
AIChE® The Pipeline

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A. Shaikh, M. Kettner, Co-Editors

May 2011

NEWSLETTER OF THE EAST TENNESSEE SECTION OF AIChE

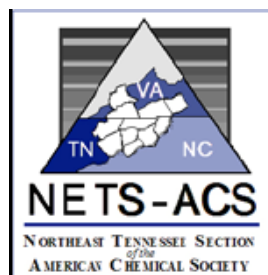
Local section website

<http://www.tnengineering.net/AICHE/>

Local section mailing address

PO Box 7448 Kingsport, TN 37664-7448

Upcoming May Program



and

East TN Section
AIChE®

A Fun (but Educational) History of Chemistry --- Celebrating the International Year of Chemistry 2011

Presented by Dr. Al Hazari, Professor of Chemistry at the University of Tennessee, Knoxville

Date: Thursday, May 19, 2011
Location: Eastman Lodge, Bay's Mountain
Agenda: 6:00 pm arrival
6:15 pm dinner served
7:00 pm presentation

Menu: Catering by Pratt's
Hand-Pulled Pork BBQ
Smoked Rotisserie Chicken
Jonathon's Smokehouse Beans
Mustard Potato Salad
Buns and Rolls
Tea and Water
Cookies

Cost: \$15 per person

Guests welcomed. Make checks payable to "NET-SACS". Indicate number in your party. RSVP's are fine with the understanding that payment will be made at the meeting! No cost to attend the lecture only. **Please RSVP by May 11th** to Mary Moore at 423-229-1911 or mkmoore@eastman.com or at the address shown below.

Mary K. Moore
Eastman
P.O. Box 1972
Kingsport, TN 37662

A Fun (but Educational) History of Chemistry --- Celebrating the International Year of Chemistry 2011

We surely have come a long way since phlogiston, the alchemists, and the Harry Potter days. Wonder what the father of the modern periodic table Dimitri Mendeleev's favorite toy was? Wonder what Marie and Pierre Curie received as a wedding present? Wonder how Watson and Crick arrived at the determination of the structure of DNA (with the super help of Rosalind Franklin)? These questions, and many others will be answered, in this presentation that will surely bring the human side to our historical chemistry story.

Dr. Al Hazari

A native of Lebanon, Al received a B.S. degree in Chemistry from the American University in Cairo. He also holds an M.S. degree in Chemistry from Youngstown State University in Ohio and a doctorate in Science Education from the University of Tennessee, Knoxville. Al has taught science and chemistry for several years at the school and the college levels here and overseas. Currently, he is the Director of the Undergraduate Chemistry Labs and a Lecturer in Chemistry at the University of Tennessee, Knoxville. In addition, he regularly teaches science education courses in the College of Education. He has received several grants from government agencies, industry, and various organizations to improve undergraduate chemistry lab instruction and also to support K-16 hands-on science and chemistry outreach activities. He was the 2000 recipient of the ACS Helen M. Free Award for Public Outreach.



Al is a very active ACS member. He is a former chair of the ACS Committee on Chemical Safety, an ACS tour speaker, and the councilor for the ACS - East Tennessee Section. Recently, he became the President of East Tennessee's Southern Appalachian Science and Engineering Fair. Al is an affiliate of the Institute for Chemical Education and a member of the National and the Tennessee Science Teachers Associations. He has made several presentations and given talks at local, regional, national and international chemical and science education conferences. His book on "Misconceptions in Chemistry" was recently published by Springer.

Recap of March Program

Patrice Riesenber

Pump BLEVE's (Boiling Liquid Expanding Vapor Explosions)



Pete Lodal presented the technical basis behind pump BLEVE's. Several important points were discussed including:

1. A pump must be blocked in (isolated) on *both* the suction and discharge for a BLEVE to occur.
2. To the best of our knowledge Pump BLEVE's in Kingsport have only ever occurred on REMOTE START of pumps, because an operator starting a pump in the field would check the valving arrangement to eliminate the blocked in pump. Also, an operator would most likely notice if the pump sounded strangely when it was started.
3. Pump BLEVE's can occur on ANY type of process material, even clean and non-flammable material. An isolated pump that is running causes significant build up of temperature and pressure resulting in a failure at the pump's weakest point.
4. Pump seal failure can NOT be relied upon, as proven by the examples.
5. The more process material, the bigger the BLEVE. The bigger the horsepower of the pump, the bigger the BLEVE as well.

Pete presented three separate cases on pump BLEVE's involving a dirty, combustible sludge stream, caustic, and condensate. The condensate BLEVE was the worst explosion due to #5 above. He also showed highly instructional videos of actual BLEVE's of vessels (and, yes, your hot water heater can BLEVE).

Pete closed his presentation with ways to avoid pump BLEVE's including:

1. Lock or seal open valves wherever possible..
2. Remove remote starts whenever possible.
3. Consider relief devices (preferably on the discharge, but can be on the suction).
4. Consider temperature or pressure or current interlocks.
5. Consider limit switches on inlet and outlet valves to only allow the pump to operate when the valves are open.
6. Consider low flow interlocks on the pump.

Ken Yount in the Advanced Controls Group, Worldwide Engineering and Construction, is currently developing a pump rating system to help prioritize which pumps need to be protected, as well as suggesting the most practical methods for protection. A streaming media video has been developed by Doug Giles for use in the plant to train operators on the dangers of blocked-in pumps for Eastman employees.

Letter from the Chair

Patrice Riesenberg

I want to send a big thank you to the Programming Committee for another successful program year. Volunteers were Jerry Bewley, Tracey Gentry, Danaca Jordan, Bryan Kirkman, Tim Nolen, Patrice Riesenberg, Rob Schisla, Ashfaq Shaikh, Dan Terrill and Mike Visneski.

We have one more program coming up before our summer break. Dr. Al Hazari from UT Knoxville will be presenting A Fun (but Educational) History of Chemistry on May 19th at the Eastman lodge at 6pm. Please RSVP to Mary K. Moore by May 11th. See below for more information. We hope to see you there.

As always, visit our website for more information about the chapter, and to download past programs.
<http://www.tnengineering.net/AICHE/>

Information from National AIChE

Steve Miller

Keep Pace with New Developments through Participation in AIChE Conferences

AIChE's conferences and meetings are designed to help you stay current on the latest advances in core areas and emerging fields, from bioengineering and nanotechnology to process safety and also include many topical conferences covering a wide range of areas in chemical engineering.

As an AIChE member, you save \$200 or more on registration fees. Membership pays for itself when you attend just one conference. Plus, you can save up to 15% on airfare and 25% on rental cars when you book through AIChE's travel center.

2011 AIChE Conferences

[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

[6th AIChE/SPE Joint Workshop - Challenges in Flow Assurance and Crude Oil Quality](#)

Omni-Houston Westside
Houston, TX
September 26-28, 2011

[OTC Brasil 2011](#)

Riocentro
Rio de Janeiro, Brazil
October 4-6, 2011

[2011 AIChE Regional Process Technology Conference](#)

Moody Gardens Hotel
Galveston, TX
October 6-7, 2011

[Annual Meeting](#)

Minneapolis Convention Center
Minneapolis, MN
October 16-21, 2011

As a continuation of an AIChE-sponsored webinar series, here's an opportunity to learn from one of the world's most renowned thermodynamicists.

AIChE's Leadership Webinars: Chemical Engineering Essentials from Academic Authors - Session Seven: Thermodynamics: Basics and Modeling

Presented by Dr. John P. O'Connell, Wednesday, May 18, 2011, 2:00 - 3:00 p.m. ET

Thermodynamics is fundamental to engineering descriptions of natural phenomena and designs for chemical technology. Starting from primitives and only two Laws, rigorous thermodynamic derivations lead to basic quantities, driving forces and limits, and relationships among variables that characterize the states and tendencies for change of chemical systems. Process and product property modeling builds on this thermodynamic structure, providing routes to values for the many quantities of interest, especially in systems of multiple phases and reactions. Strategic application of properties and models can then guide decisions about energy and material feasibility, make estimates of economics, and determine sizes, condition, and configurations of process equipment.

This webinar shows the development of thermodynamics and illustrates applications to modeling. Principal quantities and relations are reviewed, along with suggestions for their reliable utilization. The objective is to help participants more firmly grasp the elements of the subject, and to better structure their property and process design and optimization efforts.

Continuing Education – Professional Development Hours Available



Eastman Employees Only: Are you a professional engineer seeking to meet state continuing education requirements for professional development hours (PDH's)? If so, please visit this website for a list of potentially eligible courses and more information: [Continuing Education for Professionals](#)

Calendar of upcoming events



Several great programs are planned for the upcoming programming year. Topics include:

- A Fun (but Educational) History of Chemistry --- Celebrating the International Year of Chemistry 2011 – May 19th, 2011

Keep Up With the Local Section Online

Up-to-date information about the East Tennessee Section of the American Institute of Chemical Engineers can be found [on our website \(www.tnengineering.net/AICHE\)](http://www.tnengineering.net/AICHE). The website includes the Local Section Bylaws, List of Officers from 1945 to present, and an archive of Pipeline Newsletters - to mention only a few aspects of the information covered. Photos from past events can be found, along with contact information for the Local Board. Review the site occasionally and keep up with the local section!

2011 Local Section Officers, Directors, & Support Staff

Chair:	Patrice Riesenberg	229-8980
Chair-Elect and Program Committee Chair:	Stephen Miller	224-7350
Secretary:	Rebecca Glaspie	229-6144
Treasurer:	Braxton Sluder	578-6225
Directors:	Mark Harrison	229-6952
	Jennifer Mize	224-7018
	Lauren Moyer	229-2208
	Tim Nolen	229-8287
Local Section Webmaster:	Mark Shelton	229-4753
Short-Course Coordinator:	Joe Parker	229-3850
Professional Development Coordinator:	Ashfaq Shaikh/Mark Kettner	229-8840
AIChE Pipeline Newsletter Co-Editors:	Joey Watson	229-6486
ETEAC Representative:		

2011 Local Company Contacts

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Nuclear Fuel Services Inc., a subsidiary of The Babcock & Wilcox Company	Natalie Robertson 423-743-2526, nsrobertson@nuclearfuelservices.com
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