



American Institute of Chemical Engineers

Knoxville-Oak Ridge Section

Inside this issue

Article	Pg.
• October 2016 Meeting	1
• Election of Local Section Officers	2
• 2016 AIChE Annual Meeting	3
• UT Student Poster Presentation at October Meeting	4
• Volunteer's Corner	5
• Activities Calendar	7
• Sponsoring Opportunities	7
• Officers	7
• About Our Organization... Awards	8

For additional information see our Web site at: <http://www.ornl.gov/sci/aiche/>
Or contact: Paul Taylor, taylorpa@ornl.gov, (865)574-1965 or
Amber Tipton, atipto11@utk.edu, 974-6458

October 2016 Meeting

Date: Thursday, October 20, 2016
Cost: \$20 (Cash or Check - **NOTE:** There is no cost for the program or PDH Certificate)
Location: Rothchild Catering and Conference Center, 8807 Kingston Pike, Knoxville TN

5:00 pm Executive Committee Meeting (All members welcome)
5:30 pm Social/Networking
6:00 pm Dinner
7:00 pm

Program – Brian West, Deputy Director of the Fuels, Engines, and Emissions Research Center at Oak Ridge National Laboratory's National Transportation Research Center – **Fuels R&D Supporting Informed Decision-Making**

Abstract – Oak Ridge National Laboratory (ORNL) has a long history in fuels R&D; with an early focus only on energy security, then cleaner emissions, the more recent directive includes equal if not more significant emphasis on greenhouse gas emissions reductions. While national labs do not make policy, our research often informs policy decisions. This presentation will describe some of the ORNL fuel research over the years, such as the studies of fuel-borne sulfur on emissions control systems that led to an Environmental Protection Agency (EPA) ruling in 2000 that brought about ultra-low sulfur (15 ppm) diesel fuel, and the Mid-Level Ethanol Blends Studies that led EPA to approve use of 15% ethanol in gasoline. A description of more recent high-octane fuels research that may yet impact the U.S. fuel pool will also be provided.

Bio – Brian West is the Deputy Director of the Fuels, Engines, and Emissions Research Center at ORNL. Brian received BS and MS degrees in Mechanical Engineering from Clemson University and Virginia Tech. Brian's research at ORNL has involved vehicles, fuels, engines, and emissions control technologies. His work with Lean NOx Traps was cited by the EPA in the ultra-low diesel sulfur rule in 2000, and more recently he led portions of the Department of Energy's Intermediate Ethanol Blends Program, enabling EPA's approval of the waiver allowing E15 in 2001 and newer vehicles. During this program, his team developed a method for calculating NMOG (Nonmethane Organic Gas) emissions from vehicles burning ethanol blends using conventional laboratory measurements; the method was adopted by EPA as part of the Tier 3 emissions rule. His current research interests include exploring the use of ethanol in high-octane fuels for improved efficiency. Brian is a Fellow of the Society of Automotive Engineers (SAE) and he is active as an SAE author and organizer.

Please make your reservations by noon, October 18, by contacting
Paul Taylor, taylorpa@ornl.gov, (865)574-1965 or
Amber Tipton, atipto11@utk.edu, 974-6458

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

2016 AIChE Annual Meeting

November 13-18, 2016

Hilton San Francisco Union Square
Parc 55 San Francisco
Hotel Nikko San Francisco

The AIChE Annual Meeting is the premier educational forum for chemical engineers interested in innovation and professional growth. Academic and industry experts will cover wide range of topics relevant to cutting-edge research, new technologies, and emerging growth areas in chemical engineering.



2016 Annual Meeting: At-A-Glance

Engineering Sciences and Fundamentals

Separations Division

Particle Technology Forum

Education Division

Management Division & Center for Innovation and Entrepreneurship Excellence (CIEE)

North American Mixing Forum

Transport and Energy Processes

Materials Engineering and Sciences Division

Environmental Division

Computing and Systems Technology Division

Process Development Division

Nuclear Engineering Division - See also ICE

Food, Pharmaceutical & Bioengineering Division

Fuels and Petrochemicals Division

Forest and Plant Bioproducts Division - See also ICE

Liaison Functions

Catalysis and Reaction Engineering Division

Computational Molecular Science and Engineering Forum

Nanoscale Science and Engineering Forum

Sustainable Engineering Forum

Chemical Engineering & the Law Forum

Upstream Engineering and Flow Assurance Forum

Pharmaceutical Discovery, Development and Manufacturing Forum

Annual Meeting Events

Student Poster Sessions

Meet the Faculty Candidate Poster Session – Sponsored by the Education Division

2016 Annual Meeting of the AES Electrophoresis Society

2016 International Congress on Energy

Topical Conference: Nanomaterials for Applications in Energy and Biology

Topical Conference: The Food-Energy-Water Nexus

Topical Conference: Process Intensification

Topical Conference: Sensors

Topical Conference: Bay Area Biotechnology

Topical Conference: Environmental Aspects, Applications, and Implications of Nanomaterials and Nanotechnology

Topical Conference: Advances in Fossil Energy R&D

Topical Conference: Innovations of Green Process Engineering for Sustainable Energy and Environment

(Source: National AIChE Web-site: <https://aiche.confex.com/aiche/2016/webprogram/ata glance.html>)

UT Student Poster Presentation at October Meeting

University of Tennessee Chemical and Biomolecular Engineering graduate student, Thomas Gaetjens, will present a poster on his work, **Comparative Economic Analysis of Rare Earth Element Separation from Phosphoric Acid Waste Streams**, at the October meeting of the Knoxville-Oak Ridge Section of AIChE. You are invited to either arrive at 5:30 p.m. or remain after the regular meeting to talk with Thomas about his work

Title: Comparative Economic Analysis of Rare Earth Element Separation from Phosphoric Acid Waste Streams.

Abstract: Waste streams from phosphoric acid production facilities contain a large amount of Rare Earth Elements (REEs) and represent as of yet underexplored sources of these critical materials. It was the purpose of this paper to investigate recovery of REEs from phosphogypsum and sludge waste streams and report on the

economic viability of such processes. A model was constructed to simulate the leaching, solvent extraction, precipitation and calcining of each stream resulting in a mixed Rare Earth Oxide product. Output from the model seemed to indicate a superior profit per mass in the sludge stream, but superior total profit in the phosphogypsum.

Bio: Thomas Gaetjens is a first year graduate student in Chemical Engineering at the University of Tennessee Knoxville working under Dr. Robert Counce. He completed his undergraduate degree in Chemical Engineering at UTK in May 2016. His research interests include process economics, optimization, educational methods, and simulation.



Thomas Gaetjens



THE UNIVERSITY OF
TENNESSEE

Alternate Payment Option for Local Section Meeting Attendees

The Knoxville-Oak Ridge Section of AIChE is providing an alternate payment option to cover the costs of meals, speakers, and student attendees at our monthly meeting. Attendees now have the option to pay by credit card using an online payment system at the following web-address:

https://www.eventbrite.com/e/fuels-rd-supporting-informed-decision-making-tickets-28511760443?ref=enivtefor001&utm_source=eb_email&utm_medium=email&utm_campaign=inviteformalv2&utm_term=eventpage

If you use this service, the cost for the meeting will be \$22.09. If you do not want to use this web-based payment option, you may continue to pay \$20 at the door by cash or check.



VOLUNTEER'S CORNER

Engineers making a difference in our community.

Date	Event
Anytime	<p>K-12 Outreach</p> <ul style="list-style-type: none"> Teach Math or Science to a Middle/High Schooler? Junior Achievement, www.jaeasttennessee AIChE Academy can deliver chemical engineering educational resources to help Chemical Engineering professionals connect, learn, and solve pressing challenges. Visit www.aiche.org/academy and see what AIChE Academy has to offer. <div data-bbox="743 701 1084 793" style="text-align: center;"> </div> <ul style="list-style-type: none"> AIChE Young Professionals Committee. We sponsor a competition for our collegiate student chapters, the Global Undergraduate Student Video Competition. This competition requires chapters to create a video about a relevant chemical engineering subject that will be shown to high school students to teach them about that topic, and ultimately encourage them to study chemical engineering.
Anytime	<p>AIChE K-OR needs help with:</p> <ul style="list-style-type: none"> Social Media Committee – The local section desires to establish a presence on various social media outlets, such as: Facebook™, Twitter™, LinkedIn™, and YouTube™. Young Professionals Committee – The local section desires to establish a Young Professional's Group to increase participation and interactions with young chemical engineers within the East Tennessee region. Monthly Newsletter - Submit an Article, Editor-At-Large AIChE K-OR Webmaster
Anytime	<p>Engineer's Without Borders – http://www.ewb-usa.org</p>
Date	Event
January February 17-18, 2017	<p>Tennessee Science Bowl See http://www.orau.gov/sciencebowl/volunteers/index.html for details.</p> <div data-bbox="841 1493 1031 1654" style="text-align: center;"> </div>
February 18, 2017	<p>Boy Scouts Merit Badge College – Roane State Community College - Merit Badge College</p> <ul style="list-style-type: none"> Help teach the chemistry merit badge - Contact Paul Taylor or Mark Swintoniewski if you can help out.
February 19-25, 2017	<p>Engineer's Week – DiscoverE.org</p>

<p>March 22 - 25 2017</p>	<p>TN FIRST Robotics See http://www.usfirst.org/community/volunteers</p>
<p>March 31, 2017 –</p>	<p>AIChE UT Student Chapter is hosting a regional meeting</p>
<p>April 1, 2017</p>	
<p>March</p>	
<p>March 27-30, 2017</p>	<p>Chem-E-Car Competition - AIChE's annual Chem-E-Car Competition® engages college students in designing and constructing a car powered by a chemical energy source, that will safely carry a specified load over a given distance and stop.</p>
	<p>Southern Appalachian Science & Engineering Fair (SASEF) – UTK Thompson Boling Arena To register as a judge: http://sasef.com/. Select “Judges” and then “Register Online.”</p>
<p>May</p>	
<p>June</p>	<p>Volkswagen-Sponsored Camp Introduces Students to UT, Engineering</p>
	<p>With the Volkswagen-sponsored Engineering VOLunteers for Tenth Graders, or eVOL10, now under way at the University of Tennessee, Knoxville, College of Engineering, students in high school and middle school are getting a chance to take a deeper look into future possibilities in science, technology, engineering and mathematics, or STEM.</p>
<p>July</p>	<p>AIChE K-OR Planning Meeting for the upcoming academic year needs ideas and help planning speakers and arranging meeting locations.</p>
<p>August</p>	
<p>September</p>	
<p>October</p>	
<p>November</p>	
<p>December</p>	



Activities Calendar

Date	Time	Topic	Speaker	Location
Oct 20	6:00 PM	Fuels R&D Supporting Informed Decision-Making	Brian West, ORNL	Rothchild's, Knoxville TN
Nov 10	6:00 PM	Bioenergy	Bryan Biss, Proton Power	Rothchild's, Knoxville TN
Nov 13-18		2016 AIChE Annual Meeting		San Francisco CA
Dec 1	6:00 PM	Joint meeting with SWE – Bee keeping OR <i>Jeopardy</i> Experience	Howard Kerr OR Steve Belding, UCO	Rothchild's, Knoxville TN
Jan 19	6:00 PM	Quality Assurance of TVA's Landfills	Nick McClung	Rothchild's, Knoxville TN
Feb 21	6:00 PM	Joint meeting with ANS – Watts Bar Startup OR Tennesseine (element 117) Discovery	TVA Engineer OR Jim Roberto, ORNL	Calhoun's, Oak Ridge TN
Mar 23	6:00 PM	Joint meeting with UT – Unit Operations Lab Tour	TBD	UT – Dougherty
Apr 18	6:00 PM	A peripatetic Life – The Life of an Engineer	Emory Ford, Emeritus Director of MTI	Rothchild's, Knoxville TN
Apr 20		UT Department of Chemical & Biomolecular Engineering Awards Banquet		TBD
May 16	6:00 PM	Finances	Jim Brogan, Brogan Financial	Rothchild's, Knoxville TN

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

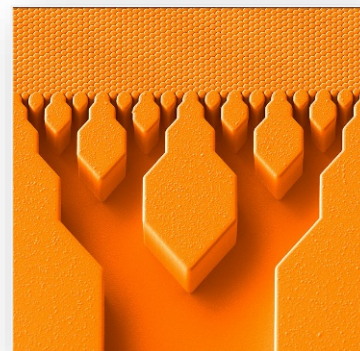
\$45 half-page advertisement

\$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!



Multiscale fluidic device 18 micron tall at ORNL
(Image courtesy of DOE Digital Photo Archive,
<https://www.flickr.com/photos/oakridgelab/4072381342/>)

Officers

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" We must be the change we wish to see in the world."

Mahatma Gandhi

*Leader of the Indian independence movement
1869-1948*

Knoxville - Oak Ridge Section

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We're on the Web!

See us at:

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

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About Our Organization...Awards

AIChE administers more than 60 awards, including monetary prizes, certificates, plaques, medals, honoraria, scholarships, travel awards and invited lectures. Browse our award types below to see what you qualify for or how to nominate a member.

Institute Awards

AIChE's most prestigious awards — honoring eminent chemical engineers for accomplishments in research and education, achievements in industrial practice, contributions to the profession, and service to society. These awards are presented each year at AIChE's Annual Meeting.

Board of Directors' Awards

Closely associated with the Institute awards, Board of Directors' Awards honor members for lifetime contributions to the profession and to the Institute. BOD Awards are presented at AIChE's Annual Meeting.

Committee Awards

Institute committees give a wide range of awards to individuals and groups for meeting program contributions, public outreach, leadership, contributions to engineering diversity, and other activities.

Technical Division & Forum Awards

Division and Forum Awards honor individuals for excellence in their

technical fields. A wide range of fields are represented.

Local Section Awards

Local Section Awards recognize excellence in public affairs initiatives, educational programs, and other accomplishments.

Student Awards & Competitions

Granted to individuals and student chapters, these awards recognize academic skill and student chapter achievements. Scholarships and competitions are included.

SBE Awards

The Society of Biological Engineering presents four prestigious awards every year at AIChE's Annual Meeting and other venues, including the J. Bailey Award and D.I.C. Wang Award.

Intersociety and Other Awards

Prestigious national and international engineering awards, co-sponsored and by other organizations and associations.

(Source: National AIChE Web-site:
<http://www.aiche.org/community/awards>)

