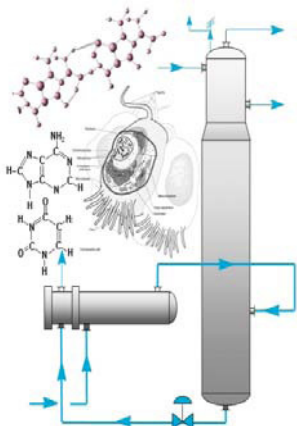


February Newsletter

Chicago Section

www.aiche-chicago.org

February 2011



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AIChE Chicago

February 2011 Meeting Notice

Current State of Refining Industry & Upcoming Challenges

Richard Rossi

UOP Industry Segment Leader

Date: **Wednesday, February 16th, 2011**

Location: **The Ram Restaurant & Brewery**

1901 Mc Conner Parkway, Schaumburg, IL 60005
(847)517-8791

Cost: **Members: \$35** **Non-Members: \$40**
 Students: \$5 **Unemployed Members: \$20**

To Register CLICK the Link:

<http://guest.event.com/d/rdqbs6/1Q>

A Special Thanks to Honeywell Process Solutions for Sponsoring this Event!

Agenda

5:30 PM

6:30 PM

7:30 PM

Social Hour

Buffet Dinner, Honeywell Process Solutions capabilities presentation

General Meeting

Chair's Corner

We've all heard the very popular buzzword in our profession these days, Sustainability. There doesn't seem to be a professional conference or symposium that doesn't mention it. However, the concept of sustainability was never illustrated any better than the subject matter that was presented at the recent meeting that our section cosponsored with the ACS last month.

The topic, presented by Dr. Arup Sen Gupta of Lehigh University was "Sustainable Mitigation of Global Arsenic Crisis: Challenges and Progress". The issue is that throughout the Himalayan belt there is natural leaching of arsenic into the groundwater. In rural villages throughout India, and Cambodia there is ample evidence of arsenic poisoning presenting in the maladies and illnesses of the villagers.

These villages all had a central pumping station where the various families would gather water for the week. Dr. Sen Gupta and a group of his graduate students visited various pumping stations throughout West Bengal, India. They realized that any solution to the arsenic problem would require that there was little cultural impact on how the families would gather water. They came up with a solution that involved an iron based chemical adsorbent chamber which they attached to the pumping station. This solution required no power and did not change the culture.

This appeared to be a great solution. However, it was not sustainable. The cost of the adsorbent chamber came from governmental grants. In addition the spent chemical adsorbent canisters were littering the area around the pumps. Though the iron adsorbent was effective at removing the arsenic it was structurally too weak to be regenerated.

Dr. Sen Gupta's team came up with a novel idea of creating nanoparticles that had iron sites that were encased in a polymeric material. This new adsorbent was structurally su-

perior to the original adsorbent and was fully regenerable. The team then returned to the various rural villages to replace the adsorbent. What they found when they returned was that commercial enterprise had sprang up around some of the wells as a delivery service for the purified water. The installation of the new adsorbent chambers required a centralized regeneration station. The running of the regeneration system became a family business. It was also found that the villagers were very willing to pay a fee for the purified water which covered the cost of the regeneration and the adsorbent chambers. The government subsidies were no longer required.

This approach proved to be sustainable from both an environmental as well as an economic perspective. It has currently been applied to numerous villages throughout India, Cambodia and Argentina. More than 200,000 people now have safe drinking water thanks to the efforts of Dr. Sen Gupta's team.



Steve Rosenblum—UOP

Need a Volunteer @ Registration Desk

If you are planning to attend next monthly meeting please consider helping us at the registration desk. For more information, please send an email to;

aichechicago@gmail.com

January Meeting



February Meeting Information

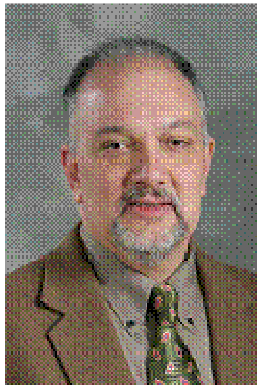
Richard J. Rossi

Biography:

“Current State of Refining Industry & Upcoming Challenges”

Abstract:

The refining industry is very dynamic, experiencing a number of highs and lows over the past decade. Many challenges have been created by the economic recession as well as the emergence of fast-growing economies and competitors in many regions of the world. This presentation will present an overview of the current state of the market, a view of where it's going, and cover some very specific challenges and opportunities moving forward.



Rich Rossi is the Industry Segment Leader for Hydro-processing, FCC and Heavy Oil product lines in UOP's Process Technology & Equipment Business Unit. Rich previously managed the Hydrocracking Catalyst Technology group and has been Group Leader for the Catalyst, Adsorbent & Specialties Business Unit Technical Services group. Prior to joining UOP, Rich worked as a Senior Hydro-processing Technology Specialist for BP and also worked at their Toledo and Marcus Hook refineries. Rich started his career in Exxon Research & Engineering, after graduating from the New Jersey Institute of Technology with a B.S. in Chemical Engineering. Rich recently received his M.B.A. from North Central College in Naperville, Illinois.

To Register, please click

<http://guest.cvent.com/d/rdqbs6/1Q>

THANK YOU



A Honeywell Company

Special Thanks to Honeywell Process Solutions for supporting the students of AIChE Chicago! HPS has pledged up to offset student attendance costs to the chapter. This support allows AIChE to continue low-cost admission to students, and to strengthen our support of student activities during the year.

What AIChE means to me?

Alan Zagoria

I'd mind as well admit it: it has been a very long time since I was *not* a chemical engineer. When I chose to become a chemical engineer, the world was still trying to figure out whether the President of the United States would really authorize a break-in at the Watergate Hotel; we were still recovering from the devastation of the Beatles breaking up; and "high tech" meant a slide rule with more than 16 scales on it. My life wouldn't be the same if I had selected another profession, and I have never regretted the choice. My career has had its ups and downs like everyone else's, but chemical engineering and AIChE have afforded me all sorts of challenges, adventures and satisfactions. Most satisfying were the opportunities to challenge myself and to give back to the profession and society.

I have been around a long time and been through plenty of changes in my career. Looking back at it, the one constant was AIChE. It has served my different needs at different stages of my career.

I was Vice-Chair of my AIChE Student Chapter at Northwestern University. I got to represent NU at the National AIChE meeting in Philadelphia in November 1973 - my first business trip on an expense account! At this stage, AIChE broadened my view of the engineering world and gave me the opportunity to travel and meet other students and professionals.

I've always felt that part of being a professional is playing a role in your professional organization. So I was disappointed, upon starting my first job with Union Carbide in Tarrytown, NY, to find that the New York City chapter of AIChE held all its meetings at lunchtime. Anyone working in my area would have to give up half a day's work to go into NYC and back. Always anxious to do something about things that I believe need changing, this presented

the first opportunity to do what really drives me as a professional – *the opportunity to take on an unstructured problem and solve it for the first time*. I and a couple of colleagues approached the NYC chapter to get something going in Westchester. They and AIChE National were very supportive, and to make a long story short, at the ripe old age of 25 I was the first Chair ever of the new Tappan Zee Section. It was up to me to figure out what our purpose was, how we were going to run, how we were going to get corporate support. I didn't know that this was an awful lot of responsibility for a young kid, and I loved every minute of it. The stars were aligned and we built very good support from the four major chem e employers in the area. I developed relationships with corporate executives and had Directors and Vice Presidents occasionally come to our meetings – and guess what? Lots of their employees came too. I gained a lot of confidence, and had responsibilities I would not have had at my day job for another 10 to 15 years.

After a few years of active leadership in the Tappan Zee Section, I became less actively involved, playing a premature elder statesman role. Some years after that, I decided I really wanted to work with K-12 students. And I recognized AIChE was an excellent base to work from. Since there was no science fair in our area, I hooked up with a couple of teachers and another non-profit organization, and together we founded a very successful tri-county Science Fair that has now been running for 20 years. Challenging but rewarding, this was yet another first-time unstructured problem. Structure, scope, rules, finances, sponsorship all had to be defined.

Early in my career, I also wanted to participate in the national conference. I joined the Professional Development Committee and got to co-

chair a Session. I was mentored by an experienced PDC person, but I got to pick the topic, solicit speakers and run the actual seminar. I chose "What to Do When You Can't Help but Stand Out in the Crowd". Another broadening and confidence building activity courtesy of AIChE.

When I moved to Chicago in 1995, I still had a strong interest in Student Outreach. At the last national meeting ever held in Chicago I was heavily involved in setting up a program for HS students to serve as session aides – the first and only time this has been done. On a regular basis the Chicago Section of AIChE sets up demonstrations for National Engineers Week and Chemistry Day, sponsors an award and judges at the Future Cities Competition, and participates in lots of career days. The single biggest activity is our program for over 400 HS students in conjunction with the Regional Conference our Section runs every year.

About 7 years ago, I wanted to participate more in AIChE at the national level; both because it would be a new and different challenge for me and because the way things were going they really needed my help. I was appointed to the CEOC Operating Council and eventually served as Chair. CEOC is really a lot of responsibility. It oversees about half of everything AIChE does (Local Chapters, Student Chapters, Professional Development and Continuing Education, Licensing and Accreditation, Membership Committee...). Chairing this committee is executive experience, but of course without the executive pay or minions to do your work for you. I worked hard to increase AIChE's value to its members working in industry who participate locally or hardly at all. I certainly had to develop new leadership skills to wield any impact through a Council of volunteers meeting sporadically and remotely, on a national organization entrenched in its ways. I think I did, and I am glad I had the opportunity to give something back to AIChE.

I have taken on the role at UOP of being the spokesman for AIChE to management and to

new hires. AIChE even got me invited into a UOP Board meeting to make a presentation – a place I never would have been otherwise.

Since I was given this opportunity to speak my mind, I am going to take the liberty of ending with a side story and a moral that I hope you take to heart. I'll start with the moral: *Take control of your career! Figure out where you want to get to and how to get there. Its up to you to take the actions to make it happen, but accept a reasonably long time horizon.* Now the story: Twenty years ago, I developed a strong interest in artificial intelligence. Taking my career path in my own hands, I found a university that specialized in this, and I commuted about 90 minutes each way to take four graduate evening courses in AI. Now I understood the technology, believed in it, and *really* wanted to apply it. I found ways to apply expert systems to my job (skunk works) but they never became part of our group's work process. I made presentations at poster sessions and various group meetings around the company on how AI can / should be applied. I got on my soap box whenever I could. I did this for many years, with no apparent results. Then, one day, someone from another Department whom I had never met knocks on my door and says "You know something about expert systems, right?" He was starting up a group to try building troubleshooting expert systems for UOP processes. No one in the company had any experience doing this (except me) -- all my preparations and presentations had finally paid off and the opportunity found me. I am consulting with this group for five years now and we've gone from demonstrating the concept to fielding over a dozen expert systems. I am involved in every one, doing only the part that I am good at and really enjoy. This would never have happened if I hadn't worked all those years ago to make it happen. And I am really glad I did.

AIChE National's Live Webinars February

[Making Your Work Easier and Your Results Data-Driven with Statistics](#)

Presented by **Janet Hammill**

Wednesday **February 9**, 2011

2:00 - 3:00 p.m. ET

[AIChE's Leadership Webinars: Chemical Engineering Essentials from Academic Authors Session Three: Process Dynamics and Control](#)

Presented by **Dr. Thomas F. Edgar**

Wednesday **February 16**, 2011

12:00 - 1:00 pm ET

[AIChE's Leadership Webinars: Chemical Engineering Essentials from Academic Authors - Session Four: Fluid Mechanics for Chemical Engineers - Old and New](#)

Presented by **Dr. James O. Wilkes**

Wednesday, **February 16**, 2011

2:00 - 3:00 p.m. ET

[Controlling Electrostatic Hazards Associated with Liquid and Powder Processing](#)

Presented by **Dr. Vahid Ebadat, Ph.D.**

Wednesday, **February 23**, 2011

2:00 - 3:00pm ET

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 March 1, 2011.

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, J-8

150 W. Warrenville Road, Naperville, IL 60566

Ph 630-420-5936, fax 630-420-4832

email: james.simnick@bp.com

Upcoming Meetings

[Spring Meeting](#)

Hyatt Regency Chicago
Chicago, IL

March 13-17, 2011

[Offshore Technology Conference \(OTC\) 2011](#)

Reliant Park
Houston, TX

May 2-5, 2011

[AIChE-DECHEMA Global Conference on Energy Sustainability in the Process Industries \(ESPI\)](#)

Hong Kong University of Science and Technology (HKUST)
Hong Kong SAR, China

June 5-8, 2011

[56th Annual Safety in Ammonia Plants and Related Facilities Symposium](#)

Sheraton Montreal Hotel
Montreal, QC

September 11-15, 2011

[Annual Meeting](#)

Minneapolis Convention Center
Minneapolis, MN

October 16-21, 2011

YPAB News

[E-Week Event](#)

Saturday, February 26th, 11AM-3:30PM

E-week is being held again this year at [IIT's Rice Campus in Wheaton](#). AIChE members will interact with K-12 students about chemical engineering.

[Teacher Outreach](#)

Friday, April 1st, 12:30-4PM

Event is an opportunity to better educate teachers about what chemical engineers do and how to prepare their students for an engineering career. There will be lectures, lunch, and an tour of the large scale Water Treatment facility in downtown Chicago.

To volunteer for either event, contact Meagan Lewis (melewis25@gmail.com) or Jessica Swary (jessicaswary@msn.com).

[Whirlyball 2011](#)

Whirlyball 2011 Tournament was a complete success! Held at Whirlyball's Lombard location on Jan 27th, 22 local YPs braved the cold and turned out for fun and networking. Teams morphed during the 2 hour court time so there was no clear winning team, but everyone had a great time. Looking forward to next year's re-match!

<https://picasaweb.google.com/aichechicagowebsite/YPABWhirlyballSocial?feat=directlink#>

YP Programming @ AIChE Spring Meeting

Early bird registration for the Spring Meeting is through **February 1**. The "Bring a Young Colleague" initiative allows you to save even more by registering with a colleague!

While you're at the 2011 AIChE Spring Meeting, make sure to check out the **YP sessions** in Management, Separations, Environmental, and Process Controls. If you're interested in developing your networking skills even more, check the **short course on Networking** (Sunday, March 13), an affordable short course co-presented by YP Jessica Swary.

See Chicago! Meet other YP's! Open Bar! Appetizers!

All great reasons to register for the Young Professionals Speed Networking Social during the 2011 AIChE Spring Meeting in Chicago. YP's will mingle and meet other young professionals and division representatives from our AIChE Division sponsors at Elephant & Castle, located in Chicago's financial district, just blocks away from the Sears (Willis) Tower.

A \$10 registration fee is required (listed as an additional event on the conference registration form).

Young Professionals (YP) Speed Networking Social

Tues, March 15, 2011,

6:30—9:30 PM

Elephant & Castle

111 West Adams St

Chicago, IL

Registration Fee: \$10 on conference registration or [RSVP on Facebook](#) and pay \$10 cash fee at event. [Click here to download](#) directions to Elephant & Castle from the Hyatt Regency." with "Visit www.aiche-chicago.org/ypab for more information and directions.

Sponsored by: AIChE Chicago/YPAB Chicago Section, Environmental Division, Fuels & Petrochemicals Division, Management Division, and Separations Division.

2011 AIChE Spring Meeting & 7th Global Congress on Process Safety

March 13-17, 2011
Hyatt Regency Chicago
Chicago, IL



YOUNG PROFESSIONALS PROGRAMMING

YP Sessions (3/14-3/15):

- Management
- Separations
- Environmental
- Process Controls

Short Course (3/13):

- Networking

YP Social / Speed Networking

March 15

Free Drinks and Appetizers
(\$10 Registration Fee)



FOR REGISTRATION, VISIT THE [AICHE WEBSITE](http://www.aiche.org/Conferences/SpringMeeting/index.aspx)
<http://www.aiche.org/Conferences/SpringMeeting/index.aspx>

Register with a colleague for a 50% discount! See the "[Bring a Young Colleague](#)" initiative for information!

QUESTIONS ON YP PROGRAMMING? EMAIL US! JESSICA, JESSICASWARY@MSN.COM

Historical Engineering Events in February

February 2, 1897 – Ice cream scoop patented by Alfred L. Cralle, the first African-American in Pittsburgh to receive a patent. His patent became the model for ice cream scoops in households soon after and the basis for many scoops today.

February 3, 1958 - Rachael Carson publishes the *Silent Spring*. Rachel Carson, a writer, scientist and ecologist, worked seventeen years for the US Fish and Wildlife Service, where she learned about the problems of pesticides on the environment.

February 6, 1959 - Kilby patents the integrated circuit. Jack Kilby at Texas Instruments and Robert Noyce at the small Fairchild Semiconductor start-up company were both working on the concept of an integrated circuit in 1958.

February 7, 1984 – The first untethered spacewalks were made by Space Shuttle Challenger astronauts Bruce McCandless II and Robert L. Stewart. Each used a manned maneuvering unit (MMU) in an orbit 150 nautical miles above the Earth. McCandless was the first to leave the cargo bay untethered in space

February 10, 1874 – Water-closed railway cars patented by Lewis Latimer, U.S. patent (No. 147,363). Latimer is better known for his patents for improvement in incandescent electric lamps while working for Edison.

February 11, 1939 – a “one page note” appeared in the magazine *Nature* by [Lise Meitner](#) and her nephew Otto Robert Frisch, entitled “[Disintegration of Uranium by Neutrons: A New Type of Nuclear Reaction,](#)” where for the first time a theoretical explanation for the splitting of uranium atoms was published and the term “fission” was coined for that process using the analogy of cell division in biology.

February 13, 1959 – the first Barbie doll goes on sale. Barbie’s inventor, Ruth Handler, was inspired by seeing that her daughter, Barbie,

and her girl friends enjoyed playing with adult female dolls, but most dolls at the time were baby dolls.

February 14, 1990 - First photo of the solar system is taken and dubbed the “family portrait” of our solar system as seen from outside. Voyager 1 was launched on September 5, 1977 and it passed Saturn in November 1980.

February 14, 1946 – ENIAC, the world’s first digital electronic computer, is unveiled. ENIAC – Electronic Numerical Integrator and Computer – the world’s first operational, general purpose, electronic digital computer, developed at the Moore School of Electrical Engineering, University of Pennsylvania.

February 16, 2005 – the Kyoto Protocol of the United Nations Framework on Climate Change goes into effect. In 1992 the Framework Convention on Climate Change (UNFCCC) was adopted in order to meet the looming concerns of global warming.

February 17, 1998 – “Voyager 1 becomes the most distant human-made object from the Sun. Voyager 1 was launched on September 5, 1977 and it passed Saturn in November 1980.

February 17, 2009 – Television originally scheduled to go digital in the U.S. Congress mandated this as the date when all full-power TV stations would cease to broadcast analog programming.

February 18, 1901 – First vacuum cleaner patented by Hubert Cecil Booth, an English structural engineer. This design had the disadvantage that it had no way to collect the dust and never became a commercial success.

February 21, 1994 - Whirlpool begins production of refrigerators without freon. In the 1930s, refrigerators began to use freon as a refrigerant. However, the use of freon became an environmental concern once it was identified as a ozone-depleting chemical.

February 22, 1876 – Johns Hopkins opens as first research university in America. At his inauguration, Johns Hopkins first president, Daniel Coit Gilman asked: *What are we aiming at? The encouragement of research ... and the advancement of individual scholars, who by their excellence will advance the sciences they pursue, and the society where they dwell.*

February 23, 1893 – Rudolf Diesel patents the diesel engine in Germany. Rudolf Diesel's goal was to improve on the efficiency of the gas-line-engine that used the Otto cycle. His new concept for the engine was to compress the air in the cylinder adiabatically

February 25, 1837 – Thomas Davenport patents the electric motor and electric railway.

Thomas Davenport, an American blacksmith, first invented the DC electrical motor in 1834 and used it to make a small model of electrical railway in 1835.

February 27, 1932 – Chadwick publishes his discovery of the neutron. Until 1932, the atom was known to consist of a positively charged nucleus surrounded by enough negatively charged electrons to make the atom electrically neutral

February 29, 1940 – The Nobel Prize in Physics was presented to Ernest Lawrence "for the invention and development of the cyclotron and for results obtained with it, especially with regard to artificial radioactive elements".

AICHE Spring Meeting Chicago

March 13-17, 2011
Hyatt Regency Chicago
Chicago, IL



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, the Global Congress on Process Safety covers the critical needs of process safety practitioners more broadly and deeply than any other conference.

Highlights of the 2011 meeting include:

- **Spring Meeting Keynote Address (Monday, March 14, 11:00am-12:00pm)**

"The Energy Challenge: Providing Sustainable Supplies to Meet Growing Demand," Dr. F. Emil Jacobs, Vice President Research and Development, ExxonMobil Research and Engineering Company.

- **The 7th Global Congress on Process Safety**
- **23rd Ethylene Producers' Conference**
- **11th Natural Gas Utilization Conference**
- **14th Topical Conference on Refinery Processing**
- **Young Professional programming on management, process controls, separations and environmental topics**
- **Young Professional Speed Networking Social**

Local Speakers in AIChE Spring Meeting

K-12 Outreach: My Experience In High School Classrooms with the NSF GK-12 Program

Monday, March 14, 2011: 8:50 AM

[Jennifer Younker](#), Chemical and Biomolecular Engineering, University of Illinois at Urbana-Champaign, Urbana, IL

Prediction of Hydrogen Solubility In Heavy Hydrocarbons Over a Range of Temperatures and Pressures Using Molecular Dynamics Simulations

Monday, March 14, 2011: 8:00 AM

[Huajun Yuan](#)¹, Chris Gosling², Peter Kokayeff³ and Sohail Murad¹, (1)Chemical Engineering, University of Illinois at Chicago, Chicago, IL, (2) Refining Process Development, UOP LLC, Des Plaines, IL, (3)Refining Process Development, UOP LLC, Riverside, IL

Simulated Moving Beds-Principles and Design Tools

Monday, March 14, 2011: 8:00 AM

[Nien-Hwa Linda Wang](#), Purdue University, West Lafayette, IN

Novel Configurations Using Fewer Columns for Multicomponent Distillation

Monday, March 14, 2011: 8:35 AM

[Anirudh A. Shenvi](#), Vishesh H. Shah and Rakesh Agrawal, School of Chemical Engineering, Purdue University, West Lafayette, IN

Biorenewable Diesel and Jet Fuel Production

Monday, March 14, 2011: 2:00 PM

[Geoffrey Fichtl](#), Renewable Energy and Chemicals, UOP - Honeywell, Des Plaines, IL

Integrated Hydrolysis and Hydroconversion Process (IH²) for Production of Gasoline and Diesel Fuel From Wood, Algae, Cornstover, Lemna, and Bagasse Feedstocks

Monday, March 14, 2011: 2:30 PM

[Terry Marker](#), Larry Felix, Martin Linck and Mi-

chael Roberts, Gas Technology Institute, Des Plaines, IL

Mercury Removal From Gaseous and Liquid Hydrocarbons

Monday, March 14, 2011: 4:00 PM

[Neil Eckersley](#), Catalysts, Adsorbents & Specialties [CA&S], UOP LLC, Des Plaines, IL

A Sustainable and Economical Scheme for Natural Gas and LNG Purification Through Multi-Phase Transformations

Monday, March 14, 2011: 4:30 PM

[G. Ali Mansoori](#), University of Illinois at Chicago, Chicago, IL

Naphtha Normal Paraffin Separation Using a Dividing Wall Column and Simulated Moving Adsorption Bed

Monday, March 14, 2011: 3:30 PM

[S. Thomas King](#)¹, Kurt J. Cenek¹, Lawrence W. Miller¹, Joe R. Haas² and Cynthia K. Zimmerman¹, (1)Olefins, Detergents, and Alkylation Technology Center, Engineering Department, UOP / Honeywell, Des Plaines, IL, (2)Optimization Services, Engineering Department, UOP / Honeywell, Des Plaines, IL

Adapting the Naphtha Complex to a Changing Environment

Monday, March 14, 2011: 4:00 PM

[Jeff M. Bray](#) and Steven L. Kleinman, Optimization Services, UOP LLC, Des Plaines, IL

Bringing Value to Waste Through Gas Fermentation

Monday, March 14, 2011: 3:30 PM

[Michael A. Schultz](#), LanzaTech Limited, Roselle, IL

Fundamentals of Alarm Management

Monday, March 14, 2011: 1:30 PM

[Peter G. Herena](#), Kenexis Consulting Corporation, Elgin, IL

Who's Controlling Your Industrial Control System? and What Makes You So Sure? An Information Security Primer for Systems Professionals

Monday, March 14, 2011: 2:00 PM

[Todd Haverkos](#), Iconium Security, Elgin, IL

A Look Into Advanced Controls for Automotive Engines

Monday, March 14, 2011: 2:30 PM

[Aaron Matthews](#), University of Wisconsin-Madison, Chicago, IL

Microfluidic Platforms to Screen for Crystallization Conditions of Active Pharmaceutical Ingredients

Monday, March 14, 2011: 4:00 PM

[Sachit Goyal](#)¹, Michael R. Thorson², Yuchuan Gong³, Geoff G.Z. Zhang³, Charles F. Zukoski⁴ and Paul J. A. Kenis⁵, (1)Department of Chemical & Biomolecular Engineering, University of Illinois at Urbana-Champaign, Urbana, IL, (2)Department of Chemical & Biomolecular Engineering, University of Illinois at Urbana-Champaign, Urbana, IL, (3)Solid State Sciences, Abbott Laboratories, North Chicago, IL, (4)Department of Chemical and Biomolecular Engineering, University of Illinois at Urbana-Champaign, Urbana, IL, (5)Chemical & Biomolecular Engineering, University of Illinois at Urbana-Champaign, Urbana, IL

CO₂ Capture From Binary Gas Mixtures Using Elastic Layered MOF Adsorbents

Monday, March 14, 2011: 4:00 PM

[Christian M. Lastoskie](#), Civil & Environmental Engineering, University of Michigan, Ann Arbor, MI and Tran D. Trinh, Civil and Environmental Engineering, University of Michigan, Ann Arbor, MI

BTX Fractionation: Conventional, Pressure Cascade or Dividing Wall?

Monday, March 14, 2011: 4:25 PM

Dennis O'Brien, Jacobs Consultancy, Group Manager, Jacobs Consultancy, Chicago, IL and [Laura Weaver](#), Jacobs Consultancy, Chicago, IL

Advances In Cumene/Phenol Technology – Improving Phenol Plant Profitability

Monday, March 14, 2011: 2:35 PM

[Robert J. Schmidt](#), R&D Aromatics & Derivatives Development Center, Sr. Development Associate, UOP LLC - A Honeywell Company, Des Plaines, IL

Power System Design for a Hybrid Fuel Cell Vehicle: A Globally Optimal Approach

Monday, March 14, 2011: 3:30 PM

[Syed Kaschif Ahmed](#) and Donald J. Chmielewski, Chemical and Biological Engineering, Illinois Institute of Technology, Chicago, IL

Testing of Electrode Durability for Extended Operation within An Alkaline Fuel Cell

Monday, March 14, 2011: 3:50 PM

[Matthew S. Naughton](#), Department of Chemical & Biomolecular Engineering, University of Illinois at Urbana-Champaign, Urbana, IL and Paul J. A. Kenis, Department of Chemical and Biomolecular Engineering, University of Illinois at Urbana-Champaign, Urbana, IL

Energy and Greenhouse Gas Emissions of Pyrolysis Pathways

Tuesday, March 15, 2011: 8:00 AM

[Jeongwoo Han](#), Amgad Elgowainy, Ignasi Palou Rivera, Michael Wang and Jennifer M. Dunn, Energy Systems Division, Argonne National Laboratory, Argonne, IL

A Novel Pathway for Glucose Production From Biomass

Tuesday, March 15, 2011: 8:30 AM

[Karyn Biasca](#), Paper Science and Engineering, University of Wisconsin - Stevens Point, Stevens Point, WI

Compact Heat Exchange Reactor In FT Applications

Tuesday, March 15, 2011: 9:00 AM

[Zhijun Jia](#), Chart Energy & Chemicals, La Crosse, WI, Dennis E. Sparks, Center for Applied Energy Research, University of Kentucky, Lexington, KY and Burtron H. Davis, Center for applied energy research, University of Kentucky,

Mercury Emission Reduction: Performance and Economic Analysis

Tuesday, March 15, 2011: 8:30 AM

[Bruce A. Keiser](#), Air Protection Technology, Nalco Company, Naperville, IL, John V. Meier, Nalco Mobotec, Nalco Company, Naperville, IL and Brian Higgins, Nalco Mobotec, Walnut Creek, CA

Compact Heat Exchange Reactor for In Process Improvement

Tuesday, March 15, 2011: 9:00 AM

Zhijun Jia¹, [Steven J. Vallee](#)¹, Burtron H. Davis² and Dennis Sparks², (1)Chart Energy & Chemicals, La Crosse, WI, (2)Center for applied energy research, University of Kentucky, Lexington, KY

Reduction of CO₂ Emissions In a Refinery

Tuesday, March 15, 2011: 9:00 AM

[Jason Stalman](#), UOP, Des Plaines, IL

Reducing CO₂ Emissions In FCC Process

Tuesday, March 15, 2011: 10:15 AM

[X. X. Frank Zhu](#), UOP LLC, Des Plaines, IL and [Saadet Ulas Acikgoz](#), R&D Adsorption and Gas Processing, UOP LLC, Des Plaines, IL

Effects of Heavy Metals From Flue Gas on Algal Growth and Lipid Production and Their Distribution In the System

Tuesday, March 15, 2011: 8:50 AM

[Katerine Napan](#)¹, Reece Butler², Byard Wood², Ronald Sims¹ and Sridhar Viamajala³, (1)Biological Engineering, Utah State University, Logan, UT, (2)Mechanical and Aerospace Engineering, Utah State University, Logan, UT, (3)Chemical & environmental engineering, University of Toledo, Toledo, OH

Utilization of Municipal Wastewater for Cooling System In Thermoelectric Power Production

Tuesday, March 15, 2011: 9:10 AM

[Iman Safari](#)¹, Michael E. Walker¹, Javad Abbasian¹, Hamid Arastoopour¹, Ming-Kai Hsieh², David A. Dzombak² and David C. Miller³, (1)Chemical and Biological Engineering, Illinois Institute of Technology, Chicago, IL,

(2)Department of Civil and Environmental Engineering, Carnegie Mellon University, Pittsburgh, PA, (3)U.S. Department of Energy, National Energy Technology Laboratory, Morgantown, WV

Nano-Structured Sorbents for Desulfurization of Biomass-Derived Syngas

Tuesday, March 15, 2011: 8:30 AM

[Mayank Behl](#)¹, Junghoon Yeom² and Mark A. Shannon², (1)Chemical and Biomolecular Engineering, University of Illinois at Urbana-Champaign, Urbana, IL, (2)Mechanical Science and Engineering, University of Illinois at Urbana-Champaign, Urbana, IL

Standing Wave Design of Simulated Moving Beds for the Recovery of Sugars From Biomass Hydrolysate

Tuesday, March 15, 2011: 9:00 AM

[Nien-Hwa Linda Wang](#), School of Chemical Engineering, Purdue University, West Lafayette, IN

Sustainable Polymeric Materials Prepared by Ultrafast Photo-Polymerization of Chemically Modified Vegetable Oils

Tuesday, March 15, 2011: 10:15 AM

[Na Yeon Kang](#), Chemical & Biochemical Engineering, University of Iowa, Iowa City, IA, Brian Dillman, Department of Chemical & Biochemical Engineering, The University of Iowa, Iowa City, IA and Julie L. Jessop, University of Iowa, Iowa City, IA

Solar Absorption Cooling with Alkanes as Phase Change Energy Storage Medium

Tuesday, March 15, 2011: 11:15 AM

[L. Agyarko](#), BioEngineering, University of Illinois at Chicago, Chicago, IL and G. Ali Mansoori, University of Illinois at Chicago, Chicago, IL

Quick Hit Financial Benefits From Pre-Engineered APC Packages

Tuesday, March 15, 2011: 2:00 PM

[Pete Sharpe](#), Emerson Process Management, Glen Allen, VA, [Thomas Novotny](#), CITGO Lemont Refinery, Lemont, IL and [Gary Hawkins](#), Emerson Process Management LLLP, Hinsdale, IL

Development of a Detailed Reaction Kinetic Model for Cellulose Fast Pyrolysis

Tuesday, March 15, 2011: 4:30 PM

[Vinu Ravikrishnan](#) and Linda J. Broadbelt, Chemical and Biological Engineering, Northwestern University, Evanston, IL

Advances In Heavy Oil Upgrading

Tuesday, March 15, 2011: 1:30 PM

[Grant Yokomizo](#), UOP/Honeywell, Des Plaines, IL

Role of University Startup Companies In Technology Commercialization (keynote talk)

Tuesday, March 15, 2011: 1:30 PM

[Robert F. Anderson](#), Corporate Relations, Illinois Institute of Technology, Chicago, IL

Beyond University Research – Development Steps to Commercialization

Tuesday, March 15, 2011: 2:00 PM

[Bipin V. Vora](#), Research & Development, UOP LLC, A Honeywell Company, Des Plaines, IL

Resources for Inventors, Industry, and Start-Ups

Tuesday, March 15, 2011: 2:30 PM

[Justin Anderson](#), Wisconsin Alumni Research Foundation - WARF, Madison, WI

Coupled Electrostatic and Pneumatic Microvalves for Portable Chemical Microsystems

Tuesday, March 15, 2011: 3:30 PM

[Joshua D. Tice](#)¹, Amit V. Desai¹, Thomas A. Bassett¹, Christopher A. Applett² and Paul J. A. Kenis¹, (1)Department of Chemical & Biomolecular Engineering, University of Illinois at Urbana-Champaign, Urbana, IL, (2)Sandia National Laboratories, Albuquerque, NM

Normally Closed Valves: Design Considerations, Scope and Applications

Tuesday, March 15, 2011: 4:00 PM

[Ritika Mohan](#)¹, Paul J. A. Kenis², Amit V. Desai³ and Benjamin R. Schudel², (1)University of Illinois, Urbana Champaign, Urbana, IL, (2)Department of Chemical & Biomolecular Engi-

neering, University of Illinois at Urbana-Champaign, Urbana, IL, (3)Chemical & Biomolecular Engineering, University of Illinois at Urbana-Champaign, Urbana, IL

Agency - Friend or Foe?

Tuesday, March 15, 2011: 1:30 PM

[Anju Bhatia](#), Bureau of Air; Field Operation Section, Illinois Environmental Protection Agency, Des Plaines, IL

Energy Efficiency

[Richard Reese](#), Illinois EPA, Springfield, IL

Evaluation of CO₂ Capture and Sequestration Using Oxyfuels with AMIGA Economic Modeling

Tuesday, March 15, 2011: 4:20 PM

[Richard D. Doctor](#)¹, Donald Hanson² and John C. Molburg², (1)Energy System Division, Argonne National Laboratory, Argonne, IL, (2)Decision and Information Sciences, Argonne National Laboratory, Argonne, IL

Resin Wafer Electrodeionization for Flue Gas Carbon Dioxide Capture

Tuesday, March 15, 2011: 4:40 PM

[Rebecca L. Stiles](#)¹, Jitendra Shah¹, Jianwei Yuan¹, Lisa Wesoloski¹, Robert W. Dorner¹, Wayne M. Carlson¹, Yupo J. Lin², Saurav Datta², Michael P. Henry², Cynthia S. Millard² and Seth W. Snyder², (1)Air Protection Technologies, Nalco Company, Naperville, IL, (2)Energy Systems Division, Argonne National Laboratory, Argonne, IL

Hydrodynamic Study of KATAPAK-SP11 Structured Packing with Multiphase CFD and Heat Integration

Tuesday, March 15, 2011: 4:15 PM

[Jing Huang](#), Robert W. Lyczkowski, Chandrakant B. Panchal and Richard D. Doctor, Energy System Division, Argonne National Laboratory, Argonne, IL

Production of Dimethyl Carbonate Via Reactive Distillation Process

Tuesday, March 15, 2011: 2:10 PM

[Emmanuel A. Dada](#)¹, C.B. Panchal² and Richard D. Doctor², (1)ChemProcess Technologies (CPT), LLC, League City, TX, (2)Energy System Division, Argonne National Laboratory, Argonne, IL

Advanced Reactive Distillation Concepts for the Indirect Hydration of Cyclohexene to Cyclohexanol

Tuesday, March 15, 2011: 3:30 PM

[Aspi K. Kolah](#)¹, Lars Peereboom¹, Carl T. Lira¹, Jing Huang², C.B. Panchal², Robert W. Lyczkowski², Emmanuel A. Dada³, Richard D. Doctor² and Dennis J. Miller¹, (1)Chemical Engineering and Materials Science, Michigan State University, East Lansing, MI, (2)Energy System Division, Argonne National Laboratory, Argonne, IL, (3)ChemProcess Technologies (CPT), LLC, League City, TX

Influence of Yttrium Doping Into Hafnium Dioxide on Film Structure and Dielectric Properties

Wednesday, March 16, 2011: 8:50 AM

[Qian Tao](#), Chemical Engineering, University of Illinois at Chicago, Chicago, IL, Christos Takoudis, Departments of Chemical Engineering and Bioengineering, University of Illinois at Chicago, Chicago, IL and Gregory Jursich, Bioengineering and Mechanical&Industry Engineering, University of Illinois at Chicago, Chicago, IL

The Dry Gasification Oxy-Combustion (DGOC) Power Production Cycle

Wednesday, March 16, 2011: 8:00 AM

[Michael E. Walker](#)¹, Javad Abbasian¹, Donald J. Chmielewski¹ and Marco J. Castaldi², (1)Chemical and Biological Engineering, Illinois Institute of Technology, Chicago, IL, (2)Department of Earth and Environmental Engineering (HKSM), Columbia University, New York, NY

Analysis of Freshwater Usage In Advanced Gasification Based Power Systems

Wednesday, March 16, 2011: 9:00 AM

[Michael E. Walker](#) and Javad Abbasian, Chemi-

cal and Biological Engineering, Illinois Institute of Technology, Chicago, IL

Water Consumption, Characterization, and Conservation In the Refining Industry

Wednesday, March 16, 2011: 8:25 AM

[Jason L. Stahlman](#), UOP, Des Plaines, IL

Challenges and Opportunities of Electrocoagulation for Refinery Application: Case Study with Chicken Processing Plant Water and Fleet Wash Water

Wednesday, March 16, 2011: 9:40 AM

[Eric Peterson](#)¹, Jewel Andrew Gomes², David L. Cocke², Hector Moreno³, Morgan Reed⁴, Joe W. Hutchins⁵, Daniel Atambo⁶ and Kamol Kanti Das⁷, (1)Scandpower Inc., a member of the Lloyd's Register Group, Houston, TX, (2)Dan F. Smith Department of Chemical Engineering, Lamar University, Beaumont, TX, (3)Chemical Engineering, Instituto Tecnológico de la Laguna, Torreon, Mexico, (4)Drilling Fluids, Baker Hughes, Broussard, LA, (5)Process Improvement and Optimization, Lake Charles, LA, (6)Dallas/Fort Worth Regional Office, Texas Commission on Environmental Quality, Fort Worth, TX, (7)Agronomy, Purdue University, West Lafayette, IN

Life Cycle Analysis of Biogas-to-Hydrogen Pathways

Wednesday, March 16, 2011: 8:00 AM

[Jeongwoo Han](#), Marianne Mintz and Michael Wang, Energy Systems Division, Argonne National Laboratory, Argonne, IL

A Model of CO₂-Fed Algal Biofuel Potential In the US

Wednesday, March 16, 2011: 8:40 AM

[Edward Frank](#), Energy Systems, Process Technology Research Section, Argonne National Lab, Argonne, IL

Life Cycle Assessment Tools for Algal Biofuels

Wednesday, March 16, 2011: 10:40 AM

[Edward Frank](#)¹, Amgad Elgowainy², Ignasi Palou-Rivera³, Michael Wang⁴ and Jeongwoo Han³,

Preconditioning Effects Upon Co-Containing Pt-Promoted and Unpromoted Fischer-Tropsch Catalysts

Wednesday, March 16, 2011: 9:40 AM

[Donald Cronauer](#), Jeffrey W. Elam, A. Jeremy Kropf and Joseph A. Libera, Argonne National Laboratory, Argonne, IL

Distillation Column Flooding Predictor™ - Increase Throughput, Improve Energy Efficiency, and Avoid Flooding

Wednesday, March 16, 2011: 9:40 AM

[George Dzyacky](#) and Steven Carlson, 2ndpoint, LLC, Schererville, IN

Aspen Plus as a Tool for Process Scale-up of Externally Heat-Integrated Reactive Distillation

Wednesday, March 16, 2011: 2:30 PM

[John C. Prindle](#)¹, Chandrakant B. Panchal² and Richard D. Doctor², (1)Chemical & Biomolecular Engineering, Tulane University, New Orleans, LA, (2)Energy System Division, Argonne National Laboratory, Argonne, IL

Heat-Integrated Reactive Distillation

Wednesday, March 16, 2011: 4:25 PM

[Chandrakant B. Panchal](#)¹, John C. Prindle², Jing Huang¹, Robert W. Lyczkowski¹, Richard D. Doctor¹, Emmanuel A. Dada³, Philip Lutze⁴, Rafiqul Gani⁵ and John M. Woodley⁶,

Anaerobic Treatment of High-Strength Effluents In the Food and Beverage, and Agricultural Industry

Wednesday, March 16, 2011: 2:00 PM

[Carlos D. Claros](#), Chicago Environment and Industry Group, MWH Global, Inc., Chicago, IL

Scoping Study of Methanol Production From CO₂ with Nuclear Electrolysis H₂

Wednesday, March 16, 2011: 2:25 PM

[Richard D. Doctor](#), Energy System Division, Argonne National Laboratory, Argonne, IL

Pilot Plant Retooling for a More Reliable Process Scale-up

Wednesday, March 16, 2011: 2:55 PM

[Pankaj S. Gautam](#), Process Technology, SABIC Innovative Plastics, Mt. Vernon, IN

Chemical Components That Influence Evaporator Distillate Quality

Wednesday, March 16, 2011: 4:35 PM

[Shawn D. Thornton](#), R & D, HPD, LLC, Plainfield, IL

More Refinery H₂ through Efficiency, Recovery, and Process Improvements

Wednesday, March 16, 2011: 2:00 PM

[Alan Zagoria](#), Optimization Services, UOP, Des Plaines, IL, Ron Long, UOP, Des Plaines, IL and Kathy Picioccio, UOP

Development of Membranes for Hydrogen Production From Coal

Wednesday, March 16, 2011: 2:40 PM

[T. H. Lee](#), Y Lu, C. Y. Park, S. E. Dorris and U (Balu) Balachandran, Energy Systems Division, Argonne National Laboratory, Argonne, IL

Coal Gas Assisted Hydrogen Production Using Mixed-Conducting Oxygen Transport Membranes

Wednesday, March 16, 2011: 3:00 PM

[C. Y. Park](#), Tae H. Lee, Stephen E. Dorris, Yunxiang Lu and U.(Balu) Balachandran, Energy Systems Division, Argonne National Laboratory, Argonne, IL

(7C) Selective Bromination of Methane Over Solid Acid Catalysts and Poly (4-vinyl pyridine) Catalyzed Hydrolysis and Methanolysis of Methyl Bromide

Monday, March 14, 2011: 9:00 AM

Surya Prakash¹, [Patrice Batamack](#)¹, Juan Colmenares², Thomas Mathew¹ and George Olah¹, Dr. George Olah Nobel in Chemistry Priestly metal

[http://en.wikipedia.org/wiki/George Andrew Olah](http://en.wikipedia.org/wiki/George_Andrew_Olah)

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