



American Institute of Chemical Engineers Knoxville-Oak Ridge Section

For additional information see our Web site at: <http://www.ornl.gov/sci/aiche/>
Or contact: Linda Puckett, puckettlf@ornl.gov, (865)574-6147 or
Christina Wilson, csoto@utk.edu, (865)974-2421

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September 2011 Meeting

Date: Thursday, September 15, 2011
Cost: \$20.00
Location: Calhoun's, Turkey Creek Shopping Center, Knoxville TN

5:30 pm AIChE Executive Committee Meeting (All members welcome),
6:00 pm Dinner – From menu
7:00 pm Program – Dr. Ahmet Turhan, Mechanical, Aerospace, and Biomedical Engineering Department, University of Tennessee Knoxville – *Fundamentals and Characterization Techniques of Hydrogen Polymer Electrolyte Fuel Cells*

Abstract - The hydrogen polymer electrolyte fuel cell (PEFC) is a promising and fast developing technology as an environment friendly alternative to internal combustion engines. In this presentation, the basic principles of PEFC will be described, together with the major challenges on the road to achieve full scale mass production. Diagnostic techniques, such as neutron imaging, for performance and water management characterization will be explained, and theoretical and experimental evaluation of the durability issues due to different interface morphologies will be addressed. Possible component design improvements in each area will be discussed based on the results.

Bio – Ahmet Turhan received his BS in mechanical engineering from the Middle East Technical University Mechanical Engineering Department in 2003, his MS in 2005 and his PhD. in 2009 at Penn State for study of multi-phase flow and design of fuel cells in the Fuel Cell Dynamics and Diagnostics Laboratory (FCDDL) with Prof. Matthew M. Mench. As part of his graduate studies, he helped build the fuel cell neutron imaging lab at the Penn State Brezeale Nuclear Reactor and conducted research sponsored by automotive companies such as General Motors, Toyota, and Hyundai. His research areas include fuel cell component characterization, flow field design, and multi-phase flow in porous media. He has published 6 journal papers with over 100 citations to date, was awarded a General Motors Research Fellowship, and served as a Penn State Graduate Student Teaching Fellow. He contributed to FCDDL as a post-doctoral scholar between January-August 2010. He is currently continuing his research studies as a Research Assistant Professor at University of Tennessee Knoxville.

Please make your reservations by noon September 15 by contacting

Linda Puckett, puckettlf@ornl.gov, (865)574-6147 or
Cristina Wilson, csoto@utk.edu, (865)974-2421

***The Section will subsidize up to 15 students,
including graduate students***

Vols4STEM 2011 Needs

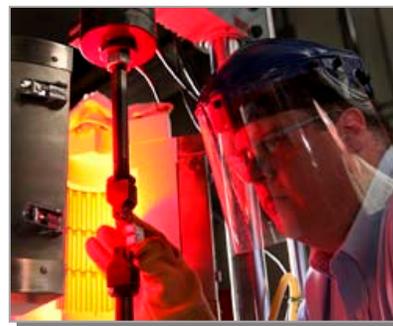
Vols4STEM is a resource of the Innovation Valley area intended to facilitate the voluntary collaboration of its Science Technology, Engineering, and Math (STEM) professional community, STEM employers, STEM educators and other stakeholders. Vols4STEM was conceived as a means to improve K-12 STEM education and workforce development, primarily by getting more STEM professionals engaged, as volunteers, in STEM outreach activities to area youth. The Vols4STEM program needs points of contacts for the following schools:

1. Bearden Middle
2. Carter Middle
3. Gresham Middle
4. Karns Middle

5. West Valley Middle
6. Whittle Springs Middle
7. Fulton High School
8. West High School

If you are interested in serving as a point of contact for one of these schools, please contact Ahnna Estes (aestes@knoxvillechamber.com) at the Knoxville Chamber of Commerce if you are interested in serving as a point of contact for these schools.

Additional information on Vols4Stem programs and other opportunities can be found at: www.vols4stem.org.



(Photo courtesy of DOE Photo Archive, <http://www.doedigitalarchive.doe.gov/>)

“There are two possible outcomes: if the result confirms the hypothesis, then you've made a measurement. If the result is contrary to the hypothesis, then you've made a discovery.”

Enrico Fermi
American Physicist
1901-1954

Volunteers Appointed to Local Section Executive Committee

Please welcome two new members to the local section Executive Committee: Jarrod Clark, Chair-Elect and Michael Hollander, Director. These local section members have graciously volunteered to serve out the remaining terms of board members that could not complete their terms because of unforeseen circumstances.

Jarrod Clark is a process design engineer with Merrick and Company. He is currently working on process design related to the development and scale-up of novel uranium hexafluoride processes. Before moving to East Tennessee, Mr. Clark has been involved with the design and installation of various gloveboxes installed at Y-12 National Security Complex and Los Alamos National Laboratory, including laboratories within the Chemistry and Metallurgy Research Replacement (CMRR) facility. Other areas of his work experience include the evaluation of hyperelastic materials deformation, isolation of stable isotopes, and creation and evaluation of targeted drug delivery using clinical ultrasound imaging. Jarrod received a BS in Chemical Engineering and Petroleum Refining from the Colorado School of Mines and a MS in Biomedical Engineering from the University of California, Davis. Mr. Clark is currently a licensed Professional Engineer in several states.

Michael Hollander, PE, is Vice President of Innovative Design, Inc, a Design Engineering firm in West Knoxville and a past Chair of the local AICHe section. Michael is a graduate of Stevens Institute of Technology, with a major in Chemical Engineering and a minor in Mechanical Engineering. He has over 38 years of experience in both industry and consulting in process engineering, project management, environmental engineering, and operations management. Michael has a background from the chemical, pulp & paper, pharmaceutical, nuclear and automotive industries; having worked for or performed projects for ORNL, IT Group, Dames & Moore, Denso Manufacturing, AFCO, Merck, Westvaco, Engelhard, Badger Fire Protection, Brunswick Corporation, BASF, Mobil Oil, and Carpenter Co. As well as being a Registered Professional Chemical Engineer, he is a Registered Auditor for ISO 9000 and ISO 14000, a Certified Environmental Auditor, and Certified Infrastructure Preparedness Specialist.

Job Opportunities

The following opportunities for employment are available through Scientific Search (see contact information at end of article).

Formulation Chemist-Near Philadelphia, PA. Requires a BS degree in Chemistry, Chemical Engineering or similar discipline. Must have experience in steel and metalworking industry (client or vendor side).

Research Scientist-Near Philadelphia, PA. Requires a BS degree in Chemistry, Chemical Engineering or similar degree. Retail absorbent consumer product experience is a must. Experience in new product development, R&D required.

Principal Scientist-Near Philadelphia, PA. Requires a Masters degree in Engineering or a physical science and 5+ years retail absorbent consumer product experience is a must. Also requires 5+ years experience in new product development, R&D.

Product Development Leader-Near Philadelphia, PA. Requires a BS/MS degree in Science or Engineering and would prefer a MBA or equivalent Experience. This position requires Medical Device Product Development experience. Minimum of 2-5 years marketing experience, preferably in a consumer packaged goods industry.

Applications Engineer-Near Philadelphia, PA. Applicants must have a BS degree in Chemical Engineering and knowledge of pharmaceutical/biopharmaceutical markets, companies, trends and applications. Experience as a sales application engineer supporting sales and customers through product demonstration and testing is desired.

Process Engineer-Baton Rouge, LA. Requires a BS degree in Chemical Engineering plus 5-10 years experience in the petrochemical industry in either Engineering or Operations technical support role.

Group Leader, Process Engineering-Pensacola, FL. Requires a minimum of a BS degree in Chemical Engineering and 10 years experience in process engineering in continuous plant operation and a minimum of 5 years supervisory experience. A strong background in distillation is a plus.

Contact:

Kimberly Laipple, MBA
Manager, Recruiting
SCIENTIFIC SEARCH
kim@scientificsearch.com
Phone (856) 761-0900 ext 101
Cell (856) 261-1698
<http://www.scientificsearch.com>

AIChE Webinar: An Update on Fukushima Daiichi

The AIChE will host a Webinar: *Fukushima Daiichi - An Update on the Current Status, Lessons Learned, and Path Forward for the Global Nuclear Industry*. This Webinar will be presented by Dr. Mary Lou Dunzik-Gougar, Kenny Anderson, and Nathan Sanfilippo on Wednesday, September 14 at 2:00-3:30 p.m. ET. AIChE members may register for this Webinar at <http://apps.aiche.org/chemeondemand/Preview.aspx?ID=30b16eac-2e4e-4339-9a10-269e23657b82>.

On March 11, 2011, the magnitude 9.0 (Mw) Tohoku earthquake occurred off the coast of Japan. This earthquake was the most powerful known earthquake to have hit Japan. It was also one of the five most powerful earthquakes in the world, and, combined with the ensuing tsunami, tragically resulted in more than 20,000 persons confirmed dead or missing. Learn about what happened, the current status at Fukushima Daiichi, and an overview of the follow-up Nuclear Regulatory Commission (NRC) report.

Activities Calendar

Date	Time	Topic	Speaker	Location
Sept 15	6:00 PM	Fundamentals and Characterization Techniques of Hydrogen Polymer Electrolyte Fuel Cells	Ahmet Turhan, UT	Calhoun's, Turkey Creek, Knoxville TN
Oct 13	6:00 PM	TBD	TBD	Calhoun's, Turkey Creek
Oct 16-21		2011 AIChE Annual Meeting		Minneapolis, MN
Nov 17	6:00 PM	Regional Energy Initiatives	Ben Cross, SRNL	Calhoun's, Turkey Creek
Dec 8	6:00 PM	Financial Planning	David Moon	Calhoun's, Turkey Creek
Jan 19	6:00 PM	TBD	TBD	Calhoun's, Turkey Creek
Feb	6:00 PM	Joint Meeting with ANS	TBD	TBD
Mar 15	6:00 PM	TBD	TBD	Calhoun's, Turkey Creek
Apr 1-5		2012 AIChE Spring Meeting		Houston, TX
Apr	6:00 PM	Student Awards	TBD	TBD
May 17	6:00 PM	TBD	TBD	Calhoun's, Turkey Creek

Sponsoring Opportunities

We continue to accept advertising in the newsletter in order to provide funds to support student participation in the meetings.

Rates per newsletter are:

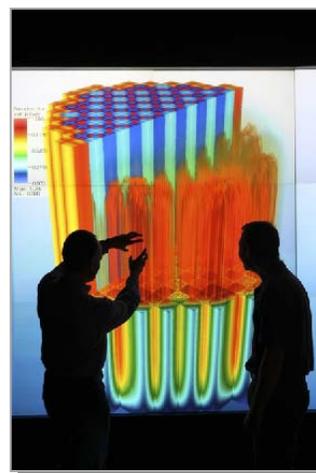
\$80 full-page advertisement

\$45 half-page advertisement

\$25 quarter-page advertisement

The section will also continue to accept individual or corporate sponsors to provide student meals at section meetings. The sponsor will be recognized at the meeting and in the Newsletter.

The cost to sponsor one meeting is **\$200**. It's a great way to encourage students to attend the local meetings and become future members in the Institute!



(Photo courtesy of DOE Photo Archive, <http://www.doe.digitalarchive.doe.gov/>)

Officers

Chair:	Michael Aident	694-7333	Michael.Aident@shawgrp.com
Chair-Elect:	Jarrod Clark	276-1867	jarrod.clark@merrick.com
Secretary:	David DePaoli	574-6817	depaolidw@ornl.gov
Treasurer:	Paul Taylor	574-1965	taylorpa@ornl.gov
Directors:	Jacob Hutton	560-1706	jacob.hutton@power.alstom.com
Term ends 2012	Michael Hollander	300-5645	enviroms@att.net
Term ends 2012	Sharon Robinson	574-1150	robinsonsm@ornl.gov
Term ends 2011	Stuart Daw	946-1341	dawcs@ornl.gov
Term ends 2011	Richard Denney	458-8875	rgdenney@charter.net
Membership:	Paul Taylor	574-1965	taylorpa@ornl.gov
Newsletter:	Linda Puckett	574-6147	puckettlf@ornl.gov
Webmaster:	Ben Lewis	574-4091	lewisbejr@ornl.gov
E-mail:			aiche-chat@chem.engr.utk.edu
Website			http://www.ornl.gov/aiche

"It is nice to know that the computer understands the problem. But I would like to understand it too."

Eugene Wigner
American Physicist
1902-1995

Knoxville - Oak Ridge Section

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We're on the Web!

See us at:

<http://www.ornl.gov/sci/aiche/>

Editor: B. Lewis

About Our Organization...Membership Grades

AIChE membership is one of the best things you can do for your professional development, no matter what stage of your career you are in. There is no better way to meet as many accomplished chemical engineers or to tap into such a deep reserve of specialized information. For each stage of your life, membership has its advantages. The stages of membership in the AIChE are as follows:

STUDENT MEMBERS shall have the exclusive privileges of representing themselves as Student Members and of wearing the emblem of membership, and shall also have the privileges that are common to all classes of membership, but not the privileges of nominating, voting, and holding office. A Student Member may not retain this class of membership

beyond the end of the calendar year in which he or she is last enrolled as a student.

MEMBERS shall have the exclusive privileges of representing themselves as Members and of wearing the emblem of membership, and shall also have the privileges of nominating and voting for officers and directors and the privileges that are common to all classes of membership. They shall also have the privileges of holding office and of voting on amendments to this Constitution after 4 years as a Member (a 4-year Member). A Member may, after regular application and election, become a Senior Member.

SENIOR MEMBERS shall have the exclusive privileges of representing themselves as Senior Members, of wearing the emblem of membership,

of holding office, and of voting on amendments to this Constitution, and shall also have the privileges of nominating and voting for officers and directors and the privileges that are common to all classes of membership.

FELLOWS are Senior Members who have satisfied the Fellow Bylaw requirements, have demonstrated significant accomplishments in, and contributions to, the profession, and may be nominated for consideration to be elected Fellow. The Nominator must be a Fellow or Senior Member in good standing.

Source: National AIChE website, <http://www.aiche.org/joinnow/membergrades.aspx>.

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