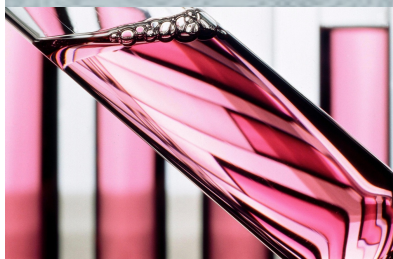


# ASEE Chemical Engineering Division Newsletter



## IN THIS ISSUE:

### MESSAGE FROM THE CHAIR

For June 2009, ASEE will be in Austin. Sundar Madihally of Oklahoma State is our program chair. The call for papers is out, and the deadline for abstracts is October 10, submit via [asee.org](http://asee.org)!

### AWARDS

Award winners for 2008 included Jennifer S. Curtis, Klaus D. Timmerhaus, Jason M. Keith, Bruce A. Finlayson, Lisa Bullard, Rich Felder, Sundararajan Madihally, Eric Maasse, Christopher Long, Michael Matthews and Nancy Thompson.

### CALL FOR NOMINATIONS

Please nominate a deserving colleague for a 2009 award! Awards include The Chemstations Lectureship Award, CACHE Award for Excellence in Computing, Ray W. Fahien Award, Lifetime Achievement in Chemical Engineering Pedagogical Scholarship, and others.

## A Message from the Chair

Have you ever been to a sectional ASEE conference? Based on feedback I have received from sectional leadership, the answer for many will be “no”. As a national member of ASEE, you are automatically a member of one of 12 sections (which are comprised of 4 zones). I would encourage you to look into attending the next ASEE meeting within your section (or zone, as the case may be). In fact, you should bring a colleague with you who would not normally attend an ASEE national meeting. Sectional and zone meetings can be a great avenue to connect with ASEE at a more-inviting level. If there are no chemical engineering activities or programming in that section, consider this a great outreach opportunity in service of your section and your discipline.

On another item, at a ‘Learning About Learning Group’ at Tennessee Tech, I asked my small group of new faculty “when did you know you wanted to be a teacher?” This sparked a discussion of general comments until I mentioned to them an anecdote about how I would provide help (not-requested!) to members of my bowling team when I was 12, adjusting their stance, which arrow they used, etc. Such a comment elicited more detailed and personal revelations from the group until one member said, “Let’s face it. I always knew I would be teacher. I always liked helping out other people.” I suspect most of those reading this newsletter would have a similar story.

ASEE provides a great venue for the exchange of ideas on engineering education for the purpose of “helping out other people, our students.” The Chemical Engineering Division within ASEE boasts nearly 600 members and is coming off a highly-successful

Annual Conference and Exposition in Pittsburgh which saw more than 50 posters/presentations with our division, organized capably by the Program Chair, Jason Keith from Michigan Tech. Additional thanks are in order for Joe Schaewitz from West Virginia, who was the local liaison for the meeting.

In 2009 we will find ourselves in Austin, Texas during mid-June for the Annual Meeting & Exposition. The abstract submission window is now open and extends through October 10th. Sundar Madihally from Oklahoma State will serve as the Program Chair for the meeting. Remember, like all ASEE divisions, the Chemical Engineering Division is now publish-to-present.

In this newsletter you will see award honorees from the previous year as well as a solicitation for nominees for the upcoming year. I would highly encourage you to consider competing for a division award and/or to nominate a colleague. Also, a big thank you goes out to all of our award sponsors, including Chemstations and Eastman Chemical. Hope to see y’all in Austin!

Dr. Don Visco, TN Tech University



## ASEE ANNUAL MEETING 2008

*Article by James Patrick Abulencia and Kevin Dahm*

The Chemical Engineering Division of ASEE features outstanding contributions, a venue for all passionate educators to influence chemical engineering education, and awards recognizing the most meritorious educators.



After a successful meeting in Hawaii, the Chemical Engineering Division had a strong showing in this year's conference in Pittsburgh. Jason Keith, Program Chair of this year's meeting, organized a comprehensive series of sessions which disseminated 57 papers. As always, exciting contributions on education practices were made by the presenters, followed by thoughtful discussion with the audience.

The annual general business meeting was well attended by members of the division. One of the key items of discussion led by David Silverstein was the proposal to form a new educational division within AIChE. This new entity, which will incorporate the Group 4 programming committee, will provide a forum outside of ASEE for AIChE members who are interested in Chemical Engineering Education, as well as members of the industry sector who would ultimately hire Chemical Engineering graduates. There was support expressed for the formation of this division, a formation committee has been developed, and discussion will continue at the Annual AIChE meeting this coming November in Philadelphia. In other news, the pipe wrench was passed from the former Division Chair Valerie Young to the new Chair Don Visco. Congratulations Don on your new position, and thank you Valerie for your service!

The Chemical Engineering Division Banquet was held on Monday evening at the Penn Brewery, and many thanks to Joe Schaeiwitz for organizing the event! The evening included dinner and a tour of the brewery, but the highlight of course was recognizing this year's ChE division award winners.

Klaus D. Timmerhaus of the University of Colorado-Boulder received the 2008 Lifetime Achievement in

Chemical Engineering Pedagogy award, honoring an illustrious 55-year professorial career. Jennifer S. Curtis received the 2008 Chemical Engineering Lectureship Award in recognition of significant and enduring contributions to the fields of particle technology, multiphase flow, and computational fluid dynamics. Jason M. Keith of Michigan Technological University received the 2008 Ray W. Fahien Award. The 2008 CACHE Award, recognizing contributions to computing in chemical engineering, was presented to Bruce A. Finlayson. The 2008 William H. Corcoran Award, recognizing the outstanding paper published in Chemical Engineering Education in 2007, went to Christopher Long, Michael Matthews and Nancy Thompson, of University of South Carolina. The 2008 Joseph J. Martin Award, recognizing the outstanding paper and presentation in the ChE Division from the 2007 ASEE conference, went to Lisa Bullard and Richard Felder of North Carolina State University. Finally the 2008 Best Poster Award went to Sundararajan Madihally and Eric Maasse, of Oklahoma State University. Please see the award section for more information on our outstanding award winners.

Next year's conference will be held in Austin, Texas. Sundar Madihally from Oklahoma State University will be the Program Chair, and Christine Schmidt from the University of Texas, Austin will be the local liaison. Please be reminded this and all subsequent meetings are Publish to Present. We all hope to see you there, abstract submission is now open on the ASEE website and please contribute your innovative educational efforts.

You can read more about the 2008 conference at: <http://blogs.asee.org/annual2008/>

**2008 Winner of the**  
**CHEMICAL ENGINEERING DIVISION LECTURESHIP AWARD**  
sponsored by  
**Chemstations**

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## **Jennifer S. Curtis**

Chemical Engineering, University of Florida

### ***Simulation of Particulate Flow Processes***

Particle processes pervade the chemical, pharmaceutical, food/agricultural, energy and mining industries. Many of these processes have significant opportunities for optimization and productivity enhancements. Reliable modeling and simulation tools can improve critical understanding and design of particle processes, and thus accelerate the achievement of substantial process improvements. Computational fluid dynamics (CFD) is one such simulation tool in which the dynamics of a particle phase, in conjunction with the fluid, is modeled in a continuum fashion. A more recent approach to modeling powder flow employs the discrete element method (DEM) in which the dynamics of individual particles are described. DEM models are especially useful for investigating phenomena occurring at a particle length scale and can be used for validation, testing, and development of continuum models. As a result of the enormous success and future potential associated with simulation technologies, the development of reliable particle flow models is a subject of very active research. This presentation provided the current state of these models and the various applications of these models. Important modeling aspects for a range of particulate processes are highlighted, and the challenges and opportunities for innovation in model development are outlined.



### **Biographical Sketch**

Dr. Jennifer S. Curtis currently serves as Chair of Chemical Engineering at the University of Florida. She has been selected to receive the 2008 Lectureship Award in recognition of significant and enduring contributions to the fields of particle technology, multiphase flow, and computational fluid dynamics. Dr. Curtis received her Ph.D. from Princeton University in 1989, where her thesis was entitled "Gas Particle Flow in a Vertical Pipe with Particle-Particle Interactions." She assumed her current position at the University of Florida in 2005. Prior to that she served as Head of Freshman Engineering and Associate Dean for Undergraduate Engineering Education at Purdue University. Professor Curtis is internationally recognized as an excellent and prolific researcher and scholar. She has received the NSF Presidential Young Investigator Award, a University Faculty Scholar Award, an Eminent Overseas Lectureship Award from the Institution of Engineers Australia, the ASEE Sharon Keillor Award for Women in Engineering Education, and the 2007 AIChE Fluidization Lectureship Award. Her multiphase flow models have been incorporated into two commercially available computational fluid dynamics software packages, and she has contributed to a textbook on particle technology. She has published over 50 papers and given more than 140 invited lectures, including a number of keynote/plenary lectures, and she is currently supervising nine graduate students. Dr. Curtis is also recognized as an excellent teacher, who has contributed extensively to K-12 outreach activities and is a noted supporter of diversity initiatives. Her excellence in research complements her teaching, as demonstrated by her curricular innovations on integrating CFD into the classroom, developed with funding from an NSF-CCLI grant. She led sessions on incorporating CFD into undergraduate education at the 2002 and 2007 Chemical Engineering Summer Schools, as well as the 2006 ASEE Annual Conference. In addition, in her time at Purdue, Prof. Curtis developed and taught an innovative particle technology course that produced two Chemical Engineering Education publications and has become a model for similar courses at multiple universities nationwide. In addition to her outstanding record as a teacher and a scholar, Dr. Curtis is an active and valued member of many professional societies. She has served as Vice-Chair of the 2002 AIChE Annual Meeting, a member of the Board of Directors of the American Chemical Society Petroleum Research Fund, an Associate Editor of AIChE Journal, a member of the Publications Board for Chemical Engineering Education, and as a member of the National Academy of Engineering's Committee on Engineering Education. She is currently in her first year of service on the AIChE Board of Directors.

# 2008 Award Recipients

## Lifetime Achievement Award in Chemical Engineering Pedagogy

**Klaus D. Timmerhaus**  
University of Colorado-Boulder

Klaus Timmerhaus has devoted 55 years to advancing chemical engineering pedagogy. His co-authorship of four editions of the popular textbook *Chemical Engineering Plant Design and Economics* has benefited countless numbers of students.

His service as editor of 62 monographs in cryogenic engineering is unparalleled. He also has impacted chemical engineering education via his service on the ASEE Board of Directors, Chair of the Division for Experimentation and Laboratory Oriented Studies, Chair of the Chemical Engineering Education Publications Board, and as AIChE President.



## William H. Corcoran Award

**Christopher Long, Michael Matthews and Nancy Thompson**, of University of South Carolina, are recognized for their paper entitled, "*Fostering an Active Learning Environment for Undergraduates.*" (for the best paper published in the previous calendar year in Chemical Engineering Education)

Sponsored by Eastman Chemical Corporation



## Joseph J. Martin Award

**Lisa Bullard and Richard Felder**, of North Carolina State University, are recognized for the paper, "*A Student-*



*Centered Approach to the Stoichiometry Course.*" This was the best paper in the ChE Division at the previous ASEE meeting that also appeared in the proceedings.

## Ray W. Fahien Award

**Jason M. Keith**  
Michigan Technological University

Dr. Jason Keith is an Associate Professor of Chemical Engineering at Michigan Technological University, where he has been a faculty member since 2000. Jason is an outstanding researcher, educator, and mentor to new faculty. Jason's educational scholarship interests are in integrating alternative energy technology (primarily fuel cells) into the chemical engineering curriculum, using computational methods in the classroom, and the design of visualization software to enhance student understanding of engineering concepts. Jason and his wife, Salvadora, live in Houghton, Michigan with their three children, Andrew, Maria and Isabel, and their chocolate Labrador Retriever, Pennant.

Sponsored by Chemical Engineering Education



## CACHE Award

**Bruce A. Finlayson**  
University of Washington

Bruce Finlayson is cited for his contributions to chemical engineering computing by developing numerical methods (orthogonal collocation for reactor problems and finite element method for fluid flow problems) and writing about them to educate students worldwide, and for his insights about how chemical engineers can use the computer as computers and software become more powerful.

Sponsored by the CACHE Corporation



## Best Poster Award

**Sundararajan Madihally and Eric Maasse**, of Oklahoma State University, are recognized for the poster, "*Implementing factorial design of experiments into undergraduate chemical reaction engineering.*" This was the best poster presentation in the ChE Division at the 2007 ASEE meeting.



# Announcing ASEE ChE Division Awards for 2009

## **The Chemstations Lectureship Award**

This award, sponsored by Chemstations, is presented to a distinguished engineering educator to recognize and to encourage outstanding achievement in an important field of fundamental chemical engineering theory or practice. The individual shall demonstrate achievement through the formulation of fundamental theory or principles, improvements of lasting influence to chemical engineering education with books and/or articles, and the demonstration of success as a teacher. In addition, evidence of the ability to conduct original, sound, and productive research, and an interest in the progression of chemical engineering through participation in professional and educational societies shall be demonstrated. The recipient presents a lecture at the ASEE summer school. The award consists of a \$3,000 honorarium, \$500 travel allowance, and a commemorative plaque presented at the Chemical Engineering Division Banquet of the ASEE Annual Conference.

## **CACHE Award for Excellence in Computing in Chemical Engineering Education**

This award, sponsored by the CACHE Corporation, is presented for significant contributions in the development of computer aids for chemical engineering education. The award consists of a \$1,000 honorarium and a commemorative plaque presented at the Chemical Engineering Division Banquet of the ASEE Annual Conference.

## **Ray W. Fahien Award**

This award is given in honor of Ray Fahien, who was editor of chemical engineering education from 1967-1995, and who was effectively the founding father of the journal, establishing it as a premier publication vehicle in the field of chemical engineering education. Professor Fahien selflessly gave his time and talents to advance pedagogical scholarship, particularly in the careers of young educators, through his dedication to the journal and the profession. The award is given annually to an educator who has shown evidence of vision and contribution to chemical engineering education, consists of a \$1,500 honorarium and a commemorative plaque presented at the Chemical Engineering Division Banquet of the ASEE Annual Conference. See the Division web site for more details on the award criteria. Educators who have been faculty members for not more than ten years as of July 1st in the year of the award are eligible.

## **Lifetime Achievement in Chemical Engineering Pedagogical Scholarship**

This award will normally be given for lifetime achievement, recognizing a sustained career of pedagogical scholarship that not only caused innovative and substantial changes, but also inspired younger educators to new behaviors that benefit students in Chemical Engineering. The award will be presented on an as-merited basis, not necessarily annually. Acceptance of the award implies the obligation to attend the Chemical Engineering Division Awards Banquet at the ASEE Annual Conference.

**The following do not require a formal nomination packet:**

## **William H. Corcoran Award**

This award, sponsored by Eastman Chemical Corporation, is presented each year to the author of the most outstanding article published in Chemical Engineering Education. Nominations are not accepted. All published papers in a calendar year are automatically considered. The award consists of a \$1500 honorarium (per paper) and a commemorative plaque presented at the Chemical Engineering Division Banquet of the ASEE Annual Conference.

## **Best Poster Award**

The Best Poster Award is presented for the most outstanding Chemical Engineering Division poster presentation at the ASEE Annual Conference. Nominations are not accepted. Papers must be presented at the chemical engineering division poster session to be considered. The award consists of a commemorative plaque presented at the Chemical Engineering Division Banquet of the ASEE Annual Conference.

## **Joseph J. Martin Award**

The Joseph J. Martin Award is presented for the most outstanding Chemical Engineering Division paper presented at the ASEE Annual Conference. Nominations are not accepted. All papers presented that also appear in the conference proceedings are automatically considered. The award consists of a commemorative plaque presented at the Chemical Engineering Division Banquet of the ASEE Annual Conference.

*A condition of receiving most of the above awards is attendance at the Chemical Engineering Division banquet at the 2009 ASEE Meeting in Austin, TX June 14-17,*

*Nomination Deadline: January 15, 2009 For more information on ChE Division awards, see <http://www.asee-ched.org/>*

## CALL FOR NOMINATIONS

The Chemical Engineering Division of ASEE presents awards to outstanding chemical engineering educators at the Division Banquet during the annual ASEE meeting. Nominations of candidates for awards to be presented at the 2009 meeting in Austin are due by January 15, 2009, with the winners notified in March 2009. Please consider nominating one of your faculty or colleague at another school for an ASEE Chemical Engineering Division Award.

*Award packets should be sent (as a single file) to:*

**Valerie Young**

**ASEE ChE Division Awards Co-Chair**

**youngv@ohio.edu**



### **Instructions for Assembling Nomination Packets**

Please assemble the nomination package in the following order. These instructions parallel those available at [www.asee.org](http://www.asee.org). Nominating a faculty member for an award implies that the nominee has been informed and consents to the nomination and conditions of the award.

*Do not submit to ASEE headquarters or through their web page.*

Submit nominations ELECTRONICALLY following the procedure described below to the ASEE ChE Division Awards Co-Chairs, Valerie Young and Jason Keith, at [youngv@ohio.edu](mailto:youngv@ohio.edu) by January 15, 2009.

#### **Paper submissions will not be accepted.**

Nominations should be sent as ONE Word or PDF file. The document should have sections for nominee information, citation, rationale, curriculum vitae, additional information as required for that award, and letters of support. It is the nominator's responsibility to assemble all of the pertinent information into ONE electronic document that committee members can easily read.

1. Nominee Information – list the information found on the general ASEE awards form that may be found [http://www.asee.org/members/awards/nomForm\\_paper.cfm](http://www.asee.org/members/awards/nomForm_paper.cfm)
2. Include a 100-word maximum Citation, which will be used if the nominee wins the award.
3. Include a 700-word maximum description of the Rationale for the Nomination.

4. Include a Curriculum Vitae containing the following information: Degrees earned (university and granting dates); other postgraduate study; record of positions held; publications, including all books, published papers and articles; ASEE activities and offices held; awards, honors and inventions, etc.
5. Include Other Supporting Information as required for that particular award. Please see the Chemical Engineering Division web site for details on particular award criteria.
6. Include a maximum of 8 Letters of Support for the nomination. These letters may be from peers, students, and/or former students as appropriate to the award.

Any nominee for an award may be renominated using the original nomination package for one additional year only by sending an email to the Awards Chair along with the electronic award nomination. After that a complete new nomination is required.

Submit the entire nomination as ONE electronic file to [youngv@ohio.edu](mailto:youngv@ohio.edu) by January 15, 2009. General, procedural or other questions about the awards should be directed to Valerie Young at [youngv@ohio.edu](mailto:youngv@ohio.edu) or 740-593-1496.

*Contact the Awards Committee Co-Chair, Valerie Young ([youngv@ohio.edu](mailto:youngv@ohio.edu)) or consult the Division website (<http://www.asee-chc.org>) for more information or for nomination packets.*

# AIChE Education Division Under Construction

by David Silverstein

AIChE Programming Group 4, better known as the Education Group, is currently organizing into a division. This essentially gives the group an infrastructure that allows its activities to extend beyond technical programming. This division will expand opportunities for collaboration, dissemination, and learning for those interested in chemical engineering education.

One of the activities expected to arise from the Division is the establishment of an annual Education Division Dinner during the AIChE Annual Meeting. The Education Group has planned a dinner of this sort for the Centennial Celebration during this year's meeting. Look for event number 210 on your AIChE registration and join us for this dinner followed by a spirited dessert reception hosted by the Delaware Valley section of AIChE. Thanks to Stephanie Farrell of Rowan University for setting up this event.

Other proposed Division activities include resumption of annual surveys of chemical engineering courses as taught across the US and beyond. This effort formerly administered by the AIChE Education Projects Committee will provide a regularly updated source of data regarding what courses are being taught, from what textbooks, and with what issues.

So what does this mean for the ASEE ChED? It means an opportunity to expand membership and participation in the ASEE ChED by drawing in faculty and others who are currently active in AIChE but not in ASEE. It also gives the ASEE ChED another organization with additional resources and a potentially larger membership base to collaborate with to advance the cause of improving chemical engineering education worldwide.

The AIChE Education Division Formation Committee is currently in final stages of preparing a set of bylaws and an operational plan to submit to the appropriate AIChE Operating Council. If you would like to comment on or discuss the formation, please contact the Formation Committee Chair, David Silverstein, at [SilverDL@engr.uky.edu](mailto:SilverDL@engr.uky.edu) or (270) 534-3132.

Also, in the next few weeks you should receive an email from Fred Justice of Chemstations asking for a commitment to support the new AIChE Division by joining upon its formation. We need to collect at least 100 such commitments before being allowed to form the Division. This is an exciting opportunity for broader collaboration and participation in the chemical engineering education community.

## CHEMICAL ENGINEERING DIVISION LEADERSHIP

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