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 at MIT. It consists of a core curriculum, written and oral qualifying examinations for doctoral studies, and continuing education opportunities through seminars, visitors from industry and academia, and research competitions. The program is administered by faculty from the Departments of Materials Science and Engineering, Chemical Engineering, Mechanical Engineering, 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 course. There were 30 students enrolled in PPST in AY2005, with home departments in Materials Science and Engineering and Chemical Engineering. This year the program graduated four students with the PhD degree, one from Materials Science and Engineering and three from Chemical Engineering. Six new PPST students were admitted into the program, three each from the Departments of Chemical Engineering and Materials Science and Engineering. Faculty participation in PPST remains strong, with 15 core faculty and 11 affiliated faculty members.

The core curriculum remains focused around fundamental courses in physical chemistry and synthetic chemistry of polymers, biopolymers, and mechanical behavior. A project lab is also typically conducted during the Independent Activities Period. Additional topics in polymer morphology, colloids and surface science, macromolecular hydrodynamics, and polymer statistical mechanics are alternated each year so that the full curriculum can be completed in four semesters.

The PPST weekly seminar is extremely well attended and continues to attract an average of 50–80 students, faculty, and visitors per seminar. This past year, lectures were presented by leading polymer faculty from a number of US, Asian, and European universities, as well as from faculty and senior students within MIT. Professor Ken Beers (Chemical Engineering) and Professor Christine Ortiz (Materials Science and Engineering) were in charge of the organization of this seminar series and have agreed to continue for the coming year.

In spring 2005, PPST conducted its fourth annual OMNOVA Signature Award for Excellence in Polymer Research, sponsored by the OMNOVA Foundation. This competition produced two student awardees, Daeyeon Lee and Juan Gonzalez, who each received a cash award of $5,000 and invitations to present their award-winning research in a special PPST seminar. An additional Special Jury Prize was given to a third excellent award applicant, Alireza Khademhosseini. The awardees' faculty advisors, Professors Anne Mayes, Michael Rubner, Robert Cohen, and Robert Langer, were also recognized with small discretionary awards. We hope that OMNOVA will continue to sponsor the competition in the future.

In his first year as PPST director, Professor Gareth McKinley of Mechanical Engineering has worked hard to continue increasing the visibility of PPST at MIT and beyond. A Dupont–MIT Alliance Fellowship has been secured for the program, and incoming students from additional engineering departments are being recruited to PPST. He looks forward to continuing efforts at broadening departmental participation within PPST and also to guiding the program toward its 20th anniversary in September 2006. An alumni database has been established and a mailing has recently been sent to all alumni to start preparing for this event.

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