



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
Rita Gray, rgray22@utk.edu, (865)974-5356

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February 2013 Meeting

Date: Thursday, February 21, 2013
Cost: \$20
Location: Rothchild Catering and Conference Center, 8807 Kingston Pike, Knoxville TN
Menu: Menu items

5:30 pm Executive Committee Meeting (All members welcome)
6:00 pm Dinner

7:00 pm Program – Dr. Michael Smith, Oak Ridge National Laboratory Physics Division,
Exploding Stars and Atom Smashers

Abstract – The night sky appears calm and peaceful – but is actually peppered with energetic explosions that rip apart the stars. What causes some stars to explode, while others just fizzle out and fade away? How are stellar blasts related to the origin of the elements? Find out how we use atom smashers here on Earth to unlock these mysteries of exploding stars. Some of the bizarre effects discussed include cosmic cannibalism, thermonuclear traffic jams, and stellar alchemy.

Bio – Dr. Michael Smith is a Distinguished Scientist at Oak Ridge National Laboratory, where he leads the Experimental Astrophysics Group. Prior to coming to ORNL, he received an undergraduate degree in Physics from the University of Chicago, a Ph.D. from Yale University, and worked as a Postdoctoral Research Fellow at the California Institute of Technology. At ORNL, he leads an effort using beams of radioactive subatomic nuclei and computer simulations to study how stars explode. He also carries out research into how our Universe began in a hot Big Bang. He has won the Presidential Early Career Award for Scientists and Engineers, the highest award given to young researchers in the United States, as well as numerous ORNL awards including Scientific Paper of the Year, Science Communicator of the Year, and Educational Champion. He has been featured on National Geographic's Naked Science TV show, the JASON science education project, and the Discovery Channel / Siemens STEM Online Academy. He has pioneered and oversees 6 online software systems and websites that enable scientists from around the world to share their research results. He is Chairman of the 1200 member user group of the Facility for Rare Isotope Beams, and enjoys mentoring students of all levels.

**Please make your reservations no later than noon on
February 20, by contacting**

Linda Puckett, puckettlf@ornl.gov, (865)574-6147 or
Rita Gray, rgray22@utk.edu, (865)974-5356

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

Local Section Member Gives Presentation at UT Student Chapter Meeting

The Knoxville-Oak Ridge AICHe Section Treasurer, Paul Taylor, gave a presentation during a meeting of the University of Tennessee student chapter of AICHe on February 7, 2013. Attendance at the student chapter meetings has been growing this year, as has the number of students majoring in chemical engineering. Paul's presentation provided an overview of a wide range of research projects that he has worked on throughout his career, including chemical vapor deposition, biodenitrification, toxicity testing for effluents, chemical destruction of ion exchange resin, and hydraulic testing of a specialized ion exchange resin that will be used to remove cesium from high-level radioactive tank waste. If you are interested in speaking at a Student chapter meeting, please contact Morgan Baltz [mbaltz@utk.edu] for additional information and scheduling.



Glass bioreactors at BNL used in ENIGMA (Ecosystems and Networks Integrated with Genes and Molecular Assemblies) research

(Source: DOE Digital photo archive at: <http://www.doedigitalarchive.doe.gov/>)

January 2013 Meeting Cancelled due to Weather

The January 2013 meeting of the Knoxville-Oak Ridge Section of AICHe was cancelled the afternoon of the meeting when the speakers determined that it was too dangerous to drive to the meeting because of the snow. We tried very hard to contact everyone who had signed up for the meeting, and apologize to anyone who didn't hear about the cancellation. In the future, if cancellations are necessary, they will also be posted on the Calendar page of the section's web site (<http://www.ornl.gov/sci/aiche/calendar.html>).

*"Even if you fall on your face,
you're still moving forward."*

Science Saturdays

Science Saturdays are now being offered for students in grades 8-12 through March 23. Science Saturdays is an event that allows students to hear presentations from ORNL scientists and that are followed up with hands-on activities. The programs will run from 9:30 a.m. and end around 11 a.m. each Saturday from February 9 through March 23. The first five Science Saturdays will take place at Pollard Auditorium, 210 Badger Avenue, Oak Ridge, TN. Students interested in participating can register online at: (https://www.sciedtech.org/index.php?option=com_rsform&formId=95).

Interested, qualified students who participate may be selected to receive an unpaid ten-week internship mentored by ORNL scientists. Follow the following hyperlink (<http://www.engineeringchallenges.org/cms/challenges.aspx>) to view potential projects the students could work on.

For more information contact Pai Moua at ScienceSaturdays@orau.org or 865-241-8240 or visit the Science Saturday's web site at: <http://www.orau.org/science-saturdays/>.

Victor Kiam
American entrepreneur
1926-2001



UT to Celebrate 175 years of Engineering in 2013

In 1838 the first engineering courses were taught at the University of Tennessee. That's nearly 175 years of teaching and creative discovery. In recognition of this milestone, UT is getting ready to celebrate! Throughout 2013 UT will recognize the many achievements of their graduates, students, and faculty. The plan is to cap the year with a gala evening event. Many of us are part of this grand history and are part of UT's amazing future. UT would like to feature your remembrances on their 2013 website, so if you have a

favorite story—faculty who influenced you, how you met your spouse, adventures in the labs, memories of friends, etc.—please send them to coe@utk.edu. Dates and details for the fall 2013 celebration will follow in coming months. We encourage you to join the festivities and help tell the Tennessee Engineering story.

(Excerpt from the University of Tennessee website at: <http://www.engr.utk.edu/175/>)



Previews of Upcoming Meetings

March 2013

For the March 21, 2013 meeting, Ms. Lee McGetrick, Director, Carbon Fiber Technology Facility (CFTF), will present an overview of the R&D focus areas in carbon fiber and will include a “virtual tour” of the CFTF along with a discussion of how the CFTF can be used as a national asset for growing the carbon fiber and composites industry. While U.S. innovation in new manufacturing technologies remains strong, access to cutting-edge materials R&D and facilities is unattainable for most companies. Manufacturing is a major component of the U.S. economy, and in order to “win the race” in this global economy we must invest in programs to facilitate commercialization of new technologies. ORNL has been leading several initiatives in advanced materials and manufacturing with a focus on pushing technology into the private sector. One the most prominent of those initiatives is in the area of carbon fiber and composites, where ORNL’s research portfolio has matured to the point that the DOE has invested over \$34M in the new Carbon Fiber Technology Facility (CFTF).

April 2013

The April 18, 2013 meeting will feature a tour of Oak Ridge National Laboratory’s Manufacturing Demonstration Facility (MDF) at the National Transportation Research Center by Dr. Claus Daniel. The MDF provides industry access to unique research facilities that reduce the risk for adopting cutting-edge manufacturing technologies, including additive manufacturing, lightweight metals processing, and battery manufacturing. The meeting will also highlight ORNL activities to introduce the next generation of engineers to the next generation of manufacturing by working with student teams from regional high schools to create prototypes, components, and working systems to support entries in the FIRST Robotics Competition, a nationwide event that promotes science and engineering among high school students.

May 2013

Dr. Jan Simek will present a talk on ancient cave paintings at the McClung Museum on the UT campus. Dr. Simek is an American archaeologist and educator and was the interim president of the University of Tennessee from 2009-2010. As a faculty member in the department of anthropology at the University of Tennessee, Knoxville, his research interests include Paleolithic archaeology, human evolution, quantitative analysis, spatial analysis, archaeology of the southeastern United States, and cave archaeology. He has been involved in the discovery and exploration of numerous “Unnamed Caves”, a naming practice used to protect their location, in the Cumberland Plateau for the past fifteen years. He has been instrumental in the discovery of prehistoric artwork; dating back thousands of years and has also conducted important research in France at Neanderthal habitation sites.

Activities Calendar

Date	Time	Topic	Speaker	Location
Feb 21	6:00 PM	Exploding Stars and Atom Smashers	Michael Smith - ORNL	Rothchild's, Knoxville TN
Mar 21	6:00 PM	ORNL Advanced Manufacturing: The Future of Carbon Fiber	Lee McGetrick - ORNL	Rothchild's, Knoxville TN
Apr 18	6:00 PM	Manufacturing Demonstration Facility / FIRST Robotics Competition	Claus Daniel - ORNL	Manufacturing Demonstration Facility at NTRC
May 16	6:00 PM	Ancient Cave Paintings	Jan Simek - UT	McClung Museum

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!



(Source: DOE Digital photo archive at: <http://www.doedigitalarchive.doe.gov/>)

Officers

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"The world is full of willing people; some willing to work, the rest willing to let them".

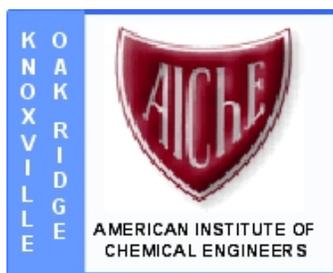
Robert Frost
American Poet
1874-1963

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We're on the Web!

See us at:

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

Editor: B. Lewis

About Our Organization – Chemical Engineering Practice

AIChE provides a wealth of content to its membership that is geared toward chemical engineers, working across a wide-spectrum of specific fields. Explore courses, webinars, articles, technical presentations, and much more. Topical areas include:

- Chemicals & Materials
- Chemical Engineering Practice
- Process Safety
- Biological Engineering
- Sustainability & Environment
- Energy
- Professional Development
- New Research Areas
- Outreach

As an example, the “Chemical Engineering Practice” area includes content such as mass and energy transfer, thermodynamics, mixing, process design and development, process control, project management and finance, plant operations, chemical reaction engineering, product design, separations, solids handling, particle technology, and more.

(Source: National AIChE web site:

<http://www.aiche.org/topics/chemical-engineering-practice>)

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