

AIChE NSEF Newsletter

Summer 2018

Message from the Chair

From treating disease to harvesting sustainable energy, nanoscale science and engineering is helping to solve many of society's grand challenges. The AIChE Nanoscale Science and Engineering Forum (NSEF) showcases the exciting work being conducted throughout AIChE and engages individuals from academia, industry, and government in research and education topics that are shaping our world. Join us in Pittsburgh for the 2018 Annual Meeting where we have a great program lined up spanning plenary sessions, student awards, and networking events. A special congratulation to Dr. Christopher M. Jewell, our Young Investigator Awardee, and Dr. Sharon C. Glotzer, our Forum Awardee, for their tremendous achievements. They will share their work with us during the NSEF Plenary session on Monday, October 29th. A key goal of this year's NSEF activities is to broaden engagement and participation. We are exploring new pathways to student membership, engaging early career engineers in NSEF programming and leadership positions, and pursuing new program activities. Come join us in Pittsburgh to learn more and get involved!

- Dr. Geoffrey D. Bothun, NSEF Chair

News and Announcements

NSEF Programming for 2018 AIChE Annual Meeting:

NSEF is pleased to announce many exciting scientific sessions at the 2018 Annual Meeting in Pittsburgh, Pennsylvania from October 28th – November 2nd, 2018. Highlights of the programming activities are included below.

2018 Young Investigator Award Winner:

This year, NSEF will present **Dr. Christopher M. Jewell** with the 2018 NSEF Young Investigator Award for his work in engineering and immunology. Dr. Jewell's talk will be on "Nanotechnology as a tool to study and direct immune function."

Christopher M. Jewell is Associate Professor and Associate Chair in the Fischell Department of Bioengineering at the University of Maryland. Dr. Jewell has authored over 75 manuscripts and patents, including papers in *ACS Nano*, *Cell Reports*, *Nature Materials*, *PNAS*, and *Nature*. Some of Dr. Jewell's honors include selection as a Damon Runyon-Rachleff Innovator, receipt of the NSF CAREER Award, appointment as an Associate Scientific Advisor for *Science Translational Medicine*, and receipt of the University's Graduate Faculty Mentor of the Year. Chris was also selected as the state of Maryland's Outstanding Young Engineer by the Maryland Academy of Science, the state's highest honor for an engineer under 36. Dr. Jewell graduated from Lehigh University in 2003 with high honors, earning dual degrees in Chemical Engineering and Molecular Biology. He received his PhD in 2008 from the University of Wisconsin – Madison, working with Professor David Lynn. Chris then joined the Boston Consulting Group in New York City, where he worked in R&D strategy for global pharmaceutical companies. Dr. Jewell carried out his postdoctoral training as a Ragon Fellow working with Dr. Darrell Irvine at MIT and as a Visiting Scientist at Harvard with Dr. Dan Barouch in the division of Vaccine Research.



2018 NSEF Forum Award Winner:

At the 2018 Annual Meeting in Pittsburgh, **Dr. Sharon C. Glotzer** will give the 2018 NSEF Forum Plenary entitled "Nano 2.0: From Discovery to Design."

Sharon C. Glotzer is the Anthony C. Lembke Department Chair of Chemical Engineering at the University of Michigan in Ann Arbor. Glotzer is also the John Werner Cahn Distinguished University Professor of Engineering and the Stuart W. Churchill Collegiate Professor of Chemical Engineering, and Professor of



Materials Science and Engineering, Physics, Applied Physics, and Macromolecular Science and Engineering. She is a member of the National Academy of Sciences and the American Academy of Arts and Sciences, and a fellow of the American Physical Society, the American Association for the Advancement of Science, the American Institute of Chemical Engineers, the Materials Research Society, and the Royal Society of Chemistry.

Professor Glotzer's research on computational assembly science and engineering aims toward predictive materials design of colloidal and soft matter, and is sponsored by the NSF, DOE, DOD, Simons Foundation and Toyota Research Institute. Among other notable findings, Glotzer invented the idea of "patchy particles," a conceptual approach to nanoparticle design. She showed that entropy can assemble shapes into many structures, which has implications for materials science, thermodynamics, mathematics, and nanotechnology. Glotzer has published over 235 refereed papers and presented over 350 plenary, keynote and invited talks around the world. She has served on boards

and advisory committees of the National Science Foundation, the U.S. Department of Energy, and the National Academies, and is currently a member of the National Academies Board on Chemical Sciences and Technology. She is a Simons Investigator, a former National Security Science and Engineering Faculty Fellow, and the recipient of numerous other awards and honors, including the 2016 Alpha Chi Sigma Award from the American Institute of Chemical Engineers, the 2014 MRS Medal from the Materials Research Society and the 2008 Charles M.A. Stine Award from the American Institute of Chemical Engineers.

2018 AIChE Annual Student Workshop

This year NSEF will take part in the student conference by hosting a panel discussion titled "Nanoscale Science & Engineering: Translating from Benchtop to Industry" on Saturday, October 27, 2018. The panel discussion will take place 3:45 – 4:30 at the David L. Lawrence Convention Center, Rooms 306/307.

NSEF Reception:

NSEF invites all current members to attend the NSEF Reception at the AIChE Annual Meeting on Tuesday, October 30th, from 7 - 9pm. Location to be determined. In addition to some wonderful food and beverages, announcements will be made for the NSEF Award winners, graduate student awards, and poster session awards. We hope to see you there!

2018 AIChE Annual Meeting Graduate Student Award Sessions:

NSEF is sponsoring two award sessions at the 2018 AIChE Annual Meeting in the areas of Bionanotechnology and Carbon Nanomaterials. These sessions honor graduate students whose research achievements are in these areas and who demonstrate a high level of excellence in their work. At the end of each session, a panel of judges will determine 1st - 3rd place awards. The two sessions will be held at the following times and locations:

- Carbon Nanomaterials: Monday, October 29th, 12:30 - 3:00 pm,
David L. Lawrence Convention Center, 311
- Bionanotechnology: Tuesday, October 30th, 3:30 – 6:00 pm,
David L. Lawrence Convention Center, 310

2018 AIChE Annual Meeting NSEF Poster Session:

Also, the NSEF poster session will be Monday, October 29th from 3:30 – 5:00 pm in the David L. Lawrence Convention Center – Exhibit Hall B. Over 40 high quality posters addressing fundamental science and engineering issues associated with nanoscale science, engineering and technology will be presented. The poster session will be judged, and student awards will be given to the best three posters.

2019 Annual Meeting Call for Volunteers – NSEF is looking for volunteers to serve as a chair or co-chair for the 2019 Annual Meeting in Orlando, FL. The success of the NSEF programming depends on active engagement of our members. Please consider serving as a volunteer. If you are interested in being added to the volunteer list, please Reg Rogers (rerche@rit.edu) with the following information:

- Name
- Email
- Desire to serve as a chair, co-chair, or both
- Which area: 22-NSEF, 22A-Carbon Nanomaterials, or 22B-Bionanotechnology. If you desire

more than one area, please specify.

Additional solicitation for volunteers will take place during the NSEF Reception in Pittsburgh.

Summary of Programming Activities

Sunday, October 28th:

3:30pm - 6:00pm:

- 38: Nanofabrication and Nanoscale Processing I
- 39: Nanostructured Biomimetic and Biohybrid Materials and Devices

Monday, October 29th:

8:30am - 10:30am:

- 110: Division Plenary: Chemical Engineering Principles for Nanotechnology (Invited Talks)

11:00pm - 12:30pm:

- 120: The Future of Energy in the Region, Nation and World (Invited Talks)

12:30pm - 3:00pm

- 135: *Carbon Nanomaterials Graduate Student Award Session*
- 167: *Nanofabrication and Nanoscale Processing II*

3:30pm - 5:00pm:

- 198: Poster Session: Nanoscale Science and Engineering

3:30pm - 6:00pm:

- 222: Graduate Student Competition in Microbiointerface Research

Tuesday, October 30th:

8:00 - 10:30am:

- 261: Area Plenary: Bionanotechnology (Invited Talks)
- 286: Graphene and Carbon Nanotubes: Absorption, Separations, and Transport Processes

11:00am - 1:30pm:

- 311: What the Heck Happened? Past, Present & Future Disruptions to the Chemical/Fuels Business (Invited Talks)

12:30 - 3:00pm:

- 319: Biocolloids, Biomolecules, and Nanomaterials of Medical Relevance
- 323: Carbon Nanofibers and Related Structures from Renewable and/or Cheap Feedstock and Their Applications
- 340: Functional Nanoparticles
- 363: Self and Directed Assembly at the Nanoscale I

3:30 - 6:00pm:

- 384: *AIChE's 110 Year Celebration (Invited Talks)*
- 387: *Bionanotechnology Graduate Student Award Session*
- 405: *Fundamentals of Nanoparticle Coatings and Nanocoatings on Particles*
- 420: *Plenary Session: Multifunctional Biomaterials Addressing Current Healthcare Challenges (Invited Talks)*
- 423: *Self and Directed Assembly at the Nanoscale II*

Wednesday, October 31st:

8:30 - 10:30am:

- 484: Area Plenary: Carbon Nanomaterials (Invited Talks)
- 496: Nanotechnology for Biotechnology and Pharmaceuticals

12:30 - 3:00pm:

- 496: Biomaterial Scaffolds for Tissue Engineering I: Musculoskeletal Applications
- 498: Bionanotechnology for Gene and Drug Delivery I
- 515: Graphene 2-D Materials: Synthesis, Functions and Applications I
- 524: Nanoscale Phenomena in Macromolecular Systems
- 525: Nanotechnology for Biotechnology and Pharmaceuticals I

3:30 - 6:00pm:

- 555: Bionanotechnology for Gene and Drug Delivery II
- 566: Graphene 2-D Materials: Synthesis, Functions and Applications II
- 573: Nanoscale Structure in Polymers
- 575: Nanotechnology for Biotechnology and Pharmaceuticals II

Thursday, November 1st:

8:00 - 10:30am:

- 630: Novel Nanoparticles and Nanostructured Materials for Energy Applications
- 636: Self-Assembled Biomaterials

12:30 - 3:00pm:

- 666: Graphene and Carbon Nanotubes: Characterization, Functionalization, and Dispersion I
- 676: Nanobiotechnology for Sensors and Imaging I

3:30 - 6:00pm:

- 706: Graphene and Carbon Nanotubes: Characterization, Functionalization, and Dispersion II
- 712: Nanobiotechnology for Sensors and Imaging II

Member Awards & Highlights

If you have a recent high impact publication, honor, or award that you would like to have highlighted in the next NSEF Newsletter please submit these to the Newsletter Editor at roxbury@uri.edu.

Upcoming Events

American Chemical Society National Meeting & Expo

"Nanoscience, Nanotechnology, & Beyond"

August 19 – 23, 2018, Boston, MA

<https://www.acs.org/content/acs/en/meetings/national-meeting.html>

Membership Column

Not a member of AIChE or NSEF? In order to guarantee that you are included in our current email list so that you will have updated access to NSEF materials and award eligibility make sure you are a current NSEF and AIChE member. NSEF membership is an additional \$10/year to the AIChE membership. You can follow the steps of one of the following options below to join:

1. Visit AIChE's membership website to sign up online: <http://www.aiche.org/membership>
2. Download the following file from the AIChE website: Membership Application PDF and send your application and payment directly to AIChE.

2017-18 NSEF Leadership

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