

A PUBLICATION
OF THE AICHE
EDUCATION DIVISION

UPCOMING EVENTS

- ASEE ChE Div
Board Meeting**

Monday 11/17 from
11:15am-12:15pm (Hilton
Atlanta 201)

- EDU DIV
Programming
Meeting**

Tuesday 11/18 from
11:15am-12:15pm (Marriott
Marquis Atlanta M106-107)

- EDU DIV Dinner &
Awards Banquet**

Tuesday 11/18 starting at
7:00pm ([Max Lager's
Wood-Fired Grill &
Brewery](#)) [\$65, *advanced
registration is required*]

- EDU DIV Business
Meeting**

Wednesday 11/19 from
11:15am-12:15pm (Marriott
Marquis Atlanta M106-107)

- EDU DIV
International
House of ChE**

Thursday 11/20 starting at
3:15pm (more about this
on [page 2](#))

Welcome! From the Chair's Edge...

It gives me great pleasure to welcome you to this edition of the AICHE Education Division Newsletter. The division continues to serve a growing population of academic and industrial constituencies. In fact, I feel that this time that we live in is the beginning of a golden age of engineering education. Think of it this way. When an academic department posts a faculty position, there are often over one hundred applications. Although these can quickly be sorted by research area of specialization to help a department become more competitive in a strategic area, there are often still dozens of high quality applications that remain. I see no reason why the academy should not demand excellence in research and in teaching in identifying a prospective faculty candidate.

The education division can serve the profession in this capacity. We offer workshops in the following areas:

- ◇ For prospective faculty on how to find an academic job
- ◇ For current and future faculty on how to teach effectively
- ◇ For new faculty on how to write a strong CAREER proposal

The division also offers a mentoring program for future faculty members. A large number of program participants have landed faculty jobs because of their participation in this program.

In programming, there are several technical sessions during the meeting so that someone can build their expertise in novel teaching methods, course assessment, the latest trends in the content of how core CHE subjects are being taught, etc. Finally, the division offers great service opportunities to new and seasoned faculty alike. Please attend our programming (Tuesday, 11:15am in Marriott Marquis M106-107) and business meetings (Wednesday, 11:15am in Marriott Marquis M107-107) and get involved in YOUR division.

Thank you for all that you do for our students.

Best Regards,

Jason M. Keith
Interim Dean
Bagley College of Engineering
Mississippi State University



Jason M. Keith, Chair

We have our own domain:
<http://www.edudiv.org/>
It's short, east to remember, and
easy to share!

INSIDE THIS ISSUE:

Welcome!	1
EDU DIV Inaugural Innovator Award	2
IHOChE	2
AICHE-CCPS - SACH Faculty Workshop	3
Meeting at a Glance	4
Meeting Overview	5
Education Division Info.	6

Inaugural Award for Innovation in Chemical Engineering Education

presented to Assoc. Prof. Matthew Liberatore of CSM

by Evan K. Wujcik

The Education Division Award for Innovation in Chemical Engineering Education recognizes an individual who has implemented a pedagogical innovation into a class or course that has made a significant and documented positive impact on teaching effectiveness and has enhanced student learning.

It's inaugural recipient is Dr. Matthew Liberatore of Colo-

rado School of Mines. There, he is an Associate Professor in the Department of Chemical & Biological Engineering. Before joining the CSM faculty in 2005, he earned a B.S. degree

from the University of Illinois at Chicago and M.S. and Ph.D. degrees from the University of Illinois at Urbana-Champaign, all in chemical engineering. Dr. Liberatore has also held re-

search positions at Argonne National Laboratory and the University of Delaware. His research involves the rheology of complex fluids and materials, including projects collaborating



Dr. Liberatore instructing students.

"[Dr. Liberatore] has developed a pedagogy around reverse engineering YouTube videos, studying student outcomes when adopting personalized online homework, and applying just-in-time teaching techniques to engage digitally native students."

with industry in the areas of chemical mechanical polishing, cements, and heavy oils. As a research advisor, he has mentored postdoctoral fellows, graduate students, undergraduates, and K-12 math and science teachers.

Dr. Liberatore's educational scholarship broadly covers active and self-directed learning techniques, resulting in several publications and teaching tips. While teaching a range of courses across the undergraduate and graduate levels, some with class sizes over 150 students, he has developed a pedagogy around reverse engineering YouTube videos, studying student outcomes when adopting personalized online homework, and applying just-in-time teaching techniques to engage digitally native students. He has been the recipient of the 2012 Jenni Fellowship at CSM and the 2013 Fahien Award from ASEE's Chemical Engineering Division, both for outstanding teaching effectiveness and educational scholarship.

International House of Chemical Engineering

by Said Abubakr (Co-chair of the AIChE International Committee of the Education Division)

The AIChE International Committee of the Education Division will host an International House of Chemical Engineering Session at this year's AIChE Annual Meeting in Atlanta, GA.

Topics will include:

- ◇ Where Education and Industry Meet: Lessons from a Trip to India

- ◇ Global Engineering Outreach: Recent Impact in Southern Peru
- ◇ Fuel me up!
- ◇ What we can Learn from Students Using Facebook?
- ◇ Internationalizing Access to Chemical Engineering Education by a Lifelong Language Learning Environment

This session will feature presentations from:

- ◇ Australia
- ◇ Belgium
- ◇ Russia
- ◇ U.S.A.



Image used from: <http://www.mtsu.edu/intered/>





Another Successful AICHE-CCPS-SACHE Faculty Workshop

in Process Safety by Ronald J. Willey

Once again, Chevron Energy Technology Company, Richmond, California hosted 25 faculty for a 3 day workshop in the integration of chemical process safety into the chemical engineering curriculum. Several international faculty attended and included chemical engineering professors from the University College London, University of Glasgow, Yonsei University (Korea), Technical University of Denmark, Indian Institute of Technology Gandhinagar, and

“Just getting back home in Ahmedabad. A Big Thank You for a wonderful meeting. It was very very valuable.”

Ahmadu Bello University, Zaria, Nigeria. Chevron present-

ers included Anne O’Neill, Global Manager, OE/HES, Oronite; Neil Yeh, Technical Team Leader, Gas Conversion & CO₂ Capture; Johnny Pak, Manufacturing PSM and Reliability Manager, Jeffrey A. Hedges, General Manager Corporate Health, Environment, and Safety; and Jeanne Bruney, Risk Management Expert; as well as Dale Backlund, The Dow Chemical Co. Faculty were provided tours of the Richmond Refinery as well as the Richmond Technology Center laboratories. Included are 3 faculty comments sent back to me just after the workshop finished. These speak best for the success of the workshop. Plans are in the works to run another workshop



Faculty taking part in a 3 day workshop on the integration of chemical process safety into the chemical engineering curriculum

“Dear Ron – I wanted to thank you for putting on such a useful and fun workshop. I had a terrific time and learned quite a lot; my knowledge of process safety management increased by a factor of infinity from my initial setpoint of zero.”

next summer. We are trying to run this one at least one week earlier, 9-12 August 2015, or possibly in June 2015. This will allow for faculty who are beginning their school year term in the 3rd week in August a chance to attend. If you are interested, please send an email to r.willey@neu.edu.



“I wanted to thank you again for putting together a fantastic SACHE workshop at the Chevron refinery in Richmond. As a young faculty member, the experience was tremendously helpful. I also would like to thank Chevron, Dow, and other industrial partners for their hospitality and willingness to take the time to share their experiences and knowledge.”

LITERATURE SEARCH:

ENGINEERING EDUCATION JOURNALS

If you're new to scholarly teaching of educational research, you may not be aware of these helpful journals:

- ⇒ **Journal of Engineering Education** [asee.org]
- ⇒ **Chemical Engineering Education** [cee.che.ufl.edu]
- ⇒ **European Journal of Engineering Education** [sefi.be]
- ⇒ **International Journal of Engineering Education** [ijee.ie]
- ⇒ **Education for Chemical Engineers** [icheme.org/]
- ⇒ **Journal of Chemical Education** [pubs.acs.org/journal/jceda8]

Sunday November 16, 2014

10:00am-12:00pm

"Workshop: Career Planning for Prospective Faculty" [Crystal Ballroom C/D (Hilton Atlanta)]

12:30pm-3:00pm

"Chem-E-Car Competition" [Ken Byers Tennis Complex (Georgia Institute of Technology)]

2:00pm-4:00pm

"Poster Session: Meet the Faculty Candidate" [Galleria Exhibit Hall (Hilton Atlanta)]

5:30pm-7:00pm

"Workshop: Effective Teaching for New or Prospective Faculty" [203 (Hilton Atlanta)]

Monday November 17, 2014

8:30am-10:30am

"Student Design Competition" [404 - 405 (Hilton Atlanta)]

8:30am-11:00am

"Poster Session: Chemical Engineering Education" [Galleria Exhibit Hall (Hilton Atlanta)]

"Undergraduate Research Forum I: Energy and Environment" [M109 (Marriott Marquis Atlanta)]

8:30am-11:30am

"Student Paper Competition" [406 - 407 (Hilton Atlanta)]

12:30pm-2:00pm

"Poster Presentation Success: How to Prepare and Present a Winning Poster" [International 2 (Marriott Marquis Atlanta)]

12:30pm-3:00pm

"Flipped Classrooms—Best Practices (Online + Hybrid Too)" [M105 (Marriott Marquis Atlanta)]

"NSF Workshop I" [M106 - M107 (Marriott Marquis Atlanta)]

"Undergraduate Research Forum II: Bioengineering" [M109 (Marriott Marquis Atlanta)]

2:00pm-3:00pm

"Getting your Research Published" [International 2 (Marriott Marquis Atlanta)]

3:15pm-5:45pm

"NSF Workshop II" [M106 - M107 (Marriott Marquis Atlanta)]

"Undergraduate Research Forum III: Classical Chemical Engineering/ Other Special Topics" [M109 (Marriott Marquis Atlanta)]

"In Honor of the Lewis Award Winner Arvind Varma: (Invited Talks)" [M105 (Marriott Marquis Atlanta)]

Tuesday November 18, 2014

8:30am-11:00am

"Homework and Textbooks in the Internet Age - Don't Steal the Solution Manual & Free Form in the Junior and Senior Years" [M105 (Marriott Marquis Atlanta)]

"Young Faculty Forum (Invited Talks)" [M106 - M107 (Marriott Marquis Atlanta)]

12:30pm-3:00pm

"ABET Accreditation: Best Practices" [M106 - M107 (Marriott Marquis Atlanta)]

"Labs, Experiments, and Safety in the ChE Curriculum" [M105 (Marriott Marquis Atlanta)]

3:15pm-5:45pm

"ABET Accreditation: Insights and Updates" [M106 - M107 (Marriott Marquis Atlanta)]

"Forum: Getting Started in Engineering Education Research" [M105 (Marriott Marquis Atlanta)]

Wednesday November 19, 2014

8:30am-11:00am

"Department Heads Forum (Invited Talks)" [M106 - M107 (Marriott Marquis Atlanta)]

"Professional Skills Development in the Chemical Engineering Curriculum" [M105 (Marriott Marquis Atlanta)]

12:30pm-3:00pm

"Design and Build (Prototyping)" [M106 - M107 (Marriott Marquis Atlanta)]

"Survey Results and Best Practices: Transport (Invited Talks)" [M105 (Marriott Marquis Atlanta)]

3:15pm-5:45pm

"Active Learning and What is Being Implemented from the Chemical Engineering Summer School" [M105 (Marriott Marquis Atlanta)]

"Free Forum on Engineering Education: Junior and Senior Years" [M106 - M107 (Marriott Marquis Atlanta)]

Thursday November 20, 2014

8:30am-11:00am

"Best Practices of REU Sites" [M106 - M107 (Marriott Marquis Atlanta)]

12:30pm-3:00pm

"Free Forum on Engineering Education: The First Year and Sophomore Year" [M102 (Marriott Marquis Atlanta)]

"Workshop: Chemical Process Safety, Bridging Theory with Industrial Practice" [M105 (Marriott Marquis Atlanta)]

3:15pm-5:45pm

"International House of Chemical Engineers" [M106 - M107 (Marriott Marquis Atlanta)]

"Undergraduate Process Safety" [M105 (Marriott Marquis Atlanta)]

Also listed online at: <https://aiche.confex.com/aiche/2014/webprogram/04.html>

2014 AIChE Annual Meeting in Atlanta Overview

by Evan K. Wujcik

The 2014 group 4 Technical Program will include 24 sponsored or co-sponsored technical sessions, 5 workshops, and 2 poster sessions...not to mention the Chem-E-Car Competition, Student Design Competition, and Student Paper Competition.

Workshops will include:

- * Career Planning for Prospective Faculty
- * Effective Teaching for New or Prospective Faculty
- * NSF Workshops I & II
- * Chemical Process Safety, Bridging Theory with Industrial Practice

Poster Sessions will include:

- * Meet the Faculty Candidate
- * Chemical Engineering Education

The ABET Accreditation sessions “Best Practices” and “Insights and Updates” will also be featured, which will focus on resources and strategies for a successful ABET review.

Don't forget to download the 2014 Annual Meeting App to your smartphone or smart-device for the complete technical program.

A session on “Active learning and What is Being Implemented from the ChE Summer School,” which will feature highlights from the 2012 ChE summer school and best practices in ChE Education. The “Best Practices of Research Experiences for Undergraduates [REU]” session will feature highlights and best practices of REU sites throughout the country.

Sessions involving process and safety will include “Undergraduate Process Safety,”—which will look at both academic and industrial safety—as well as “Labs, Experiments, and Safety in the ChE Curriculum”—looking at the development, implementation, and assessment of lab and safety modules for the senior capstone laboratory, lab modules attached to or used in other core curriculum classes, as well as experiments or demonstrations used in freshmen classes or outreach activities.

Other sessions include:

- * Flipped Classrooms—Best Practices (Online + Hybrid Too)

* Professional Skills Development in the ChE Curriculum

* Design and Build (Prototyping)

as well as forums centered around:

- * Undergraduate Research
- * Engineering Education in the Freshman-Senior years
- * Young Faculty
- * Getting started in Engineering Education Research
- * Department Heads

We look forward to seeing you in Atlanta. Remember, if you have suggestions for a particular session for an upcoming AIChE conference or would just like to become more involved (perhaps even becoming a session chair), please attend the **EDU DIV Programming Meeting** (Tuesday 11:15am-12:15pm in Marriott Marquis Atlanta M106-107) and/or the **EDU DIV Business Meeting** (Wednesday 11:15am- 12:15pm in the same location).

Have a great meeting!

We are pleased to announce that the Georgia Aquarium is offering a special discount to all attendees of the 2014 Annual Meeting and the Annual Student Conference. This discount is good towards General Admission (Total Ticket) and Animal Encounters.

Please note that this discount is available online only. If you intend to take advantage of this special offer, we strongly encourage you to purchase your tickets in advance. The Georgia Aquarium sells out each day and **the discount will not be available at the box office.**

Click this link to learn more and to purchase your tickets today!

[\[Georgia Aquarium\]](#)





**ChemEDU News: A Publication
of the AICHE Education Division**

Education Division Leadership

Chair (2013-2015)

Jason M. Keith

Mississippi State University

keith@che.msstate.edu

(662) 325-2480

**2nd Vice Chair Program
Vice-Chair (2013-2015)**

Matthew W. Liberatore

Colorado School of Mines

mlliberat@mines.edu

(303) 273-3531

Director (2012-2015)

Tim Anderson

University of Florida

tim@ufl.edu

(352) 392-8049x1300

Director (2013-2016)

Robert Hesketh

Rowan University

hesketh@rowan.edu

(856) 256-5313

**1st Vice Chair Program
Chair (2013-2015)**

Taryn Bayles

University of Maryland,

Baltimore County

tbayles@umbc.edu

(410) 455-3428

**Secretary-Treasurer (2010-
2016)**

Benjamin Davis

The Cooper Union

bdavis@cooper.edu

(212) 353-4374

Director (2011-2014)

John O'Connell

University of Virginia

jpo2x@virginia.edu

(434) 924-3428

Past Chair (2013-2015)

Donald P. Visco

University of Akron

donvisco@hotmail.com

(330) 972-7930

Have ideas that just don't fit a traditional journal article? Do you believe others will benefit from your opinion and insight? Consider submitting your short-form article to ChemEDU News. We'll consider research letters, opinion columns, teaching tips, course suggestions—anything of interest to CHE Educators. Articles will be editorially reviewed and may be referred, with the author's permission, to *Chemical Engineering Education* for consideration as an article according to their existing guidelines and standards.

Please send all solicitations to the Chair (Jason M. Keith) or directly to the

ChemEDU News Editor (2014-ongoing):

Evan K. Wujcik

Lamar University

Evan.Wujcik@lamar.edu

(409) 880-8428

The Education Division (chartered: 2009) promotes the education of chemical engineers as it pertains to educational research, scholarly teaching, and applications to include the broader endeavors which encompass education, such as those which are part of the Division's programming commitment.

The objectives of the Division are to:

- *Provide the focal point for AIChE members with interests in educational methods and their assessment, the scholarship of education including both practice and theory as well as outreach activities regarding chemical engineering education.*
- *Develop a relevant technical program in education for meetings within the assigned programming areas through discussion with the Committees of the Institute*
- *Encourage chemical engineering educators to strengthen their own learning in the field of engineering education and on the development of appropriate curricular material focused for the ever-diversifying field of chemical engineering.*
- *Coordinate and actively work with other entities within the Institute, in particular CEOC and its Committees, as well as other entities external to the Institute (such as ASEE, industry, government agencies, etc.) to foster the goals of the Division and the Institute as they relate to education.*
- *Recognize educational achievements of AIChE members through awards and honors.*
- *Provide a high-profile home for programming and activities related to educational research and teaching within the chemical engineering community performed by Institute members.*
- *Encourage, through programming and other activities, the training of chemical engineering graduate students in chemical engineering educational methods.*
- *Provide feedback and information to the Board, Councils and Committees of the Institute on education-related issues, on request.*

The Division is governed by its Bylaws and its Board.