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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: Paula George, georgepm@ornl.gov, (865)576-0603 or
Rita Gray, rgray22@utk.edu, (865)974-5356

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January 2015 Meeting (Joint with ASM)

Date: Thursday, January 15, 2015
Cost: \$25
Location: Sunsphere Icon Restaurant and Lounge,
810 W Clinch Ave: 6th Floor, Knoxville TN 37902
Click [here](#) for a map of parking locations

Menu: Menu items

5:30 pm Executive Committee Meeting (All members welcome)
6:00 pm Dinner
7:00 pm Program – Dr. Soren Sorenson, Professor and Head of the Department of Physics and Astronomy, University of Tennessee, ***What is everything made of? The quest for the ultimate building blocks of the physical universe***



Abstract – One of the most fundamental questions in science is: what is everything made of? In this talk we will discuss how various fields of science work with a given set of "fundamental" building blocks, which in turn have an internal structure, which in turn have an internal structure, which.... We will discuss issues, like atoms, nucleons, elementary particles, quarks, and maybe even superstrings.

Bio – Soren Sorenson was born in Denmark and grew up in the suburbs of Copenhagen. He attended the University of Copenhagen and majored in Math and Physics. In 1977 he received a Masters Degree from The Niels Bohr Institute and in 1981 received a PhD from the same place. From 1981 to 1984 he was a post-doc at The Niels Bohr Institute, and spent a year from 1982-83 at Oak Ridge National Laboratory. In December 1984 he began his appointment at The University of Tennessee as an assistant professor in nuclear physics and served as the Head of the UT Department of Physics until 2012.

Please make your reservations by noon, January 13, by contacting

Paula George, georgepm@ornl.gov, (865)576-0603 or
Rita Gray, rgray22@utk.edu, (865)974-5356

***Students are encouraged to attend
and will be subsidized***

Tennessee Society of Professional Engineers Banquet - Reminder

You are invited to join the Tennessee Society of Professional Engineering (TSPE) on Thursday, February 19, 2015 for a celebration of Science, Technology, Engineering, and Mathematics (STEM) educators and engineers, and their impact on society. In conjunction with Engineer's Week, the Knoxville Chapter of the TSPE is hosting a banquet to raise funds to support our local STEM educators. Proceeds from the banquet will be used to help fund Grants for Engineering, Arithmetic, and Science (GEArS) Education Program. The GEArS Education Program is designed to provide small grants for schools or teachers to promote STEM education. Due to your generosity the TSPE implemented a scholarship program for junior and senior engineering majors, this year. The 2015 grant and scholarship recipients will be honored at the banquet.

The banquet will be held at the Knoxville Marriott on Hill Avenue. The guest speaker will be John Eschenberg, Federal Project Director for the Uranium Processing Facility (UPF) Project at the Oak Ridge National Security Complex. In May 2012, John was appointed as the project director for the UPF. This \$6.5 billion investment is Tennessee's largest post-war construction project and represents the Nation Security Agencies single largest capital investment. John has over 25 years of industrial experience in a variety of defense, commercial, and Department of Energy settings having had responsibility for several multi-billion dollar design and construction projects. He has held employment with Halliburton-NUS Corporation, Brown& Root Environmental Corporation, and the Department of Navy.

John holds a Bachelor of Science degree, Summa Cum Laude, from the University of Maryland and is also a graduate of the Federal Executive Institute in Charlottesville, Virginia and the Executive Management Program at the Sloan School of Management at the Massachusetts Institute of Technology. He was recognized as the National Management Association's Executive of the Year for 2009.

If you plan to attend, registration is due before February 12, 2015. Also, if you would like to be a sponsor for this meeting, refer to the [December Newsletter](#) for additional information.

(Article courtesy of notification letter by Aaron Crenshaw)



Local Section Election Results

The ballots have been counted and the results of the Local Section election sanctioned. Of the voting members, a total of 17 ballots were cast to elect the following local section officers and directors for 2015:

Chair: Kyle Mack (automatic succession)

Chair Elect: Mark Swientoniewski

Secretary: David DePaoli

Treasurer: Paul Taylor

New Directors 2015-2016: Bonnie LaPierre (past

chair), Stuart Daw and Bamin Khomami

Continuing Directors 2014-2015: Michael Aident and Sharon Robinson

Please congratulate our newly elected officers and directors and continue to support the local section by participating in section activities.

Every vote counts, so please don't forget to exercise your right to vote whenever the opportunity arises.



Recap of David Moon's Presentation at the December Meeting

The Knoxville-Oak Ridge section of AIChE was honored by having David Moon, President of Moon Capital Investments; speak at our December meeting on the history of interest rates – “A Quick Look at Interest Rates – 5000 BC to Present”. As always, David provided an entertaining and informative presentation. I want to personally thank David for taking time away from his business and family during the holiday season to prepare and present at our meeting.

So what did we learn about interest rates? Quite a bit actually. Governments have attempted through the ages to use monetary policy to control their economies by both allowing interest rates to fluctuate with demand for the goods and services and also to control by law or decree the maximum allowable interest rates. Both approaches were tried and both worked/failed depending on your point of view. Today our banking system that is controlled by the Federal Reserve is artificially suppressing interest rates; another twist on capping interest rates by law or decree.

As the presentation progressed to present day, David discussed the Federal Reserve Banking System and the relatively brief history of the Federal Reserve; it has only been around for about 100 years. The most interesting bit of history is the impact the Federal Reserve had and continues to have on the purchasing power of our money. Prior to the banking system being controlled by the Federal Reserve there were periods of inflation followed by periods of deflation with the impact being that there was very little actual inflation of prices for goods and services for more than 200 years (as far back as data was presented). Since the Federal Reserve took control (with the exception of the first several years); however, there have been no instances of deflation in the US economy. With no correction for inflationary periods the price of goods and services has increased significantly in comparison to the pre Federal Reserve era.

Is the Federal Reserve a good thing or a bad thing – according to David an argument could be made on either side. However, when questioned about the Federal Reserve and its impact on the 2008 financial crisis, David pointed out that without the Federal Reserve stepping in and instituting TARP (Troubled Asset Relief Program), our banking system would have collapsed. A logical follow-up question would have been, so what if the banking system collapsed? I am kind of glad the question was not asked because the answer could have caused nightmares for many, yours truly included.

For those that missed the meeting and David's presentation, you missed a good one. David's contact information is listed below:

David Moon, President
Moon Capital management
900 South Gay Street, Knoxville, TN 37902
(865) 546-1234
David@MoonCap.Com

(Article courtesy of Michael Aident)

UT Student Poster Presentation at January Meeting

University of Tennessee Chemical and Biomolecular Engineering student, Mengqi Zhang, will present a poster on his research at the January meeting of the Knoxville-Oak Ridge Section of AIChE. You are invited to either come at 5:30 p.m. or stay after the meeting to talk with Mengqi about his work.

AIChE Academy Announcement

AIChE recently announced the formation of an all-new AIChE Academy for the delivery of chemical engineering educational resources to help Chemical Engineering professionals connect, learn, and solve pressing challenges. The AIChE Academy brings a full array of education and training resources to chemical engineers and the companies they support. From process safety to fundamentals, biomanufacturing to solids handling, the AIChE Academy delivers courses, presentations, and videos that will help chemical engineers continue to learn throughout their careers.

All the educational content offered through the AIChE Academy is accessible in one convenient, fully searchable site. You can search by topic, availability of CEUs and PDHs, delivery method, skill level—even location. The ever-growing catalog of materials includes eLearning courses, seminar-style training sessions, webinars, conference presentations and more. All of the resources in the AIChE Academy are available to both AIChE members and non-members.

Whether you're just beginning your career or need to add or brush-up on a skill at a later point, AIChE Academy can help—even if all you need is a quick refresher on a simple question. The materials offered through the AIChE Academy have been developed and vetted by leading experts in the technical subject areas. These experts are members of AIChE and its Technological Communities; including, the Center for Chemical Process Safety (CCPS), the Society for Biological Engineering (SBE), the Institute for Sustainability (IFS), and the International Society for Water Solutions (ISWS).

Remaining competitive in today's engineering marketplace means staying informed on the latest tools and techniques. The AIChE Academy can play a vital role in your career. Click on the logo below or visit www.aiche.org/academy and see what AIChE Academy has to offer.



(Excerpt from AIChE Announcement by 2014 AIChE President Cheryl I. Teich)

Young Professionals Committee Seeking Volunteers

The following is an excerpt from an email from Monica Stowe (AIChE Membership Associate) to Local Section Leadership, soliciting young professionals with an interest in conducting outreach with local university students. If you are a young professional and have a desire to participate in outreach opportunities, the information below provides you with a listing of participating universities and instructions on how to volunteer.

Hello,

My name is Audrey Oldenkamp and I am a volunteer for the Young Professionals Committee (YPC) within AIChE. I currently serve as the representative to the Executive Student Committee and am working to connect student chapters with Young Professional (YP) members in their area.

So far, I have gotten a great response from student chapters and am writing to see if you could send out a call for volunteers within your YP membership to speak at a school close to you. Included is the link to the Google Doc for all the universities that have requested a YP speaker.

<https://docs.google.com/spreadsheets/d/1RUEncAex-cTwkArg7Abt6VETmaXYkKnErLTq831rRiM/edit?usp=sharing>

Feel free to share this google doc link with your YP members.

Many student chapters would like to schedule a speaker (or speakers) for the Spring semester, which should work well in terms of planning. I suggested that speakers could present about topics such as, getting your first job, ChemE in the field, their experiences with collaboration at work, etc. The chapter presidents seem excited and are very open to any ideas that YPs may have as well.

If you, or any of your volunteers, are able to speak at schools on the list, please indicate that in the google doc by entering your name and contact info online with the school name in the specific columns. After that, please send me an email letting me know that you have entered your information. I will communicate your information with the student chapter presidents.

Please fill out the google doc and email me back at audreygrace17@gmail.com if you are interested in speaking at a university close to you.

If there is someone within your LS that is more directly related to YPs, please send me their contact information as well.

Let me know if you have any questions.

Thanks,

Audrey Oldenkamp
audreygrace17@gmail.com

(Article taken from email from Monica Stowe, dated January 5, 2015)

Activities Calendar

Date	Time	Topic	Speaker	Location
Jan 15	6:00 PM	What is everything made of? The quest for the ultimate building blocks of the physical universe – Joint with ASM	Soren Sorenson, UT Physics Department	Sun Sphere Restaurant, Knoxville TN
Feb 19	6:00 PM	Pu-238 Production – Joint with ANS	Bob Wham, ORNL	Rothchild's, Knoxville TN
Mar 12	6:00 PM	Proton Therapy	TBD	Rothchild's, Knoxville TN
Apr 16	6:00 PM	3D Modeling and Engineering	Jack Kissell, ModernTech	ModernTech, 1626 Downtown West, Knoxville
Apr XX		UT Department of Chemical & Biomolecular Engineering Awards Banquet		TBD
May 14	6:00 PM	TBD	TBD	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!



(ORNL – 3D Printed car - Source: DOE Digital photo archive at: <https://www.flickr.com/photos/oakridgelab/with/15538302003/>)

Officers

Chair:	Kyle Mack	(423)747-7947	kylematthewmack@gmail.com
Chair-Elect:	Mark Swientoniewski		swientoniem1@y12.doe.gov
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Directors:	Bonnie LaPierre	241-6521	lapierrebl@y12.doe.gov
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"When I die, I want to die like my grandfather who died peacefully in his sleep. Not screaming like all the passengers in his car."

William Penn Adair "Will" Rogers
 American cowboy, humorist, vaudeville performer, social commentator, and actor
 (1879-1935)

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 – Industry Technology Groups

AIChE Industry Technology Groups allow industry, academia, and government representatives to collaborate and leverage resources for research, technology transfer, and other activities. They include the Center for Chemical Process Safety (CCPS), Society for Biological Engineering (SBE), the Institute for Sustainability (IfS), the Center for Energy Initiatives (CEI), Safety and Chemical Engineering Education (SACHE), Design Institute for Emergency Relief Systems (DIERS), and Design Institute for Physical Properties (DIPPR). A brief description of each group follows.

Center for Chemical Process Safety (CCPS) - CCPS is a not-for-profit, corporate membership organization within AIChE that identifies and addresses process safety needs within the chemical, pharmaceutical, and petroleum industries.

Institute for Sustainability (IfS) - IfS is an AIChE Industrial Technology Group that provides multidisciplinary scientific and technical rigor to sustainability discussions and encourages the incorporation of sustainability concepts in engineering education.

Safety and Chemical Engineering Education (SACHE) - The Safety and Chemical Engineering Education (SACHE) program, initiated in 1992, is a cooperative effort between the Center for Chemical Process Safety (CCPS) and engineering schools to provide teaching materials and programs that bring elements of process safety into the education of undergraduate and graduate students studying chemical and biochemical products and processes.

Design Institute for Physical Properties (DIPPR) - The Design Institute for Physical Properties (DIPPR) is an AIChE Industrial Technology Group and a source of critically evaluated thermophysical and environmental property data.

International Metabolic Engineering Society (IMES) - The International Metabolic Engineering Society (IMES) seeks to promote and advance metabolic engineering as an enabling science for bio-based production of materials, pharmaceuticals, food ingredients, chemicals and fuels.

Society for Biological Engineering (SBE) - The Society for Biological

Engineering (SBE), an AIChE Industrial Technology Group, is a global organization of leading engineers and scientists dedicated to advancing the integration of biology with engineering.

Center for Energy Initiatives (CEI) - The Center for Energy Initiatives is an AIChE Industrial Technology Group devoted to the development, design and efficient use of energy by chemical engineers and related professionals.

Design Institute for Emergency Relief Systems (DIERS) - Formed in 1976, the Design Institute for Emergency Relief Systems (DIERS), is an AIChE Technology Group and a consortium of 29 companies that develop methods for the design of emergency relief systems to handle runaway reactions.

International Society for Water Solutions (ISWS) - The International Society for Water Solutions is focused on pressing issues of water access, quality, sustainability, and security.

(Source: AIChE web site:
<http://www.aiche.org/community/itg>)

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