

newsletter



inside this issue

MESSAGE FROM THE CHAIR

2017 AWARDS ANNOUNCEMENTS

WEBSITE

EDUCATION

MEMBERSHIP

FALL MEETING PROGRAMMING



message from the chair

BY RAY SMITH, CHAIR, SEF

As Chair of the Sustainable Engineering Forum, I am looking forward to another annual meeting.

This is an opportunity for us to reconnect with colleagues, make new connections and, of course, deepen our knowledge in our field.

The Sustainable Engineering Forum has a unique and important role within the Institute and I hope you can see that reflected in this issue of our newsletter.

Please take the time to engage in our programming and congratulate our award winners and committee members for their hard work throughout the year.

I wish each of you a happy and fruitful fall meeting,

Ray Smith
Chair, Sustainable Engineering Forum



awards



BY HEBAB QUAZI

The Sustainable Engineering Forum (SEF) is very pleased to announce the names of the 2017 (a) SEF Research Award winner and (b) Student Papers Award Winners. The Award Winners were informed during Summer. The AIChE Awards Committee/Herb Epstein has already been notified.

For more information about the Herb Epstein award, [click here](#) to visit the website.

The SEF Research Award recipient:

Fengqi You - Cornell University (Nominator: Ignacio Grossmann of the Carnegie Mellon University).

The SEF Student Papers Awards recipients (arranged alphabetically):

Jiyao Gao - Cornell University (Nominator: Fengqi You)

Chandni Joshi - University of Kentucky (Nominator: Jeff Seay)

Majid Moradi-Aliabadi - Wayne State University (Nominator: Charles Manke)

Congratulations to all award winners.



website

Many conversations and thoughts related to sustainability are framed by perspective. Challenges arise when individual perspectives are placed above those of others. As an addition to our website, we included links to readily available foot printing tools to help promote reflective thought on the impact of human kind. These tools can be used to delve into your own activities and start larger conversations. At this time, it is clear that even though we live on one planet, it is not clear how as a global population we will be able to achieve similar standards of living with current social-economic-technical trends.

As a significant advance, we added additional links to education content related to chemical engineering, chemistry, and funded outcomes from academic research. We strive to provide for a balanced presentation of sources of information that is also rigorous. Please forward on comments and suggestions if you believe there are additional sources of information relevant and appropriate for our inclusive forum efforts.

We are planning additional upgrades and sources of information with new volunteer leadership. Next up include links to scientific sources of sustainable science literature, additional information on awardee winner submissions, related conferences – activities, and a repository of programming online. Personally, I will be working with the history of leadership to capture the SEF in the style of a review.

BY CORY JENSEN
WEBMASTER



education committee

BY NASTASSJA LEWINSKI
COMMITTEE CHAIR

The mission of the SEF Education Committee is to promote education in sustainable engineering at the university and postgraduate levels, and continuing education in the industry. Membership of the SEF Education Committee is open to all members of the Sustainable Engineering Forum.

Member Highlights:

At the 2017 ASEE Chemical Engineering Summer School, Yinlun Huang co-organized a workshop on Sustainable Design of Industrial Processes: Integration of Sustainability into the Curriculum. Additional Sustainable Manufacturing Educational Modules, several developed by SEF members, can be found on the CACHE website.

At the upcoming 2017 AIChE fall meeting, Lindsay Soh is leading a workshop on **Sustainability in Chemical Engineering** during the student conference. The workshop will be held on **Saturday, October 28 from 11:45am-12:30pm**. Please encourage your students / interns to attend the workshop.

At the 2018 ACS spring meeting, Alex Orlov is leading the first of a two part ACS / AIChE workshop titled Identifying the Gaps & Opportunities in Graduate Education to Improve Sustainability of the US Chemical Industries. Please contact Alex (alexander.orlov@stonybrook.edu) for more information regarding this workshop.

Calling for volunteers:

The education committee is looking for members interested in developing webinars on sustainable engineering topics. If you are interested in getting involved in the Education Committee, please contact me at nalewinski@vcu.edu.

membership

BY CORY JENSEN
MEMBERSHIP CHAIR

The first year of the Membership Champions effort is coming to a close. Our five inaugural champions worked hard to initiate and prompt refinement of an annual infographic competition. Thank you kindly to those that have expressed an interest in the competition. There have been several inquiries about the pilot infographic competition, the most common contact being – “What are requirements to participate?” The answer is simply that you need to be a member of the forum.

The Membership Champions are in the process of working with submissions in the final evaluation stages prior to the 2017 Annual meeting in Minnesota. If continued, the SEF plans on awarding a plaque and modest monetary award (\$250) to a winner given an annual theme, while posting the winning submission online. The forum also plans on mounting all submissions at the annual poster session for meeting attendees to review.

Thank you for your participation and interest, please consider participating in our annual poster session too!



fall meeting programming

BY CORY JENSEN
PROGRAMMING CHAIR

The 2017 year marks a significant change in programming efforts with radical new efforts underway.

This year's volunteer leadership includes Dr. Angela Leuking (Pennsylvania State University - NSF), Dr. Lindsay Soh (Lafayette College), Dr. Fengqi You (Cornell), Dr. Nastassja Lewinski (Virginia Commonwealth University) and Dr. Vicki S. Thompson (Idaho National Laboratory) to promote quality outcomes at the Annual meeting.

Eric Peterson of Exponent Inc. was awarded the Herb Epstein award for synergizing SEF programming with content relevant to the 2017 Spring meeting and Center for Chemical Process Safety.

Sipho Ndlela of Owens Corning, former SEF programming chair is the 2017 Annual meeting chair in Minneapolis Minnesota!

Finally, this marks the first year that the SEF will partake in the undergraduate workshops sessions and we were approached to coordinate with the Nano Science Engineering Forum.

Overall some of our efforts will partially be highlighted in a Special Issue of the Journal of Natural Gas Science Engineering to highlight advances after the realization of the Natural Gas Revolution. This year, there were several submissions related to natural gas processing and C1 chemistries.

Look for the call in the journal or contact our programming leadership for more information.

fall meeting programming

BY CORY JENSEN

Invited Highlights for the 2017 Programming Year Include:

Forum Plenary

(Ray Smith, Ignasi Palou-Rivera)

Wednesday, November 01, 2017 08:00 AM - 10:30 AM, Minneapolis Convention Center - 101B

- 481a “Science with Purpose” Maureen Tholen (3M)
- 481b “Some Thoughts on Sustainability: Food, Energy, and Water”
Heriberto Cabezas
- (U.S. Environmental Protection Agency)
- 481c “Industrial Sustainability Enhancement: A Control Perspective”
Yinlun Huang (Wayne State University)
- 481d “Multi-Scale Life Cycle Optimization for Sustainable Engineering”
Fengqi You (Cornell University)

Area Plenary: Sustainability and the RAPID (Rapid Advancement in Process Intensification Deployment) Manufacturing Institute

(Lindsay Soh, Fengqi You)

Monday, October 30, 2017 03:15 PM - 05:45 PM, Minneapolis Convention Center - 101D

- 209a “Rapid Advancement in Process Intensification Deployment (RAPID) – US Efforts to Establish a Modular Chemical Process Intensification Manufacturing Institute” Karen Fletcher (AIChE)
- 209b “Modeling and Simulation – a Key Component in Enabling Process Intensification” David Sholl (Georgia Institute of Technology) and Efstratios N. Pistikopoulos (Texas A&M University)
- 209c “Modeling and Simulation Challenges for Process Intensification” Efstratios N. Pistikopoulos et al. (Texas A&M University)
- 209d “The Sustainable Synthesis-Design-Intensification of Chemical and Biochemical Processes” Rafiqul Gani et al. (Technical University of Denmark)
- 209e “Democratizing Energy Technology” Dane Boysen (Lawrence Berkeley National Laboratory)

fall meeting programming

BY CORY JENSEN

Topical Plenary: Advanced Biomaterials, Biofuels, and Biorefinery

(Yulin Deng, Shijie Liu)

Monday, October 30, 2017 08:00 AM - 10:30 AM Minneapolis Convention Center - 200E
08:00 AM

- 98a “Rapid Wood Fractionation $\leq 80^{\circ}\text{C}$ for Sustainable and Economic Biorefinery” J.Y. Zhu (USDA Forest Service)
- 98b “Insights into Biomass Recalcitrance” Arthur J. Ragauskas (University of Tennessee-Knoxville)
- 98c “Low Temperature and High Efficiency Biomass Fuel Cell and Bio-Hydrogen Production” Yulin Deng (Georgia Institute of Technology)
- 98d “Circular Economy: A Path Towards Innovation and Commercialization of Biocomposites for Sustainable Manufacturing” Amar K. Mohanty (Department of Plant Agriculture & School of Engineering)

Area Plenary: Sustainable Biorefineries

(Mark Mba Wright, Vicki S. Thompson)

Tuesday, October 31, 2017 12:30 PM - 03:00 PM, Minneapolis Convention Center - 101B

- 332a “Development and Demonstration of Advanced Supply Chain Equipment for Harvest, Delivery, and Processing of Herbaceous Biomass.” Kevin Comer (Antares Group)
- 332b “Feedstock-Driven Operational Challenges Facing Pioneer Biorefineries in the Emerging Biofuel Industry” David N. Thompson et al. (Idaho National Laboratory)
- 332d “Perennial Solutions to Annual Problems” Emily Heaton et al. (Iowa State University)

Rethinking Grand Challenges in Sustainability for the 21st Century

(Raymond L. Smith, Alexander Orlov)

Tuesday, October 31, 2017 03:15 PM - 05:45 PM Minneapolis Convention Center - 101C

- 442a “Grand Challenges in Sustainability for Future Energy and Chemicals” Joseph B. Powell (Shell Projects & Technology)
- 442b “Research Trends in Sustainable Chemistry and Engineering: Quantifying Progress Toward Sustainability” David T. Allen (University of Texas at Austin)
- 442c “Hydrogen Economy Via Cost-Effective Renewable Solar Water Splitting” Alan W. Weimer (University of Colorado Boulder)
- 442d “Opportunities and Challenges Along the Path to Sustainability” Phillip E. Savage (Pennsylvania State University)
- 442e “Rethinking Grand Challenges Panel Discussion”