



## 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](mailto:georgepm@ornl.gov), (865)576-0603 or  
Rita Gray, [rgray22@utk.edu](mailto:rgray22@utk.edu), (865)974-5356

### Inside this issue

Article	Pg.
• April 2015 Meeting	1
• Results from the 2015 Tennessee Science Bowl	2
• UT College of Engineering Unit Operations Laboratory Dedication	2
• Alvin Weinberg Documentary Film World Premiere	3
• Preview of May Meeting	4
• AIChE Judging Opportunity - Global Undergraduate Video Competition	4
• Southern Appalachian Science and Engineering Fair	5
• Activities Calendar	6
• Sponsoring Opportunities	6
• Officers	6
• About Our Organization... AIChE - ChEnected Youtube Channel	7

## April 2015 Meeting

Date: Thursday, April 16, 2015

Cost: \$10

Location: ModernTech, 1626 Downtown West, Knoxville, TN

Menu: Buddy's Bar-B-Q at ModernTech

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

6:00 pm Dinner

7:00 pm Program – Brian Metzger, ModernTech, **3D Modeling and Engineering**

**Abstract** – Today, our smart phones have more computing power than ALL of National Aeronautics and Space Administration (NASA) in 1969 when it placed two astronauts on the moon. The cost of a smart phone is around \$500 while the cost of the computers NASA had at the time was well over \$10 million dollars. Quite the disparity, but we all know that as technology evolves, we can get it at a better price with more capabilities. The same is true in design tools. The first computer-aided design (CAD) systems came to market in the 1970's with a cost in the neighborhood of \$150,000 per user with limited 2D functionality. Today, you have access to 3D CAD systems with integrated evaluation tools to simulate real life situations and at a fraction of the cost of the first CAD systems.

Join us at [ModernTech](#) where we will explore innovative, easy to use design tools that connect 2D schematics to 3D models for better insight to possible design issues and enable you to model and simulate real world heat transfer and fluid mechanic scenarios for unit design optimization.

**Bio** – Brian Metzger is an Elite Application Engineer with ModernTech. He began his engineering career at North Carolina State University conducting research on biodiesel production while earning his Master's degree in Mechanical Engineering. After graduating NCSU he worked at the Savannah River Site on a number of projects to process legacy radiological waste. He then worked at NucSafe in Oak Ridge, TN as the lead mechanical designer for Backscatter X-Ray Imaging technology. Since joining ModernTech in 2013 Brian has specialized in the SolidWorks Simulation suite, including finite element analysis (FEA), computational fluid dynamics (CFD), Injection Molding and Motion Simulation.

**Please make your reservations no later than noon on  
April 14<sup>th</sup> by contacting**

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

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

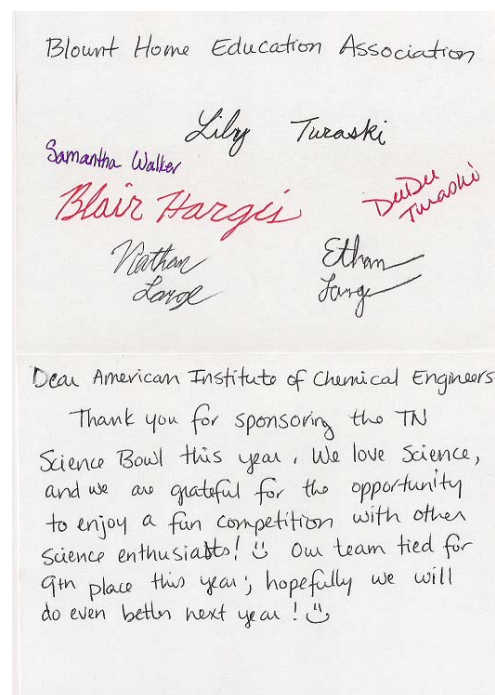
## Results from the 2015 Tennessee Science Bowl

The Knoxville-Oak Ridge Section of AIChE contributed \$150 to help support the Tennessee Science Bowl this year. We received a Certificate of Appreciation from the Department of Energy (DOE) and a thank you letter from the Blount Home Education Association, which are copied below. Fifty-three teams competed this year, and the winners were as follows:

- 1<sup>st</sup> – Lausanne Collegiate School (Memphis)
- 2<sup>nd</sup> – Hardin Valley Academy (Knoxville)
- 3<sup>rd</sup> – Farragut High School (Knoxville)
- 4<sup>th</sup> – Hume-Fogg Academic Magnet School (Nashville), and  
Civility Award – Merrol Hyde Magnet School (Hendersonville).

The Science Bowl is a fast-paced academic competition that offers teams of high school students from across the state of Tennessee a chance to compete and match their wits in math and science. The team from Lausanne Collegiate School will advance to the National Science Bowl® in Washington, D.C., on April 30-May 4, 2015, all expenses paid.

(Article courtesy of Paul Taylor)



## UT College of Engineering Unit Operations Laboratory Dedication

Please join Dean Wayne T. Davis  
as we host special guests from Eastman Chemical Company  
in a ceremony to celebrate their gift and dedicate the

### Eastman Unit Operations Laboratory

Thursday, April 9th, 2015 at 10:30 a.m.

East side of Dougherty Engineering Building  
Back entrance on Estabrook Road



## Alvin Weinberg Documentary Film World Premiere

The Alvin Weinberg Memorial Committee (in partnership with CapitalMark Bank & Trust and Crosland Southeast) invite you to attend the World Premiere of the new documentary film "**Alvin Weinberg**" on Thursday, April 23, 2015, at the American Museum of Science & Energy (AMSE), 300 S. Tulane Ave. Oak Ridge.

THE ALVIN WEINBERG MEMORIAL COMMITTEE  
in partnership with



CROSLAND  
SOUTHEAST

invite you to attend the

**WORLD PREMIERE**  
of the new Documentary Film

# "Alvin Weinberg"

Thursday, April 23, 2015 at



AMERICAN MUSEUM OF  
SCIENCE & ENERGY  
300 S. Tulane Ave, Oak Ridge, TN 37830

Reception: 5:00 pm - 6:30 pm (AMSE Lobby)

Screening #1: 6:30 pm - 7:30 pm (AMSE Auditorium)

Screening #2: 8:00 pm - 9:00 pm (AMSE Auditorium)

**ADMISSION IS FREE**

*but seats must be reserved in advance by calling*

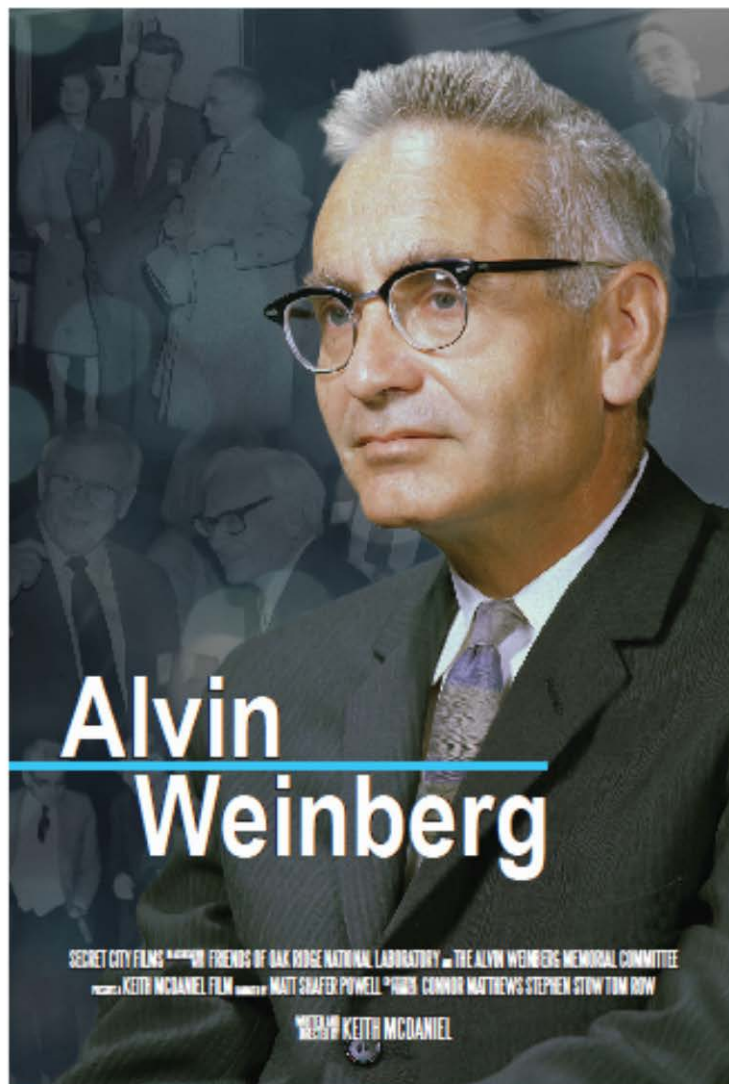
Connor Matthews @ 865-705-5890 or Tom Row @ 865-705-5174

*Seating is Limited! Call Today!*

MAJOR FUNDING FOR THIS FILM WAS PROVIDED BY



Friends of ORNL





## Preview of May Meeting

The May 2015 meeting of the Knoxville-Oak Ridge Section of AIChE will be held at the McClung Museum on May 14, 2015. Pizza and soft drinks will be available at the museum for a cost of \$10 per person. A presentation will be given by Dr. Joan Markel on the complex Civil War story of Union Col. Orville Babcock, his time in Knoxville, his record in primary sources and the legacy of his presentation sword, actually owned by the McClung Museum.



Dr. Joan Markel is an archaeologist and educator who has worked at the McClung Museum of Natural History and Culture at the University of Tennessee since 1995; in 2005 she became the Civil War Curator. Dr. Markel received her BA in anthropology from the University of Rochester, a Master of Library Science (MLS) from Indiana University, and an MA and Ph.D. in anthropology from the University at Buffalo.

The Markel family moved to Knoxville in 1990 from California, where she was employed in the online information industry. Since arriving in Knoxville, she has taken an interest in local Civil War history, archaeology and in bringing museum resources and expertise to East Tennessee audiences. She is the author of *Knoxville in the Civil War*, published in 2013 for the Knoxville Civil War Sesquicentennial.

## AIChE Judging Opportunity - Global Undergraduate Video Competition

If you are interested in serving as a volunteer judge for a global competition among collegiate student chapters, the following message from AIChE is for you.

Hello AIChE volunteer leaders,

My name is Samantha Schmidt and I am writing on behalf of the AIChE [Young Professionals Committee](#). This year, we are debuting 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. In its inaugural year, the competition will be featuring videos teaching about oil refineries. Student chapters will create videos throughout the spring, submit for review, and winners will be announced at the AIChE conference in November, 2015.

I am contacting you because an important part of this competition is having a diverse, esteemed panel of judges to choose our winning videos. This panel will consist of industry professionals, professors, and graduate students. This commitment would comprise of reviewing submissions and rating various aspects (technical accuracy, creativity, etc.) based on a rubric we will provide. We expect this to be a 12 hour time commitment over the course of 3 months, beginning May 15.

If you would like to be considered for the judging panel, know someone who might be interested in judging, or you have any questions, please reply to me at [AIChE.GSC@gmail.com](mailto:AIChE.GSC@gmail.com) by April 15, 2015.

Thank you for helping to make this a great competition and develop future chemical engineers!

Samantha Schmidt  
[AIChE.GSC@gmail.com](mailto:AIChE.GSC@gmail.com)

Sent by Monica Stowe on behalf of Samantha Schmidt

**Monica Stowe**  
**Membership Associate**  
**AIChE**

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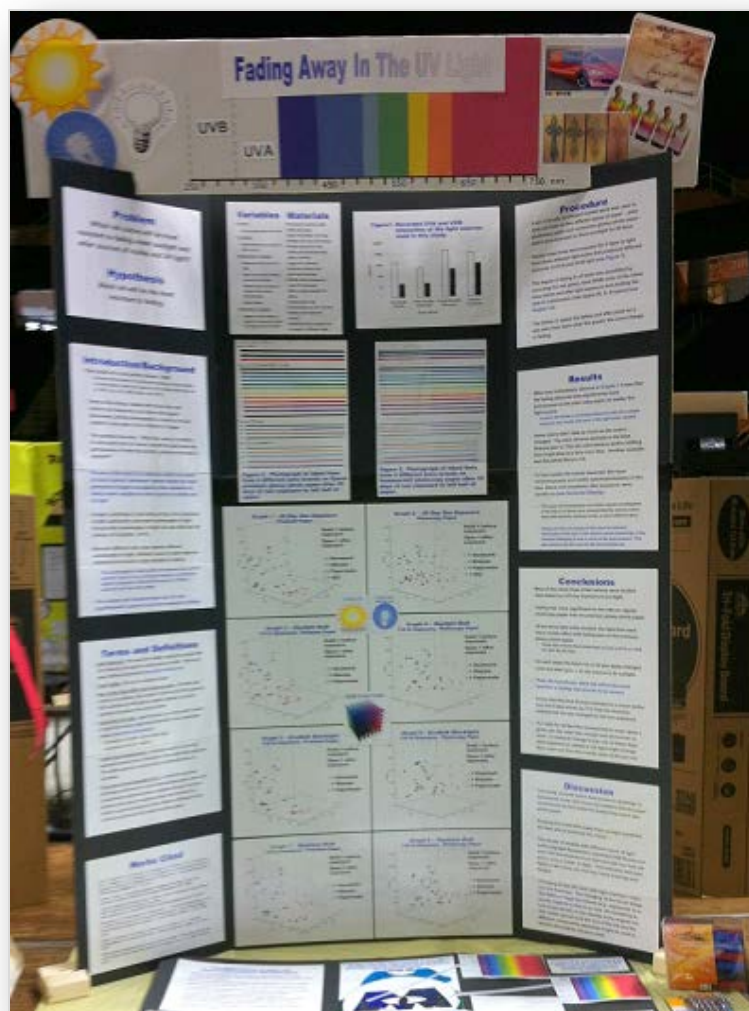
## Southern Appalachian Science and Engineering Fair

Mark Swientoniewski and Paul Taylor selected the winners of the Junior and Senior level projects to receive the AIChE Special Awards. The local Section gives \$75 awards for the best chemical engineering related projects.

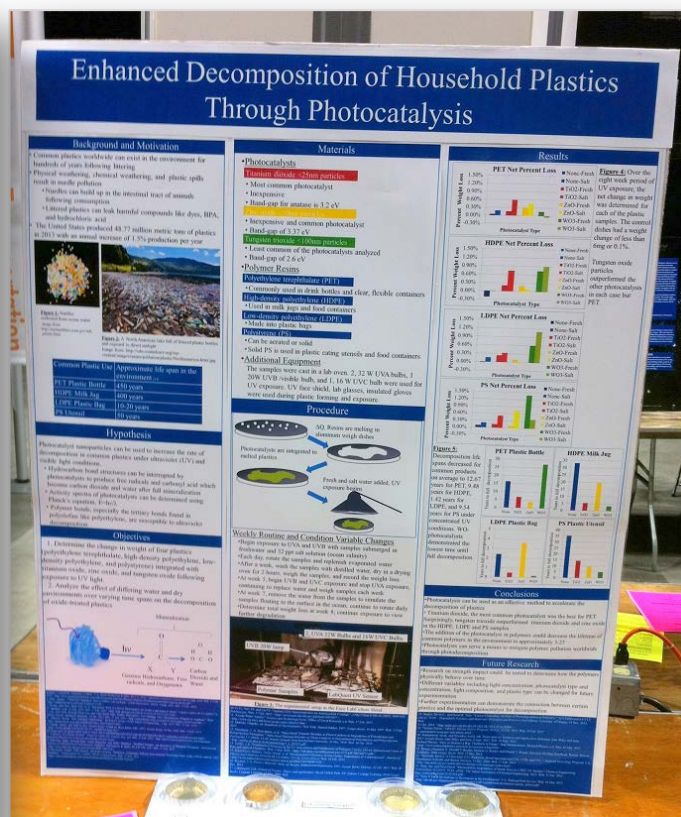
The winner of the junior project was Erin Van Berkel of St. Mary's School, Oak Ridge, for her project: **Fading Away in the UV Light**. Erin measured the change in color and fading of various inks and dyes as they were exposed to sunlight and other light sources. She measured the UV intensity of each of the light sources that were used. She used a computer program to quantitatively measure the change in the colors before and after exposure to the light sources.

The winner of the senior project was Thomas Colburn of Oak Ridge High School for his project: **Enhanced Decomposition of Household Plastics through Photocatalysis**. Thomas melted four types of plastic resin and incorporated three different photocatalysts into the resin samples. He then exposed the samples to UV light in fresh water, salt water, and air and measured the weight loss of the samples.

(Article courtesy of Paul Taylor)



Erin Van Berkel's (St. Mary's School, Oak Ridge) project: **Fading Away in the UV Light**



Thomas Colburn's (Oak Ridge High School) project: **Enhanced Decomposition of Household Plastics through Photocatalysis**.

## Activities Calendar

Date	Time	Topic	Speaker	Location
Apr 2	6:00 PM	UT Department of Chemical & Biomolecular Engineering Awards Banquet		Calhoun's on the River
Apr 16	6:00 PM	3D Modeling and Engineering	Brian Metzger, ModernTech	ModernTech, 1626 Downtown West, Knoxville
Apr 26-30		2015 Spring Meeting		Austin Convention Center
May 14	6:00 PM	Civil War story of Union Col. Orville Babcock	Joan Markel, McClung Museum	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!



(General Electric's 400 MW Advanced Gas Turbine: DOE Photo Archive: <https://www.flickr.com/photos/departmentofenergy/9950937825/in/set-72157634859862053>)

"When you want to know how things really work, study them when they're coming apart."

## Officers

<b>Chair:</b>	Kyle Mack	(423)747-7947	<a href="mailto:kylematthewmack@gmail.com">kylematthewmack@gmail.com</a>
<b>Chair-Elect:</b>	Mark Swientoniewski	574-1150	<a href="mailto:swientoniem1@y12.doe.gov">swientoniem1@y12.doe.gov</a>
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**William Gibson**  
American-Canadian writer  
1948

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We're on the Web!

See us at:

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

Editor: B. Lewis

## About Our Organization – AIChE-ChEnected Youtube Channel

The AIChE-ChEnected Youtube Channel allows members to view interviews with key chemical engineers, many of which are speakers at AIChE conferences; Chem-E-Car in action at regional student conferences and the Annual Student Conference; and a variety of other video presentations to help members keep up with AIChE activities.

Members can subscribe to the AIChE Youtube channel via:

<https://www.youtube.com/user/ChEnected/featured>.

ChEnected offers Chemical Engineers access to a unique online community created for and by young professional chemical engineers. Presented by AIChE, ChEnected is where chemical engineers can

read, view, contribute, and engage with everything “chemical engineering”. Learn new skills, solve challenges, find mentors, engage with other chemical engineers, and gain more exposure to hiring companies.

Visit us at

<http://chenected.aiche.org>  
and <http://www.aiche.org>.

(Source: AIChE website  
<https://www.youtube.com/user/ChEnected/about>)

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