

## Program in Polymer Science and Technology

The Program in Polymer Science and Technology (PPST), founded in 1986, is an interdepartmental program offering graduate education in the interdisciplinary field of polymer science and engineering. Its goals are to provide educational opportunities and to foster a spirit of community and collaboration among the large and widespread group of students, faculty, and visitors involved in polymer-related activities. It consists of a core curriculum, written and oral qualifying examinations for doctoral studies, continuing education opportunities through seminars presented by prominent visitors from industry and academia, and research competitions. The program is administered on a voluntary basis by faculty from the departments of Materials Science and Engineering (DMSE), Chemical Engineering (ChemE), Mechanical Engineering (MechE), and Chemistry. PPST also serves as a focal point for information and opportunities in polymer-related fields at MIT.

PPST continues to maintain a steady academic course. There were 20 students enrolled in PPST for AY2010, with home departments in Materials Science and Engineering, Chemical Engineering, and Mechanical Engineering. This year, four students in the program graduated with PhDs: two from the Department of Materials Science and Engineering and one each from the departments of Chemical Engineering and Mechanical Engineering. Two new PPST students were admitted into the program, both from the Department of Materials Science and Engineering. Faculty participation in PPST remained strong, with the addition of two new core faculty members, assistant professors Bradley D. Olsen (ChemE) and Alfredo Alexander-Katz (DMSE). This increase brought the total number of core faculty to 16, while the number of affiliate faculty remained steady at 11.

PPST faculty garnered a number of major honors this year. Edwin L. Thomas (DMSE) was elected a fellow of the American Chemical Society's Division of Polymer Chemistry and to the American Academy of Arts and Sciences. Robert E. Cohen (ChemE) was elected to the National Academy of Engineering and was an Astor Visiting Lecturer at Oxford University in June 2010. Paula T. Hammond (ChemE) received the 2010 Distinguished Scientist Award from the Harvard Foundation. Christine Ortiz (DMSE) won both NSF Career and PECASE awards, and was recently appointed to the prestigious editorial board of the journal *Science*, in addition to accepting a new appointment as MIT's dean for graduate education. Krystyn J. Van Vliet (DMSE) was one of 88 of the nation's brightest young engineers selected to take part in the National Academy of Engineering's 15th Annual US Frontiers of Engineering Symposium.

The core curriculum remains focused on fundamental courses in physical chemistry and the synthetic chemistry of polymers, biopolymers, and mechanical behavior of solid and liquid polymers. During Independent Activities Period, PPST students are offered opportunities to sample the analytical facilities of MIT's Center for Materials Science and Engineering through recommended introductory classes. Additional topics in polymer morphology, colloids and surface science, macromolecular hydrodynamics, and polymer statistical mechanics are offered in alternate years so the full PPST curriculum

can be completed in four semesters. A disciplinary minor is required by each PPST student's home department.

The PPST weekly seminar series was well attended and attracted 50 to 80 students, faculty, and visitors per seminar on average. This past year, lectures were presented by leading polymer faculty from a number of US and overseas universities. Alfredo Alexander-Katz and Bradley Olsen administer the PPST seminars.

During the past year, PPST faculty have been assessing the program's practices and history in an effort to chart a course that best serves the needs and expectations of current and future graduate students (along with their faculty research advisors) with research interests focused on macromolecules. Leveraging this core mission to accommodate the needs and interests of undergraduates, postdoctoral researchers and other visitors to the MIT polymer community is also a part of this evaluation and planning process that will continue in the coming academic year.

**Robert E. Cohen**

**Director**

**St. Laurent Professor of Chemical Engineering**

*More information about the Program in Polymer Science and Technology can be found at <http://web.mit.edu/ppst/>.*