



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

February 2011 Meeting – Joint with ANS

Date: Thursday, February 17, 2010

Cost: \$20

Location: Calhoun's on the River, 400 Neyland Drive, Knoxville,
TN 37902, Phone: (865) 673-3355

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

6:00 pm Social (cash bar provided)

6:30 pm Dinner

7:30 pm Program – Dr. Mike Guidry, Department of Physics and Astronomy, University of Tennessee / Physics Division - Computer Science and Mathematics Division, Oak Ridge National Laboratory, ***Dark Matter and Dark Energy: An Introduction to the New Cosmology***

Abstract – Over little more than a decade, observations of distant Type Ia supernovae and detailed mapping of fluctuations in the cosmic microwave background radiation have transformed cosmology from a notoriously qualitative discipline to a science grounded in precision measurement (but still with ample room for traditional wild-hare speculation). Perhaps the most surprising outcome has been the accumulating evidence that the overwhelming bulk of mass-energy in the Universe is in a form that we have never observed in the laboratory, and that is very different from the traditional matter and energy that we see around us every day. These go by the somewhat fanciful names of "dark matter" and "dark energy", because we observe their gravitational influence in many contexts but so far have not been able to detect them by any other means. I will give an overview of why we believe dark matter and dark energy exist, and discuss how their existence changes fundamentally our understanding of the Universe.

Bio – Mike Guidry is the author of approximately 200 journal publications, invited presentations, and textbooks that address topics in nuclear physics, computational science, advanced educational technology, astronomy, astrophysics, cosmology, general relativity, the mathematics of symmetry in physics, elementary particle physics, relativistic quantum field theory, and condensed matter physics. He has been the lead educational technology developer for a dozen major college textbooks in introductory physics, astronomy, biology, genetics, and microbiology, and in projects as diverse as training K-12 teachers to use educational technology effectively, explaining the science behind weapons of mass destruction for emergency first responders, and development of an online course in programming modern mobile devices for scientific and educational applications. His primary current research interests lie in development of new algorithms for solving large coupled sets of differential equations in scientific applications, understanding the mechanism for Type Ia supernovae, and developing new many-body techniques for understanding high-temperature superconductors and other strongly-correlated electron systems. He has won various teaching awards and is responsible for many Web-based and conventional initiatives introducing and explaining science to the public. Additional biographical information for Dr. Guidry can be found at [UTK Physics Department](#).

**Please make your reservations no later than noon on
February 17, by contacting**

Linda Puckett, puckettlf@ornl.gov, (865)574-6147 or
Lori Daniels, lori.daniels@utk.edu, (865)974-2421

March Meeting to Feature ALCOA Tour

The March meeting will be an opportunity for our members to get a behind the scenes tour of ALCOA's newly renovated aluminum can recycling facility. I am sure that most of us have wondered at one time or another, what happens to those cans that we are recycling. Please mark your calendars for March 17th, for this unique opportunity to learn the process behind recycling aluminum cans.

ALCOA's David Sissom will conduct a tour of the Can Reclamation Area at the ALCOA South Plant, 300 N. Hall Road, Alcoa, TN. A safety briefing and overview of the recycling process will be given before the tour to provide the participants with a better understanding of the process. Because the tour needs to be conducted during daylight hours, the itinerary for the March meeting will be somewhat different from the norm. Here is what is planned for the tour and meeting and some of the prerequisites for the tour:

- Be in the Alcoa parking lot by 5:45 pm sharp.
- Alcoa will provide a bus or van for transport to the recycling center. Latecomers who miss the bus will miss the tour.
- Everyone must attend a short safety briefing and wear steel toed safety boots. Those who have safety boots should bring and wear them. For those who do not, Alcoa will provide them, but will need to know 2-3 days ahead of time in order to locate your shoe size.
- Cotton flame resistant clothing is required – Jeans are acceptable, but anyone in dress slacks will not be allowed to tour.
- There will be a brief presentation before and after the tour where we will be able to ask questions. We should be back to the parking area by about 7:30 pm.
- After the tour and discussions we will return to our vehicles in the parking lot and travel to the Courtyard Grill (near the intersection of Alcoa Highway and Pellissippi Parkway) for dinner and the executive committee meeting.



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

*"Don't wish it were easier,
wish you were better.
Don't wish for fewer
problems, wish for more
skills. Don't wish for less
challenges, wish for more
wisdom."*

Earl Shoaff

*American entrepreneur'
Motivational speaker,
and writer,
"The Millionaire Maker"
1916-1965*

Southern Appalachian Science and Engineering Fair - 2011

The Southern Appalachian Science and Engineering Fair (SASEF) will be held at the Thompson-Boling Arena on the campus of the University of Tennessee Knoxville on March 28-31, 2011. The SASEF is the premier science competition for students in middle and high school in our 23-county service area of East Tennessee. The science fair has promoted teaching the scientific method in science, engineering, and math since 1952.

The fair is sponsored by the University of Tennessee and Oak Ridge National Laboratory, as well as many local companies and agencies. There are two divisions of competition - Junior Division for middle school students, grades 6 - 8, and Senior Division for high school students, grades 9 - 12.

SASEF is an official, affiliated regional fair of the [International Science and Engineering Fair](#) (ISEF), and the top two Senior Division students win an expense paid trip to compete in ISEF in Los Angeles, CA on May 8-13, 2011. Additional information about the SASEF and ISEF is available at: <http://www.sasef.com/>.

The local Section has supported the SASEF for many years by supplying volunteer judges and by providing two special monetary awards for the best Chemical Engineering related posters in the Senior and Junior Divisions. If you are interested in being a judge at the fair, please visit the SASEF web site (<http://www.sasef.com/>) for an application

Members Forum – Testimonials on the Benefits of Membership

This column will publish a series of articles written by local section members that are intended to describe the reasons why members joined the AIChE and the benefits of being a member of the local section.

This forum represents an open invitation to all members to contribute to these monthly articles. It is our intent that these articles help others learn more about the real world benefits of being a member of the AIChE.

This fourth article comes from one of our local section Directors, Sharon Robinson. Sharon is a senior staff member at the Oak Ridge National Laboratory and an AIChE Fellow.

"I joined AIChE as a chemical engineering student at Tennessee Technological University because the head of the department told us that it is one of the things we should do, along with taking the Engineer-in-Training exam, etc. I continued to take his advice after I graduated, transitioning from a student to professional member of AIChE and also taking the Professional Engineer's (PE) exam. Several of my managers at Oak Ridge National Laboratory were officers in the local AIChE section and encouraged new hires to join AIChE and be active members, both at the local and national levels. I suppose it's logical that they would encourage us to be active in AIChE at the national level since researchers need to publish and present their work. Looking back, I also think my professors and

managers encouraged us to be active at the local level because of a sense of professional duty – they knew our professors and profession had been and were going to be good to us, and that we should give something back.

It has been a few years since I first started participating in AIChE. The days when my bosses were active in AIChE and they encouraged their employees to do so are long gone. I have joined several other professional organizations over the years as my career has evolved in topic and role, but throughout my career I have been most active in AIChE, both at a local and national level. I have been an officer of the local AIChE section as well as participating in various capacities in the Separations Division, Nuclear Engineering Division, Research and New Technologies Committee, several national operating committees, and student competitions at the national level.

Why do I do it? Partially for the same reasons that the three previous authors of articles in this column have: networking for job opportunities, learning about other chemical engineer's jobs, learning about new trends in the profession, interacting with and mentoring students, etc. I also think several of the things that AIChE has been doing the last few years to increase relevancy for members are useful: webinars, Smart Briefs, etc.

Why AIChE rather than some other social or professional organization? Partly because my core chemical engineering education transcended all aspects of my career while the

other organizations that I belong to have typically only applied to one aspect or stage of my career. But there is another reason. Sometimes I find myself complaining about committing to do this, that, or the other task for AIChE and it is taking up too much of my spare time or is occurring in the middle of some big work project, and I ask myself "Why do I let myself get talked into all these things?". My friends often tell me it is "because you enjoy it". And that is really true. *I enjoy being around chemical engineers!* I like working with them and interacting with them in a social environment. I have AIChE friends from all over the country, and I want that to continue no matter what company I work for or what project I work on and well into retirement. And AIChE is my link to those people."

Middle School Science Fair Seeking Volunteers

The Episcopal School of Knoxville (in Farragut) Middle School Science Fair will be held on February 24. The science fair coordinator is looking for scientists and engineers who would like to help by being a judge. No judging experience is necessary, just an interest in science education. If you are interested, or you know someone who might be, please consider serving as a judge in this fair. Judges will work from 8 a.m. until about 12:20 on February 24.

Last year, eleven Episcopal School students were sent to the Southern Appalachian Science and Engineering Fair, and eight of those won awards. Please let Cary Busby know if you're interested in working with our young scientists, or feel free to forward this note to anyone else that might enjoy the opportunity.

Cary Busby
Middle School Science
Episcopal School of Knoxville
busby@esknoxville.org

2011 Tennessee Science Bowl Homecoming

The 2011 Tennessee Science Bowl will be held at the new Blount County Campus of Pellissippi State Community College on February 18-19. The Science Bowl is a fast-paced math and science competition for teams of high school students from across the state of Tennessee. Regional/state winners advance to the National Science Bowl that is held in Washington, D.C.

The Tennessee Science Bowl is implementing several very significant changes in the event:

1. The event will be a two-day affair, rather than a one-day event only. On Friday, February 18, teams will arrive,

register, have photographs made, have some social interaction activities, and have dinner and an after-dinner presentation (keynote speaker is Dr. William Bass, UT forensic anthropologist) before lodging at the Airport Hilton. The conventional Science Bowl competitions will then occur on Saturday (February 19), at the new Pellissippi State Community College campus in Friendsville, about 8 miles from the Hilton (see <http://www.orau.gov/sciencebowl/>).

2. To have greater net positive effect on high school science-oriented students throughout the state, intensive school-recruiting has been done. For the past several years, there

have been 52 teams from 35-38 schools. The goal this year is 52 teams, from 52 schools. Many more small schools in counties that have not previously been recruited will be approached. These school-recruiting efforts have already demonstrated success, in that at least 5 schools have signed up that NEVER participated previously. This is a huge plus in terms of getting potential science-oriented students initially drawn into the "STEM pipeline".

The Knoxville-Oak Ridge Section of The AIChE has participated in the past by supplying judges and small monetary awards.

January Meeting Summary – EmeraChem Catalysts for Off-Gas Emissions

The program for the January meeting of the Knoxville Oak Ridge Section of the AIChE included a presentation by Mr. DeCicco, Chief Operating Officer of EmeraChem, LLC. Mr. DeCicco's presentation focused on catalyst chemistry, catalyst manufacturing processes, and the efficacy of EmeraChem catalysts on the control of stack gas emissions. The presentation provided detailed information on the production and application of the catalyst and filtration systems offered by EmeraChem, LLC.

2011 AIChE Spring Meeting: Bring a Young Colleague for Half Price

Are you looking for one more good reason to register for the 2011 AIChE Spring Meeting? Here's one: this year, you can bring a young colleague with you for half price.

Simply invite a co-worker, friend or industry newcomer to register with you for the Meeting. Your colleague can attend for 50% off the regular registration fee. That's a savings of \$300 or more. It's a great way to save money *and* help develop the next generation of chemical engineers.

2011 AIChE Spring Meeting – March 13-17 – Hyatt Regency Chicago – Chicago, IL.

You are welcome to bring any colleague who passes this simple "test":

- Your colleague is 35 or under
- Has never before attended the Spring Meeting
- And would benefit from attending the year's premier event for chemical engineers and the learning, networking and skill-building that comes with attending

When you register with your colleague, you'll both enjoy the breadth and depth of this year's Spring Meeting – the 9 cutting-edge Topical Conferences, nearly 125 technical sessions, over 675 presentations and world-class experts.

Be a better mentor. Register yourself and a young colleague, who will pay 50% off the standard registration fee. Register now at <http://www.aiche.org/Conferences/SpringMeeting/index.aspx>.

Activities Calendar

Date	Time	Topic	Speaker	Location
Feb 17	6:00 PM	Joint Meeting with ANS: Dark Energy – Dark Matter	Mike Guidry, <i>UT</i>	Calhoun's on the River, Neyland Dr, Knoxville
Feb 18-19		2011 Tennessee Science Bowl		Blount Co. Pellissippi State Community College, Friendsville, TN
Mar 13-17		2011 AIChE Spring Meeting & 7 th Global Congress on Process Safety		Hyatt Regency Chicago, Chicago, IL
Mar 17	5:45 PM	ALCOA aluminum can recycling facility Tour	David Sissom	ALCOA, South Plant, Alcoa, TN
Mar 28-31		SASEF 2011 – 60 th Anniversary		Thompson-Boling Arena, Knoxville, TN
Mar 31	6:30 PM	Student Awards – CBE Spring Banquet		Calhoun's on the River, Neyland Dr, Knoxville
May 5	6:00 PM	Uranium Processing Facility – Behind the Scenes Tour	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!



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

"The factory of the future will have only two employees, a man and a dog. The man will be there to feed the dog. The dog will be there to keep the man from touching the equipment."

Warren G. Bennis
American scholar,
organizational consultant
and author
1925-

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We're on the Web!

See us at:
<http://www.ornl.gov/sci/aiche/>

Editor: B. Lewis

About Our Organization – CareerToolsPLUS

AIChE Members [connect here](#) for CareerToolsPLUS!™, where you will find personalized service and online resources to help you find a new job, make a career change, create a new business, or manage your success at every stage of your ChemE career.

Check out just a few of the solid CareerToolsPlus! platforms to support your course of action:

- **Find a Job** Resume-ready? Then get right to it on CTPLUS! homepage click "**My Tools/Search for Jobs**" and reach your target audience - you'll find the right job for you in the centralized job boards and directories, message boards and also using **LeadLink** to connect with thousands of job opportunities world-wide from corporate Web sites, Lee Hecht Harrison Job Market Consultants, and individual hiring managers ... *also find your job at*
- **Resume Reserve** on the same page "**My Tools/Search for Jobs**" load your resume and your credentials are presented to tens of thousands of registered

human resources professionals

- **ResumeMaker** need to build that killer resume? Go from homepage to "**My Tools/Resume Resources**" for this online resume-making tool that lets you create your resume in a variety of formats and styles, with a variety of sections for various needs. Craft your winning cover letters here too.
- **Develop Your Career:** for every stage of your career - entry, mid, and new again - The five step Career Lifecycle model guides you through career changes and challenges, including how to put your best foot forward in a new position, staying on top of your profession, handling and successfully making career changes, and developing a career plan. Includes a downloadable Career Development Plan. Many more professional development resources are here at CTPLUS! homepage "**Develop Your Career**"

Also use the **Research Resources** from the CTPLUS! homepage: research industries, get

corporate background and market profiles *before* you make your professional commitment! Find out about a local job market, use the library for job research and get help and advice for finding and using information to help you change careers, and much more.

And if this is in your plan, check out "**Your Own Business**": Over 60 pages of detailed advice and business plan creation guides for four types of business: Consulting, Franchising, Buying an existing business or starting a business from scratch.

Students and young professionals, also, have access to AIChE's exclusive career and employment services, including CareerToolsPLUS! for job search advice and [CareerEngineer](#), AIChE's a premier Chemical Engineer resume database.

(Source: National AIChE web site: <http://www.aiche.org/CareersEducation/CareerDevelopment/CareerToolsPLUSAccess.aspx>)

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