trends within the profession. CTOC's role is summarized by current AIChE President Cheryl Teich, who I am happy to say also grew up in the Process Development Division [http://www.aiche.org/chenected/2012/05/what-ctoc]. My role in CTOC has been to lead a task force to coordinate Shale Gas programming beginning in Spring 2014, New Orleans. I also serve as advisor on the Water-Food-Energy Nexus committee for the Center for Energy Initiatives (CEI), which also will have a panel discussion for the spring meeting.

I look forward to seeing you in Austin!

Joe Powell [Joseph B. Powell, PhD]
Shell Chief Scientist - Chemical Engineering

PDD Spring 2015 Programming



#1 2015 AIChE Spring Meeting and 11th GCPS AGILE Award Keynote Address
Monday, April 27, 2015: 8:00 AM
Ballroom D (Austin Convention Center)

Description:
Marvin O. Schlanger, retired Chairman of the Supervisory Board of LyondellBasell will kick off the meeting with the keynote address.

Sponsor:
Keynotes and Plenaries

Co-Sponsor(s):
3rd International Conference on Upstream Engineering and Flow Assurance (T9), Big Data (TA), Computing Systems and Technology Division (10), Education (04), Environmental Division (09), 17th Process Plant Safety Symposium (PPSS) (T1A), 30th Center for Chemical Process Safety International Conference (CCPS) (T1B), 49th Annual Loss Prevention Symposium (LPS) (T1C), 4th Process Safety Management Mentoring (PSM2) Forum (T1D), Perspectives on Process Safety from Around the World (T1E), Process Safety Spotlights (T1F), DIERS (T1G), Young Professionals Committee (YPC) (18C), Management Division (05), Process Development Division (12), Shale Gas and Tight Oil (T2), Sustainability (T2C), Manufacturing for the 21st Century (T3), Topical 4: The 27th Ethylene Producers' Conference (T4), Topical Five: Emerging Technologies in Clean Energy for the Twenty-First Century (T5), Topical 6: 15th Topical Conference on Gas Utilization (T6A), Topical 7: 18th Topical on Refinery Processing (T7), Topical 8: Kister Distillation Symposium (T8)
Chair:
Joseph B. Powell
Email: Joe.Powell@shell.com

#14 Plenary: How to Do Process Development
Monday, April 27, 2015: 10:30 AM
406 (Hilton Austin)

Description:
In this plenary, invited speakers will share their approaches, experiences, and learnings on how to develop processes.

PDD Spring 2015 Programming Continued (1)

(14a) Similarity, Model Theory, and Process Development
(14b) Building a First of Its Kind Technology – Process Development from Idea to Commercialization
Christina M. Borgese
(14c) Tools for Successful Process Development

#35 Introduction to Equipment Design and Instrument Selection in Pilot Plants
Monday, April 27, 2015: 1:30 PM
408 (Hilton Austin)
Description:
Applying large scale specifications to a pilot plant will almost certainly yield poor experimental results. For example, company specifications might require 2", 300# flanged tap points with 300# flanged isolation ball valves, flushing rings, and diaphragm seals to measure dP across a reactor, while this reactor might be only 1 inch in diameter. This example illustrates the need for specialized, scale specific design knowledge. The authors of this session will share their small scale equipment and instrumentation design and selection experience, and will discuss complications and difficulties encountered along the path of scaling up equipment.

(35a) Instrumentation, Automation and Control Applications in a Pilot Scale Supercritical Biodiesel Process
(35b) Size Control Valves for Lab-scale Laminar Flow
(35c) Using Dimensional Analysis to Scale Fixed-Bed Adiabatic Reactors

#38 Process Development Aspects of Bio-Refineries
Monday, April 27, 2015: 1:30 PM
406 (Hilton Austin)
Description:
Significant Process Development support is required to succeed in constructing and commissioning a Bio-Refinery, such as determining product yields and quality for refinery economics; thermochemical modeling for flowsheeting; physical modeling for equipment design; physical property measurement of feeds, intermediates, and products for equipment design; determining product yields and properties for equipment sizing; kinetics testing for reactor design; and validation of materials of construction for resistance to corrosion from novel process streams. Topics in this session can include any of the foregoing in detail or can cover multiple aspects in general. Case studies of bio-refinery projects are particularly encouraged.

(38a) Membrane Separation Processes for Biogas Purification
(38b) Thermocatalytic Biofuels Process Development
(38c) Multi-Stage Stochastic Optimization Framework for Design of Integrated Biorefineries Under Uncertainty

PDD Spring 2015 Programming Continued (2)

#51 Best Senior Design Competition
Monday, April 27, 2015: 3:30 PM
408 (Hilton Austin)
Description:
The capstone course for every Chemical Engineering program is its Design course. This course requires students to utilize all the skills they have acquired during their university career. Students are justifiably proud of the design they produce for their assigned project. This session represents the second year that the Process Development Division has sponsored a Design competition. It provides senior students the opportunity to present their design to a professional audience and to evaluate their project and their effort relative to Design teams from other universities. First, second, and third place trophies will be awarded per audience evaluation.

(51a) Propane Dehydrogenation Design for US Gulf Coast
(51b) Economic Optimization and Hazard Analysis of a Mono-Chlorobenzene Process
(51c) Design of Propane Dehydrogenation Plant

#72 Poster - Session Advances in Simulation, Optimization, Modeling, and Control
Monday, April 27, 2015: 5:00 PM
Exhibit Hall 5 (Austin Convention Center)
Description:
Covering an array of themes involving improved capabilities for simulation, modeling, optimization, characterization, and control.

#73 Poster Session - Emerging Technologies
Monday, April 27, 2015: 5:00 PM
Exhibit Hall 5 (Austin Convention Center)
Description:
Covering an array of new and emerging technologies for processes and products.

#74 Poster Session - Physical Properties and Complex Fluids
Monday, April 27, 2015: 5:00 PM
Exhibit Hall 5 (Austin Convention Center)
Description:
New approaches, theories, experimental data for physical properties, from gases to complex fluids. Covering Upstream and Downstream applications.

#77 Best Practices in Pilot Plants I
Tuesday, April 28, 2015: 8:00 AM
408 (Hilton Austin)
Description:
This general session on pilot plants will exhibit views and examples of best practices for pilot plants, including scale-up and scale-down, continuous or staged pilots, use of specialized in situ or off-line analysis tools, or other tricks that can make-or-break the effectiveness of a pilot program.
(77a) Pilot Plant Essentials: The Tools for Successful Chemical Startups
(77b) Design and Testing of a Pilot-Scale Filter to Remove Contaminants from Radioactive Waste
(77c) Mechanism-Free Chemical Engineering Kinetics: Part 2

PDD Spring 2015 Programming Continued (3)

#85 Heat Transfer Challenges I
Tuesday, April 28, 2015: 8:00 AM
412 (Hilton Austin)
Description:
Heat transfer equipment/systems in chemical plants remain a key challenge in achieving safe, energy efficient and reliable operations. Some specific challenges include: 1. choosing the right type of heat exchanger for various plant applications, 2. insuring long term performance of the heat transfer system and 3. proper design, installation and maintenance of the systems. Towards this end, this session will focus on submissions that describe new heat exchanger design and technology, new applications of existing technology and case studies of improving heat exchanger performance in operating plants.
(85a) Polymer Solution Preheating to Achieve Steam Usage Reduction in Polymer Isolation By Precipitation Jets
(85b) Impact of High-Emissivity Coatings on Process Furnace Heat Transfer

#90 Process Research and Development for Industrial Sustainability I
Tuesday, April 28, 2015: 8:00 AM
406 (Hilton Austin)
Description:
Today, economic drivers are driving us towards the reduce, reuse, and recycle of materials, energy, solvents, water and the like in the design of our processes. This session will focus on such processes that while improving the economics of product manufacturing also ultimately leads to the improved sustainability of industrial processes. Papers from theoretical or practical contributions in all related areas are welcomed, such as technology innovation for environmentally benign manufacturing, process development for green products and sustainable alternative energy resources, emission reduction and energy savings, as well as the integration of sustainability analysis into process design and operations and supply chain management.
(90a) Studies on Briquetting of Chromite Ore with Waste Plastic Binder
(90b) Biochar Production and Application on Treatment of Flowback Water from Hydraulic Fracturing
(90c) Production of Asphalt Binder from Ohio Coal Resources

#101 Best Practices in Pilot Plants II
Tuesday, April 28, 2015: 10:15 AM
408 (Hilton Austin)
Description:
This general session on pilot plants will exhibit views and examples of best practices for pilot plants, including scale-up and scale-down, continuous or staged pilots, use of specialized in situ or off-line analysis tools, or other tricks that can make-or-break the effectiveness of a pilot program.
(101a) Dimensional Analysis of Liquid Flow through Packed Columns
(101b) Nozzle Spray Delivery Studies for High-Viscosity Shear-Thinning Fluids
(101c) Practical Aspects of Slurries and Solid Liquid Separations

PDD Spring 2015 Programming Continued (4)

#112 Heat Transfer Challenges II
Tuesday, April 28, 2015: 10:15 AM
412 (Hilton Austin)
Description:
Heat transfer equipment/systems in chemical plants remain a key challenge in achieving safe, energy efficient and reliable operations. Some specific challenges include: 1. choosing the right type of heat exchanger for various plant applications, 2. insuring long term performance of the heat transfer system and 3. proper design, installation and maintenance of the systems. Towards this end, this session will focus on submissions that describe new heat exchanger design and technology, new applications of existing technology and case studies of improving heat exchanger performance in operating plants.
(112a) Revamping, Debottlenecking and Optimizing Ethylene Plants Using Enhanced Heat Transfer Solutions
(112b) Heat Transfer Improvement in the Concentrator System

#116 Leading the Operationalization of Bench and Pilot Systems
Tuesday, April 28, 2015: 10:15 AM
410 (Hilton Austin)
Description:
The cultures of the lab and commercial plant collide at the pilot scale. Where a researcher at the bench may have had the strictest control on operational parameters and was well aware of the safety considerations at that scale, and seasoned plant engineer or plant operator has to translate the reality of the accuracy and variability that occurs in large scale chemical operations so that the system remains safe and the product hits specifications. Whereas the lab scale team might be used to having parameters for a new run direction set up and running by lunch, the same change may take weeks as safety reviews, operational training and the larger scale reconfiguration of pilot scale equipment more resemble a small project versus a lab scale study.
(116a) Organizing the Experimental Order
(116b) Scale up Techniques and Traps from Small Scale Systems
(116c) Collecting, Organizing, and Presenting Data from Small Scale Systems
(116d) Can the Scientific Method Survive the Plant Condition ?

#118 Process Research and Development for Industrial Sustainability II
Tuesday, April 28, 2015: 10:15 AM
406 (Hilton Austin)
Description:
Today, economic drivers are driving us towards the reduce, reuse, and recycle of materials, energy, solvents, water and the like in the design of our processes. This session will focus on such processes that while improving the economics of product manufacturing also ultimately leads to the improved sustainability of industrial processes. Papers from theoretical or practical contributions in all related areas are welcomed, such as technology innovation for environmentally benign manufacturing, process development for green products and sustainable alternative energy resources, emission reduction and energy savings, as well as the integration of sustainability analysis into process design and operations and supply chain management.

PDD Spring 2015 Programming Continued (5)

(118a) Solar Energy Harvesting and Storage Using a Salinity Gradient Solar Pond Under the Northern Cyprus Climate Conditions-Experimental Investigations and CFD Simulation
(118b) Time-Dependent Multi-Period Assessment of Life Cycle Cost and Environmental Impacts of CO2 EOR
(118c) Improving Process Sustainability for a Large U.S. Gray Iron Foundry

#128 Challenges in Process Scale-up I
Tuesday, April 28, 2015: 1:30 PM
408 (Hilton Austin)
Description:
The development and piloting of new processes is often faced with challenges that are either a reflection of the process mass, momentum or energy transfer, chemistry and/or the realities that piloting equipment are not always as available or adaptable to small scale pilot plants. This session encourages submissions where specific challenges in process scale-up were faced and new and interesting (innovative) approaches to resolve these challenges were developed and implemented.
(128a) Choosing Patent or Trade Secret Protection for Processes and Manufacturing Methods
(128b) Scaling Solid Resuspension and Sorption for the Small Column Ion Exchange (SCIX) Processing Tank
(128c) Challenges for Scaling up Liquid-Liquid Extraction Columns

#138 Process Research and Development for Industrial Sustainability III
Tuesday, April 28, 2015: 1:30 PM
406 (Hilton Austin)
Description:
Today, economic drivers are driving us towards the reduce, reuse, and recycle of materials, energy, solvents, water and the like in the design of our processes. This session will focus on such processes that while improving the economics of product manufacturing also ultimately leads to the improved sustainability of industrial processes. Papers from theoretical or practical contributions in all related areas are welcomed, such as technology innovation for environmentally benign manufacturing, process development for green products and sustainable alternative energy resources, emission reduction and energy savings, as well as the integration of sustainability analysis into process design and operations and supply chain management.
(138a) Hydroprime® Modular Plants Provide Low Cost, Reliable Hydrogen
(138b) A Novel Two-Step Metal Oxide – Metal Sulfate Water Splitting Cycle for the Production of Solar Hydrogen
(138c) Mitigating Ethylene Plant Flaring Risk during Equipment Switching Transitions By Dynamic Simulation

#150 Challenges in Process Scale-up II
Tuesday, April 28, 2015: 3:30 PM
408 (Hilton Austin)
Description:
The development and piloting of new processes is often faced with challenges that are either a reflection of the process mass, momentum or energy transfer, chemistry and/or the realities that piloting equipment are not always as available or adaptable to small scale pilot plants. This session encourages submissions where specific challenges in process scale-up were faced and new and interesting (innovative) approaches to resolve these challenges were developed and implemented.

PDD Spring 2015 Programming Continued (6)

(150a) Experimental Investigation of Heat Transfer and Pressure Drop in Pillow-Plate Condensers
(150b) Wall-to-Bed Mass Transfer in a Fluidized Bed Electrochemical Reactor in the Presence of Angled Disc Promoter
(150c) Formulating a Porous, Solid Catalyst Development Program Using Dimensional Analysis

#158 Optimization and Control in Smart Manufacturing
Tuesday, April 28, 2015: 3:30 PM
412 (Hilton Austin)
Description:
Use of optimization and control for smart manufacturing, including global integration between units, model-based control, use of sensors for "big data" analytics

#160 Process Research and Development for Industrial Sustainability IV
Tuesday, April 28, 2015: 3:30 PM
406 (Hilton Austin)
Description:
Today, economic drivers are driving us towards the reduce, reuse, and recycle of materials, energy, solvents, water and the like in the design of our processes. This session will focus on such processes that while improving the economics of product manufacturing also ultimately leads to the improved sustainability of industrial processes. Papers from theoretical or practical contributions in all related areas are welcomed, such as technology innovation for environmentally benign manufacturing, process development for green products and sustainable alternative energy resources, emission reduction and energy savings, as well as the integration of sustainability analysis into process design and operations and supply chain management.

(160a) Reactive Production Scheduling for Ethylene Cracking Furnace System
(160b) An Innovative Process Design for Ammonia Synthesis Based on Self-Heat Recuperation Technology

#201 Process Innovation in Pollution Abatement I
Wednesday, April 29, 2015: 1:30 PM
406 (Hilton Austin)
Description:
The theme of this session focuses on technologies and process innovations in pollution control and their impact in environment. Papers submitted to this session include 1) improving process energy efficiency that potentially reduces fuel consumption, 2) using new pollution treatment facilities in pollution abatement, and 3) demonstrating energy-efficient technologies.

(201a) Air-Quality Evaluation on Flare Minimization Strategies for an Ethylene Plant Shutdown
(201b) Application of Non-Thermal Plasma on SO2 Removal from Synthesis Gas
(201c) Selective Non-Catalytic Reduction (SNCR) Technology for NOx Removal – the Past, the Present, and the Future

PDD Spring 2015 Programming Continued (7)

#202 Process Intensification
Wednesday, April 29, 2015: 1:30 PM
408 (Hilton Austin)
Description:
Process Intensification (PI) is a design philosophy to develop novel apparatuses and techniques to obtain dramatic process improvements, such as a decrease equipment size/production capacity ratio, improvements to manufacturing or processing, reduction of energy consumption, and reduction of waste production. This is accomplished by using novel apparatuses and techniques that significantly enhance heat and/or mass transfer rates, and giving every molecule the same processing conditions. Presentations in this session will discuss both practical and theoretical applications for PI.

(202a) Expansion of Operating Range of Dividing Wall Columns
(202b) Experimental Study on Process Intensification of Mass Transfer Coefficients with Coaxially Placed and Perpendicularly Rotated Novel Turbulence Promoters in Circular Conduits
(202c) The Hydration of Acrylonitrile to Produce Acrylamide Using Biocatalyst in Micro-Dispersed System

#213 Process Innovation in Pollution Abatement II
Wednesday, April 29, 2015: 3:30 PM
406 (Hilton Austin)
Description:
The theme of this session focuses on technologies and process innovations in pollution control and their impact in environment. Papers submitted to this session include 1) improving process energy efficiency that potentially reduces fuel consumption, 2) using new pollution treatment facilities in pollution abatement, and 3) demonstrating energy-efficient technologies.

(213a) The Transport Phenomena within the Intasense Indoor Air Quality Monitor Design
(213b) Superior Composite Oxide Catalysts for Combustion of Volatile Organic Compounds
(213c) Methane Recovery By Dual Reflux Pressure Swing Adsorption

#214 Reactive and Intensified Distillation
Wednesday, April 29, 2015: 3:30 PM
408 (Hilton Austin)
Description:
The combination of reaction processes or heat integration to traditional distillation processes can lead to significant benefits for both reaction and separation processes. Both approaches can be considered as process intensification. Multiple examples of this technology can be found in both technical and patent publications. This session will focus on both the theoretical and experimental aspects of existing and new process applications of reactive and intensified distillation processes.

(214a) Ionic Liquids As Entrainers for Azeotropic Distillation Systems
(214b) The Technical Reconstruction of the Double Effect Distillation for Methanol Process
(214c) Developing Intensified Separation Processes for the Industry
(214d) Synthesis of New Dividing Wall Columns for Thermally Coupled Distillation

2015 Annual Meeting

November 8-13, 2015, Salt Lake City, Utah

PDD Tentative Sessions:

12000 Process Development Poster Session

Process Research and Innovation (12A)

12A00 PAT for Crystallization Development and Manufacturing
12A02 Big Data for Process Development and Innovation
12A03 Process Reengineering for Energy Saving and Pollution Prevention
12A04 Process Development through Innovative Partnerships
12A05 Process Improvement and Innovation Via Intensification
12A056 Reaction Engineering Fundamentals in Enzyme Production, Consolidated Bioprocessing(CBP) and Simultaneous Saccharification and Fermentation(SSF) for Biomass Conversion
12A07 Process Research and Development for Industrial Sustainability

Pilot Plants (12B)

12B00 Pharmaceutical Process Development and Pilot Plants
12B01 Challenges in Small-Scale Synthesis - Pilot Plants
12B02 Ensuring Safe Process Scale up
12B03 Advances in on-Line Tools for Pilot Plants

Technology Transfer and Manufacturing (12C)

12C00 Process Development: Design, Risk Reduction and Implementation
12C01 Building a Career in Chemical Engineering
12C02 Challenges and Best Practices in Technology Commercialization

Process Intensification & Microprocess Engineering (12E)

12E00 Advances in Process Intensification I
12E01 Process Intensification by Process Integration
12E02 Process Intensification by Enhanced Mass and Heat Transfer
12E03 Advances in Process Intensification II

Product Design (12G)

12G00 Tools for Product Design
12G01 Physical Properties for Chemical Process and Product Design
12G02 Sustainable and Green Product Design
12G03 New Product Development
12G04 Project Management for Product Development

Call for Papers closes May 11, 2015

Process Development Area Leadership

	Chair	Chair Elect	Area Coordinator
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Process Development Division Leadership (2014-2016)

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