

ASEE Chemical Engineering Division Newsletter



IN THIS ISSUE:

MESSAGE FROM THE CHAIR

For June 2008, ASEE will be in Pittsburgh. Jason Keith of Michigan Tech is our program chair. The call for papers is out, and the deadline for abstracts is October 19, submit via asee.org!

AWARDS

Award winners for 2007 included Theodore W. Randolph, John W. Prados, Richard Turton and Joseph Shaeiwitz, David L. Silverstein, Lorenz T. Biegler, Milo Koretsky, Shoichi Kumura, Connelly Barnes, Danielle Amatore and Derek Meyers-Graham, David Miller, Sharon Sauer, and Daniel Coronell.

CALL FOR NOMINATIONS

Please nominate a deserving colleague for a 2008 award! Awards include The Dow Lectureship Award, CACHE Award for Excellence in Computing, Ray W. Fahien Award, Lifetime Achievement in Chemical Engineering Pedagogical Scholarship, and others.

BYLAWS VOTE

Please vote on bylaws changes by emailing silverd1@engr.uky.edu.

A Message from the Chair

Well, another summer has come and gone. This year, for the first time, I'm teaching our freshman introductory course. For the first homework, they each interviewed two other freshmen about what most excited them about engineering, what most worried them, and how this compared to what they themselves felt. How much fun to read about choosing chemical engineering to help people, to develop alternative energy sources, to clean up the environment, to advance medicine! Yes, good starting salaries got a mention, too, but most of them are choosing engineering as a way to make a difference in the world. I think an enthusiastic group of freshmen was just the tonic I needed as I enter my second decade of teaching engineering.

The ASEE annual meeting in Hawaii was another great tonic. It was good to see so many ASEE friends there. Thank you to Randy Lewis, our program chair, for his hard work, so much of it done long-distance. And thank you to everyone who presented (50 % more presentations than typical for the division), and who attended sessions in spite of other temptations. The view over Honolulu to Diamond Head for the awards dinner was spectacular.

Then, hard on the heels of the annual meeting, the division held the Chemical Engineering Summer School in Pullman, Washington. Many thanks to Steve LeBlanc and Kirk Schulz for their service in organizing the summer school. I wasn't able to go myself, but the

newest faculty member in our department came back full of ideas and positive energy.

The ASEE Chemical Engineering Division Executive Committee will meet during the AIChE national meeting on Monday, November 5th, 11:00 AM - 12:30 PM Room 155 F (Lower Level) Salt Palace Convention Center Meeting. Officers and committee chairs are expected to attend, but anyone interested in becoming involved in the division is welcome.

I really do find that the ASEE has a different atmosphere from other professional meetings, and I so look forward to it each year. For June 2008, we'll be in Pittsburgh. Jason Keith of Michigan Tech is our program chair for 2008. The call for papers is out, and the deadline for abstracts is October 19, so get thee to asee.org! Joe Schaeiwitz of West Virginia is our local liaison, and has a picked a great venue for the awards dinner in Penn Brewery. Please get your abstract in, and join us there!

Dr. Valerie Young, Ohio University



2007 Winner of the
CHEMICAL ENGINEERING DIVISION LECTURESHIP AWARD
sponsored by
The Dow Chemical Company

Theodore W. Randolph

Department of Chemical and Biological Engineering
University of Colorado at Boulder

Unboiling the Egg: Protein Disaggregation and Refolding under High Hydrostatic Pressures

Protein aggregates are a serious problem facing the biotechnology industry. Aggregation in therapeutic protein products can result in extreme side effects (death!), and during the production of recombinant proteins aggregation causes dramatically reduced process yields and heavy environmental costs. I will discuss a newly developed high-pressure protein folding process that offers high process yields and low solvent requirements.

Hydrostatic pressures between 1 and 3 kbar cause dissociation of multimeric proteins. At higher pressures, typically 5-10 kbar, monomeric proteins will unfold. There is thus a pressure “window” between about 2 and 5 kbar wherein the native state of monomeric proteins is thermodynamically favored, but multimeric proteins will dissociate into their subunits. We have used high pressures to refold proteins from aggregates and to fold proteins from inclusion bodies. By applying pressures in the “window”, we dissolve the aggregates in a fashion similar to the dissociation of multimeric proteins, and concomitantly refold the protein because the native state is still favored. High yields of folded protein are obtained, and folding yields are independent of protein concentration at concentrations to 10g/L. For protein aggregates containing disulfide-crosslinked aggregates, application of high hydrostatic pressures in the presence of disulfide shuffling agents produced higher yields of active protein than conventional, chaotrope-based refolding processes.

Oh... we'll also unboil an egg.

Biographical Sketch

Ted Randolph received his Ph.D. in Chemical Engineering at the University of California, Berkeley. He worked as a post doctoral fellow at the Ecole Polytechnique Federale de Lausanne, and then joined the Department of Chemical Engineering at Yale University as an Assistant Professor. After promotion to Associate Professor, he was named to Yale's first John J. Lee Junior Professorship Chair in Chemical Engineering. In 1993, Dr. Randolph accepted the Patton Associate Professorship Chair in the Department of Chemical Engineering at the University of Colorado. He currently serves as the Gillespie Professor of Bioengineering, co-Director of the University of Colorado's Center for Pharmaceutical Biotechnology, and Director of the NIH Leadership Training in Pharmaceutical Biotechnology Program. Dr. Randolph is a National Science Foundation Presidential Young Investigator, and received the AIChE Professional Progress Award and the American Pharmacist's Ebert Prize. His research interests include biopharmaceutical formulation, lyophilization of proteins, protein-solvent interactions in non-aqueous environments, and protein refolding. His 134 publications have been cited 3167 times, a remarkable 23.6 times per publication.



2007 Award Recipients

Lifetime Achievement Award in Chemical Engineering Pedagogy

John W. Prados
University of Tennessee

Dr. John Prados has devoted 50 years to Chemical Engineering education. He has been a leader in engineering education reform and the development of meaningful assessment criteria for academic programs through the modernization of accreditation processes to encourage innovations in engineering education. He has worked to secure the resources for development and institutionalization of engineering educational innovations through his work as coordinator of the Engineering Education Coalitions program. He has also been a long-time proponent of ensuring engineering educational research that meets the same standards of rigorous scholarship expected in scientific research through his editorship of Journal of Engineering Education.



William H. Corcoran Award



Richard Turton and Joseph Shaeiwitz, West Virginia University. Drs. Turton and Shaeiwitz are recognized for their paper entitled: *“Design Projects of the Future”*. This was the best paper

published in the previous calendar year in Chemical Engineering Education.

Sponsored by Eastman Chemical Corporation

Joseph J. Martin Award



Milo Koretsky, Shoichi Kumura, Connelly Barnes, Danielle Amatore and Derek Meyers-Graham, Oregon State University. Dr. Koretsky (representing the OSU team) is recognized for his paper entitled: *“Experiential Learning of Design of Experiments Using a Virtual CVD Reactor”* This was the best paper in the ChE Division

at the previous ASEE meeting that also appeared in the proceedings.

Ray W. Fahien Award

David L. Silverstein
University of Kentucky

Dr. David L. Silverstein is an associate professor of chemical engineering at the University of Kentucky, assigned to the Extended Campus in Paducah where he began his academic career in 1999. He helped establish the student chapter of AIChE at the new Paducah campus, which has been named an outstanding student chapter in all five years of existence.

He has a particular interest in applying modern technologies to enhance the learning experience for both live and distance classroom environments.

Sponsored by Chemical Engineering Education



CACHE Award

Lorenz T. Biegler
Carnegie Mellon University



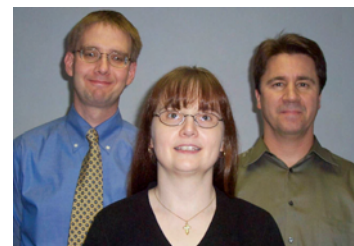
Larry Biegler is being recognized for leadership in the development of strategies and methods for process optimization, particularly for the pioneering implementation of the successive quadratic programming (SQP) method in the process

simulation FLOWTRAN that allowed students to optimize process flowsheets.

Sponsored by the CACHE Corporation

Best Poster Award

David Miller, Sharon Sauer, and Daniel Coronell, Rose-Hulman Institute of Technology. The Rose-Hulman team is recognized for their poster: *“Developing Research Opportunities for Undergraduates: Student Perceptions.”* This was the best poster presentation in the ChE Division at the 2005 ASEE meeting. Student Perceptions”



Announcing ASEE ChE Division Awards for 2008

The Dow Lectureship Award

This award, sponsored by The Dow Chemical Company, 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 the journal 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 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 2008 ASEE Meeting in Pittsburgh, PA June 22-25, 2008.

Nomination Deadline: January 15, 2008 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 2008 meeting in Pittsburgh are due by January 15, 2008, with the winners notified in March 2008. 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. 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 Kevin Dahm, at youngv@ohio.edu by January 15, 2008.

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
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 by January 15, 2008. General, procedural or other questions about the awards should be directed to Valerie Young at youngv@ohio.edu or 740-593-1496.

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

Division Bylaws

At the business meeting in Hawaii, changes to the division bylaws were brought before the members present. The bylaws are attached with changes highlighted in red.

Please Vote!

An email ballot indicating approval or disapproval of the changes as proposed should be emailed to the division Secretary-Treasurer, David Silverstein, at SilverDL@engr.uky.edu. Please use the subject line "ASEE Bylaws". The deadline for receipt of ballots is December 15, 2007.



CHEMICAL ENGINEERING DIVISION LEADERSHIP

Valerie Young
Division Chair
valy@bobcat.ent.ohiou.edu

Don Visco
Program Chair Elect
DVisco@tntech.edu

David Silverstein
Secretary / Treasurer
silverdl@engr.uky.edu

Margot Vigeant
Director
mvigeant@bucknell.edu

Chuck Coronella
Director
coronella@unr.edu

Valerie Young
Co-Awards Chair
youngv@ohio.edu

Kevin Dahm
Co-Awards Chair
dahm@rowan.edu

John P. O'Connell
Publications Chair
jpo2x@virginia.edu

Jason Keith
Program Chair
jmkeith@mtu.edu

Joseph Shaeiwitz
Local Arrangements Liaison
joseph.shaeiwitz@mail.wvu.edu

Newsletter
Adrienne Minerick
minerick@che.msstate.edu

A quick summary of changes are outlined below:

Article III - Objects

Change "national society" to "ASEE"

Article IV - Officers

Should any officer or member of the Executive Committee be unable to serve, the vacancy shall not be filled by the Executive Committee until the time of the next election. The duties of the vacated office will be fulfilled by the remaining members of the Executive Committee or their designates.

Article V - Executive Committee

Should a member of the Executive Committee be unable to serve, the vacancy shall not be filled by the

Executive Committee until the time of the next election.

Article VI, VII, and X

Change "national" to "parent"

Article IX - Amendments

Amendments approved by the Division membership shall be submitted through the PIC Chair for approval by majority vote of the ASEE Board of Directors and shall take effect only upon such approval.

Article X - Dues

The dues rate at the time of this revision to the Division bylaws is \$3 per year.

Article XI - Dissolution

Delete this article completely.

Revised Bylaws

June 2007

Article I - Name

The name of this division shall be the Chemical Engineering Division of the American Society for Engineering Education.

Article II - Membership

Membership shall be open to all members of the American Society for Engineering Education with a particular interest in topics pertaining to chemical engineering pedagogical scholarship.

Article III - Objects

The objects of the Division are those of the ~~National Society~~ ASEE as they pertain to Chemical Engineering Education and the promotion of open communication, stimulating interaction, friendly cooperation, and mutual assistance and collaboration among its members.

Article IV - Officers

The officers shall consist of a Chair, Chair-elect, Secretary-Treasurer, all whom shall be members of the American Society for Engineering Education. The Chair-elect shall be elected annually and shall automatically become Chair the year after his/her election. The Secretary-Treasurer shall be elected biannually. Should any officer ~~or member of the Executive Committee~~ be unable to serve, the vacancy shall not be filled ~~by the Executive Committee~~ until the time of the next election. The duties of the vacated office will be fulfilled by the remaining members of the Executive Committee or their designates.

Article V - Executive Committee

The affairs of the Division shall be administered by an Executive Committee of up to ten voting members: the officers, (Chair, Chair-elect, and Secretary-Treasurer), the Awards and Membership Chairs, the immediate past Chair, two persons elected from the Division membership in alternate years for two-year periods, up to two persons outside academia, appointed by the Chair with the approval of other Executive Committee members in alternate years for two-year periods, and non-voting members, including the Publications Board Chair, and those handling significant projects for the Division, during the duration of such projects. A quorum for Executive Committee meetings shall consist of 50% of the voting members. A simple majority vote of those members in attendance shall be required. The Executive Committee may conduct business through distance communications as well as in face-to-face meetings. Should a member of the Executive

Committee be unable to serve, the vacancy shall not be filled by the Executive Committee until the time of the next election.

Article VI - Meetings

There shall be at least one meeting a year open to all persons interested in chemical engineering. The Executive Committee shall arrange the place, the time, and the program for all meetings. Insofar as practicable the required annual meeting shall be held in connection with the annual meeting of the National-parent Society. The secretary of the National-parent Society shall be supplied upon request with copies of all papers presented at Division meetings. The Secretary-Treasurer shall notify all members at least three weeks in advance of any scheduled meeting. A quorum to conduct business shall consist of 16 members of the Division.

Article VII - Elections

The officers shall be selected by mail, fax, and/or electronic balloting. The Nominating Committee shall supply the Secretary-Treasurer with the names of two nominees for each office or Executive Committee position at least 45 days before the annual meeting of the National-parent Society. The Secretary-Treasurer shall send a ballot to each member of the Division at least 30 days before said date. The returns from the ballot shall be collected by the Secretary no later than 15 days before said date. In case of a tie the Executive Committee shall cast the deciding ballot. The new officers shall take office ten days after the close of the annual meeting of the National-parent Society.

Article VIII - Committees

The Chair may appoint committees, and the scope of their work should be strictly defined at the time of the appointment.

1. Standing Committees

The following Standing Committees shall exist:

a. Nominating Committee

The Nominating Committee shall consist of the current Chair and the immediate two past Chairs of the Division. The immediate Past Chair will serve as Chair of the Nominating Committee.

b. Awards Committee

The Awards Chair shall be appointed by the Division Chair in consultation with the Division Executive Committee. The duties of the Awards Committee Chair shall include administering award nominations and selection of award winners by the respective award committees. Membership on the award committees shall be determined by the Awards Committee Chair in consultation with the Division Executive Committee. The Chair shall

also confirm that conflict of interest statements are signed by Committee members of the various awards committees.

c. Membership Committee

The Membership Committee shall consist of a Membership Committee Chair and up to two other members of the Division. The Chair of the Division shall appoint the Chair of the Membership Committee. The Membership Committee Chair shall appoint the other two committee members.

d. Program Committee

The Program Committee shall consist of the Current Program Chair and the designated Program Chairs for the two following years. Each shall serve to develop the program for their respective year. The Chair of the Division shall appoint the new Program Chair for two years hence, upon assuming office.

e. Summer School Advisory Committee

The Summer School Advisory Committee shall consist of a Chair or co-Chairs, a local chair, and block planning chairs. The Executive Committee of the Division shall appoint the Chair(s) of the Committee. The Summer School Committee Chair(s) appoints the rest of the committee.

f. Long Range Planning Committee

The Long Range Planning Committee shall consist of the Chair-elect, the Chair, and the immediate Past Chair of the Division.

Article IX - Amendments

These bylaws may be amended by two-thirds vote of members responding to a ballot. Amendments may be proposed by the Executive Committee or by a majority vote of members attending a scheduled meeting of the Division. Amendments approved by the Division membership shall be submitted through the PIC Chair for approval by majority vote of the ASEE Board of Directors and shall take effect only upon such approval.

Article X - Dues

The dues of the Division shall be determined each year by the Division in session and shall be only for such incidental items as are not supplied by the ~~National-parent~~ Society. The dues rate at the time of this revision to the Division bylaws is \$3 per year.

~~Article XI - Dissolution~~

~~Upon the dissolution of the Chemical Engineering Division of the American Society for Engineering Education, the residual assets of the Chemical Engineering Division remaining thereafter shall be conveyed to such organization then existent, dedicated to the perpetuation of objects similar to those of the Chemical Engineering Division of the American Society for Engineering Education, so long as whichever organization is selected by the governing body of the Division at the time of dissolution shall be exempt under Section 501 (c)(3) and 170 (c) of the Internal Revenue Code of 1954 as amended, or under such successor provision of the Code as may be in effect at the time of the Division's dissolution.~~