

Program in Polymers and Soft Matter

The interdepartmental [Program in Polymers and Soft Matter](#) (PPSM), established in 1986, offers graduate education in the interdisciplinary field of polymer science and engineering. Its goals are to provide educational opportunities and foster a collaborative, communal spirit among the large and widespread group of students, faculty, and visitors involved in polymer and soft matter-related activities at MIT. PPSM provides a core graduate polymers and soft matter curriculum, written and oral doctoral qualifying examinations, special student-driven events, and seminars presented by prominent visitors from industry, government agencies, and academia. The program is administered voluntarily by faculty from the Departments of Materials Science and Engineering (DMSE), Chemical Engineering (ChemE), Mechanical Engineering, Biological Engineering, and Chemistry.

MIT Polymer Day

Our sixth annual MIT Polymer Day event, held on March 30, was again produced by the PPSM Graduate Student Association and was fully underwritten by returning sponsors Cabot Corporation, Cambridge Polymer Group, Inc., Arkema, Sigma Aldrich Chemical, and SABIC, and one new sponsor, Schlumberger Doll Research. We were delighted for the second consecutive year to welcome poster presenters from other universities, including Tufts University and the Universidade Federal do Vale do São Francisco (Brazil). This year's successful event introduced an optional contest, which challenged participating poster contestants to explain their research in a brief paragraph using only basic English vocabulary. With 39 posters, two corporate information booths, and more than 150 attendees, the session was a decisive success. Following the poster session, four short seminars covering a range of topics were presented by MIT postdoctoral researchers Elizabeth Sterner, Li Tang, and Jinyao Liu, and graduate student Joshua Steimel.

Personnel

Academic year 2015–2016 was another active one for PPSM. In fall 2015, PPSM welcomed seven new students (two each through DMSE and Mechanical Engineering, and one each through ChemE, Biological Engineering, and Chemistry) and graduated one student through Chemical Engineering. PPSM's faculty roster grew to 21 members with the addition of Materials Science and Engineering professors Robert Macfarlane and Julia Ortony.

The recent healthy influx of new students, new faculty talent, and the continued broad-based faculty participation from all of our affiliate departments, promise to ensure the program's vitality as we enter our fourth decade of service.

We are pleased to highlight the following faculty accomplishments from the past academic year.

Alfredo Alexander-Katz (DMSE) received the 2015 Outstanding Graduate Advising Award from the DMSE Graduate Student Council. Daniel Blankschtein (ChemE) received the 2015 Capers and Marlon McDonald Award for Excellence in Mentoring and Advising.

PPSM honored founder and former director Robert E. Cohen (ChemE) with a weekend-long symposium in May 2016, *Reflections on a Career: Connecting the Dots in Bob Cohen's Academic Family*, to commemorate his 43 years of teaching, research, and service at MIT. Patrick Doyle (ChemE) co-founded Motif Micro, a startup that is translating developments in his lab on upconverting barcoded particles for anti-counterfeiting applications. Niels Holten-Andersen (DMSE) was awarded a 3M Non-Tenured Faculty Award.

In November 2015, Paula Hammond (ChemE) presented exciting research findings in a TED Talk titled "A new superweapon in the fight against cancer."

Jeremiah Johnson (Chemistry) was featured in STAT's Three People to Watch in Kendall Square, and in September 2015 joined the editorial board of *Polymer Chemistry*. Robert Langer (ChemE) received the Queen Elizabeth Prize for Engineering, the Sackler Award for Sustained National Leadership, the Benjamin Franklin Medal in Life Science, the Hoover Medal, the Scheele Award, and the Royan Institute's Kazemi Award for Research Excellence in Biomedicine. He was also named the Cornell Entrepreneur of the Year.

Bradley Olsen (ChemE) was named by the American Chemical Society as one of their 2016 POLY Fellows. Only one percent of POLY members are selected for this honor, which comes through submitted nominations. Katharina Ribbeck (Biological Engineering) was honored with MIT's Harold E. Edgerton Faculty Achievement Award.

Gregory C. Rutledge (ChemE) was named a Fellow of the Polymeric Materials Science and Engineering Division of the American Chemical Society in 2015 and represented that division at the Fifth Joint Symposium on Polymers, with the Polymer Division of the Chinese Chemical Society in Suzhou, China, and again at Zhejiang University in Hangzhou.

Seminar Series

The 2015–2016 PPSM seminar series brought leading polymer researchers from a number of universities from the US and overseas to MIT and attracted an audience of 50 to 80 students, faculty, and non-MIT attendees to each seminar. Also, the inaugural Aldrich PPSM Lecture on September 23 was presented by Professor Virgil Percec (University of Pennsylvania), and was made possible by the financial support provided by Sigma Aldrich. Professors Johnson and Holten-Andersen continue to administer the PPSM seminars.

Milestone

AY2017 will be PPSM's 30th year of fostering rigorous doctoral preparation for aspiring polymer engineers, building community among the diverse population of polymer researchers from across the Institute, and sponsoring the popular PPSM Polymer Seminar series.

This program's enduring value is evident both in the wide-ranging successes of our many graduates, and in the preparation of today's young MIT researchers for exceptional and influential careers in polymer engineering and related disciplines. Our alumni can be found on the faculty at universities including Harvard, Stanford, and

MIT; spear-heading cutting-edge innovations at industrial leaders such as DuPont, Millennium Pharmaceuticals, and Boston Scientific; trail-blazing in the entrepreneurial sphere; and stretching the bounds of human knowledge at NASA, NIH, and other government and military agencies in the US and abroad.

In the year ahead, we look forward to furthering polymer education excellence at MIT and continuing to build upon PPSM's formidable legacy in the global community of polymer innovators.

Darrell J. Irvine

Director

Professor of Materials Science and Engineering and Biological Engineering

Investigator, Howard Hughes Medical Institute