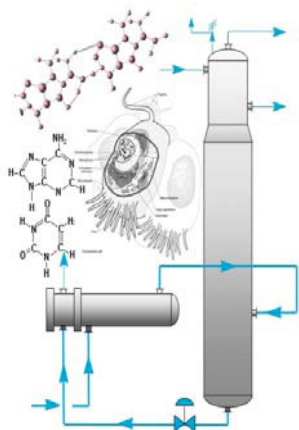


# May Newsletter

Chicago Section

[www.aiche-chicago.org](http://www.aiche-chicago.org)

May 2011



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## AIChE Chicago

### May 2011 Meeting and Elections Notice

## **Thermo chemical Exhaust Heat Recuperation for Internal Combustion Engines**

**Dr. Stuart Daw**

**Date:** **Tuesday May 17th, 2011**

**Location:** **Olivet's Italian Ristorante**

1575 Ellinwood Ave

Des Plaines, IL 60016

**Cost:** **Members: \$30 Non-Members: \$35**

**Students: \$5 Unemployed Members: \$15**

**Thanks to Alfa Laval for sponsoring the meeting**

To Register please go to [www.aiche-chicago.org](http://www.aiche-chicago.org)

### Agenda

5:00 PM to 6:30 PM, Pre meeting vendor, Alpha Laval trailer display.  
5:30 PM to 6:30 PM, Registration and networking / Cash bar  
6:30 PM to 7:30 PM, Buffet dinner  
7:30 PM to 7:45 PM, Business meeting, elections and announcements.  
7:45 PM to 8:45 PM, technical presentation, Dr. Daw  
8:45 PM to 9:00 PM, Wrap up

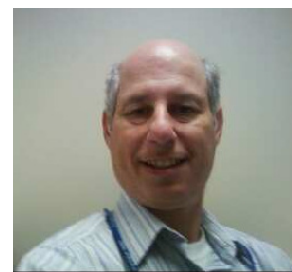
## Chair's Corner

This is the last newsletter until August. Since elections for new officers will be occurring during this month's meeting, this will be my last Chair's Corner.

On reflection, there were a number of activities that our volunteer officers and leaders can take a measure of pride in. We had a successful Midwest conference that was hosted by IIT this year where we engaged both professionals as well as Chicago area HS students in many interesting topics. We were also the host city of National Spring meeting and we hosted tours and other activities surrounding that meeting. Our YPAB was active in E-week as well as professional advancement activities. We held several monthly meetings where we could network and listen to extremely interesting presentations, given by experts in their field, on current topics of interest. We published a monthly newsletter keeping everyone apprised of upcoming events and having articles of interest. We also maintained a website where our members could get current information about our activities.

I want to thank all the individuals involved in planning, organizing and executing the activi-

ties of our organization. I also want to thank the membership for attending our events in unprecedented number. I believe the speakers and the topics they presented this year were current, relevant, and thought provoking.



At this month's meeting we will be having elections for our officers for the 2011-2012 fiscal years. The slate of candidates is presented elsewhere in the newsletter and they are all highly recommended for their prospective positions.

I am very honored to have been the chair of the Chicago Section for the past year. The dedication and hard work by our officers and volunteer leaders has made this section one of the most successful in the AIChE national organization. I am confident the new slate of officers will continue that tradition.

Steve Rosenblum—UOP

## JOB Opportunity

Now in its 25th year, **Chicago Chem Consultants** Corp is looking for "process engineering" senior associates to work on a project basis.

Ideal candidates will be retired or in a position to do project work. CCC works on a very broad area of somewhat non-traditional assignments and our past/present associate backgrounds reflect this. Everything from light process design, pilot studies, trouble shooting, legal forensic engineering support and ESOH regulatory compliance. Note - this is not a permanent

full time or part time position. CCC looks to add highly qualified engineers to its list of associates to fill key assignments that arise from time to time, some of whom have done so for the past 15+ years. Business project development is also encouraged.

Please browse [www.chichem.com](http://www.chichem.com) to review over 150 projects over the past 25 years as well as the other CCC associate backgrounds to see if you might fit. Respond to Jeffery P. Perl, PhD, PE, CHMM, 312-226-2436

[jefferyperl@chichem.com](mailto:jefferyperl@chichem.com)

## *May 2011 Meeting Information*

### **Speaker Biography:**

**Dr. Daw** coordinates the Crosscut Lean Exhaust Emissions Reduction Simulation (CLEERS) activity for the Department of Energy's Office of Vehicle Technologies and he frequently organizes workshops and colloquia on combustion engine emissions control and efficiency for DOE. He is a Principal Investigator for Oak Ridge National Laboratory's (ORNL) research on Vehicle Systems Emissions Simulation, Biodiesel Emissions



Effects, and Stretch Engine Efficiency. Dr. Daw previously established ORNL as an international hub for engineering applications of deterministic chaos theory, pioneering application of chaos theory to gas-fluidized beds, internal combustion engines, pulsed combustion and bio-medical diagnostics. Dr. Daw has also been an internationally recognized combustion researcher in atmospheric fluidized beds and coal-fired boilers. He led ORNL's participation in the EPRI-funded team that developed the Flame Dr.<sup>TM</sup> system for coal-fired boiler combustion diagnostics. Dr. Daw also has extensive experience in hazardous waste treatment and disposal, including the treatment of explosive and nerve-agent contaminated wastes for the U.S. Army Toxic and Hazardous Materials Agency (USATHAMA). Dr. Daw is an Adjunct faculty member in Chemical and Mechanical Engineering at the University of Tennessee.

### **Abstract:**

#### *Thermo chemical Exhaust Heat Recuperation for Internal Combustion Engines*

Thermochemical recuperation (TCR) is currently receiving renewed interest as a possible means for increasing the efficiency of internal combustion (IC) engines. The basic concept involves using exhaust heat to promote on-board reforming of hydrocarbon fuels into syngas (a mixture of carbon monoxide and hydrogen). The syngas is then burned in the engine in place of some or all of the original fuel. Because the reforming reactions are endothermic, they provide a means for recycling exhaust energy in a chemical form. For one specific fuel (methanol), the original fuel can be converted directly to syngas by adding heat alone in the presence of a catalyst. For other fuels (for example, ethanol and isooctane), additional oxygen (or water) is needed for complete conversion of the fuel to syngas. Dr. Daw will discuss how simplified versions of TCR can provide substantial increases to engine efficiency, and what is on the horizon for this promising technology.

## *AICHE Chicago Section Student Awards*

### *McCormack Awards*

Each year, the McCormack award is given to one chemical engineering undergraduate student at Northwestern University, University of Illinois, and Illinois Institute of Technology based on a combination of excellence in study, research, and extra-curricular activities. This year's winners are:

Northwestern University Recipient: **Kevin Pukala** (not present)

University of Illinois Recipient: **Jeff Tyska**

Illinois Institute of Technology Recipient: **Bethany Nicholson**



### *Student Chapter Recognition*

Midwest regional conference was held at IIT last year and the IIT student chapter played a key role with the organization of this event. Their help and effort was recognized by a certificate and a \$1000 honorarium.





## *Poster Session Competition Winners*

Among the posters that were presented by individuals and teams from UIC and Illinois Institute of Technology at the poster competition, the judges selected three winners.

Thanks to all participants, judges and a special thank to all the students for all their work and time. Thanks to the IIT student chapter for hosting the event.

### **Undergraduate**

**1<sup>st</sup> Place** – "Gasification of Petroleum Coke"

TEAM HOTEL: Ryan Kosak (Team Leader), Tomi Damo, Lipi Vahanwala, Vijeta Patel and Russell Cabral - UIC



**2<sup>nd</sup> Place** – "Gasification of Illinois Basin #6 Coal"

TEAM FOXTROT: Chris Starrick (Team Leader), Sana Buch, Andrew Duffy, Lilliana Gutierrez and Sarah Hanif - UIC

### **Graduate**

**1<sup>st</sup> Place** – Hamidreza Mehdizadeh, IIT "An Agent-Based Model For Studying The Effect Of Synthetic Scaffold Properties On Angiogenesis"











## *2011—2012 Elected Officers*

### **Chair - Steve Schade**

[ssschade@juno.com](mailto:ssschade@juno.com)

**Steve Schade** is a Senior Engineer at Valdes Engineering, which he joined in 2011, working primarily on projects for clients in the petroleum industry. Previously he was employed at UOP, specializing in aromatics processes. Earlier in his career he was involved in process development work with IGT, Searle, and USG. Steve has BS and MS degrees in Chemical Engineering from the University of Missouri at Rolla (now Missouri University of Science & Technology). He has been active on the AIChE section Student Outreach committee, giving presentations at schools and helping prepare displays for Chemistry Day and Engineers Week.

### **Director at Large - Bill Glogowski**

(continuing)

[glogowwk@middough.com](mailto:glogowwk@middough.com)

**Bill Glogowski** is a Process Engineer with Middough in Oak Brook, joining in 2006 soon after receiving a BS in Chemical Engineering from the University of Illinois at Chicago and passing the fundamentals of engineering exam. In his current position, he is involved in process design in industries such as refining, consumer products, and pharmaceuticals. He was an active member in the student AIChE chapter at UIC and is now an active participant in the Section's Young Professional Advisory Board.

### **Director at Large - Annette Johnston**

(continuing)

[Annette.Johnston@abbott.com](mailto:Annette.Johnston@abbott.com)

**Annette Johnston** has been active with the Chicago Section since 1996, when she coordinated the Session Aides for the Annual Meeting that year. She has held several positions in the Section, including Session Chair. She is a fellow of AIChE. Recently, she was the Meeting Program Chair of the Spring National Meeting in Tampa, FL in 2009. She is currently the Vice Chair of Research and New Technology Committee. Annette manages a Process Engineering Group in Abbott Diagnostics Division. She has worked at Abbott Laboratories for almost 20 years in various positions. Prior to that, she worked at Monsanto Company in St. Louis. Annette received her BS ChemE degree from the University of Illinois at Urbana, and BA Chemistry from Knox College.

### **ABSENTEE BALLET**

**PLEASE NOTE THAT THE OFFICER ELECTIONS FOR FISCAL YEAR JULY 1, 2011 - JUNE 30, 2012 WILL BE HELD DURING OUR MAY MEETING. IF YOU CANNOT ATTEND PLEASE CONTACT [Reza Mostofi reza.mostofi@uop.com](mailto:Reza_Mostofi_reza.mostofi@uop.com) FOR AN ABSENTEE BALLET.**



## ***MAY 17 AIChE CHICAGO ELECTIONS PROPOSED SLATE FOR 2011***

### **Chair-Elect: Peter Herena**

[pgherena@yahoo.com](mailto:pgherena@yahoo.com)

**Mr. Hereña** has twelve years of experience in the design and installation of control systems and the implementation of safety instrumented systems for the process industries. Mr. Hereña is a Senior Consultant at Baker Risk Consultants and is responsible for facilitating HAZOP and SIL Selection. Additionally, he has extensive experience in engineered safeguard design basis development and verification/validation projects. Mr. Hereña began his career with UOP, a licensor of process units to the petroleum and petrochemical industries, where he performed field verification of control systems at customer sites, and designed and managed development of custom control projects. Mr. Hereña is involved in the leadership of International Society of Automation (ISA) Chicago. He is currently AIChE Chicago Section Vice-Chair Programming. In FY 2009-2010, he was co-Secretary.

### **Vice-Chair Program: Dan Rusinak**

[Rusinad@Middough.com](mailto:Rusinad@Middough.com)

**Daniel Rusinak**, PE, is Chief Process Engineer at Middough, Inc, Chicago office. He has over 35 years of professional engineering experience in development, design, construction and operations of specialty, polymer, and fine chemical plants. Dan has served the AIChE Chicago Section as House Committee Chair for the past two years.

### **Secretary: Jerry Wilks**

[gwilks@citgo.com](mailto:gwilks@citgo.com)

**Jerry Wilks** is a senior metallurgy and corrosion engineer at the CITGO Lemont refinery since 2005. Prior to that Jerry has been a US Air Force officer and also worked at different engineering position at AMOCO and BP Naperville campus and Whiting refinery. He has a BS in Metallurgical Engineering and two masters degree in Materials Engineering and Chemical Engineering all from IIT in Chicago. Jerry holds three US patents and is the author of several publications. He has served as the secretary and vice-chair program of the AIChE Chicago section and has been a contributor and organizer of the AIChE midwest regional conferences since 2006.

### **Treasurer: Mike Buettner**

[mike.buettner@alfalaval.com](mailto:mike.buettner@alfalaval.com)

**Mike Buettner** is a Sales Manager at Alfa Laval, Inc. focused on the Chicago market. Mike has over 15 years of experience primarily in the refining industry, utilizing that experience to create heat transfer and separation solutions for the process industry. Mike has had been a part of the AIChE organization in Chicago for over 3 years with roles as Secretary and Treasurer. Mike lives in Yorkville and in his free time is focused on the busy lives of his three children.



AIChE Midwest Regional Conference promises to bring the frontiers of chemical engineering technologies at all levels to your door-steps.

The 2011 conference will be held at UIC on Nov. 10-11. For more information or to volunteer, please contact [aichemrc@gmail.com](mailto:aichemrc@gmail.com)



You can review previous years' presentations at  
<http://www.aiche-chicago.org/Symposium/index.html>

## Upcoming Meetings

- September 11-15, 2011** 56th Annual Safety in Ammonia Plants and Related Facilities Symposium  
Sheraton Montreal Hotel  
Montreal, QC
- September 26-28, 2011** 6th AIChE/SPE Joint Workshop - Challenges in Flow Assurance and Crude Oil Quality  
Omni-Houston Westside  
Houston, TX
- October 4-6, 2011** OTC Brasil 2011  
Riocentro  
Rio de Janeiro, Brazil
- October 6-7, 2011** 2011 AIChE Regional Process Technology Conference  
Moody Gardens Hotel  
Galveston, TX
- October 16-21, 2011** 2011 AIChE Annual Meeting  
Minneapolis Convention Center  
Minneapolis, MN
- November 10-11, 2011** AIChE Midwest Regional Conference  
UIC—Chicago, IL

## Chicago YPAB Event

### Fermentation

***Fri, May 20th 6:30-9:00pm***

**Location:** Palatine, IL (RSVP to [jessicaswary@msn.com](mailto:jessicaswary@msn.com) for address and directions)

**Cost:** \$10/person for food

AIChE's webinar "**Tapping the Chemistry of Brewing**" will be viewed. "This webinar puts the complexity of malting and brewing into readily accessible terms. Anyone interested in understanding the journey from grain, hops and yeast through to the world's favorite alcoholic beverage will gain a new appreciation for the skill that goes into making a product with such consistent excellence. The science underpinning the quality attributes of beer - from foam to flavor, haze to wholesomeness, is described. The major styles of beer are introduced. Anyone, beer lover or not, who is curious about quite why beer is the ultimate biotechnology will benefit by experiencing this webinar." Presentation will be followed by a fermentation demonstration.

**21 years and older only please! Limited space available - claim your spot by 5/13/11!!**

**RSVP to, [jessicaswary@msn.com](mailto:jessicaswary@msn.com)**

For information on past and future events, visit the YP-Chicago website at:

[www.aichechicago.org/ypab](http://www.aichechicago.org/ypab)

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**We are on the web**  
[www.aiche-chicago.org](http://www.aiche-chicago.org)

***Chicago Section need your help***

The Chicago Section is looking to identify members interested in volunteering. There are many different and rewarding positions available. Whether interested in networking, meeting other members, gaining leadership experience or just giving back, consider helping our AIChE Chicago Section continue to be the best! For more information, please call or email **Jeff Perl** [jefferyperl@chichem.com](mailto:jefferyperl@chichem.com), **Shannon Brown**, [SBrown@ambitech.com](mailto:SBrown@ambitech.com) or **Dennis O'Brien** [Dennis.O'Brien@jacobs.com](mailto:Dennis.O'Brien@jacobs.com) Opportunity for professional growth through organizational skill development, speaking etc in non-threatening atmosphere.

**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](mailto:aichechicago@gmail.com) with "newsletter article" as a subject line.

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