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, 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, 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 academic course. There were 23 students enrolled in PPST for AY2009, 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 two from the Department of Chemical Engineering. Four new PPST students were admitted into the program, all from the Department of Materials Science and Engineering. Faculty participation in PPST remained strong, with 14 core faculty and 11 affiliated faculty members.

PPST faculty garnered a number of major honors this year. Edwin L. Thomas was elected a fellow to both the National Academy of Engineering and the American Association for the Advancement of Science. Patrick S. Doyle won both a John Simon Guggenheim fellowship and the Curie Award from the Rothschild–Yvette Mayent Institute. Institute awards went to PPST faculty members including Krystyn J. Van Vliet, who received both the Edgerton Award and the Junior Bose Teaching Award, and Christine Ortiz, recipient of the Martin Luther King Jr. Leadership Award. One newly hired faculty member, Alfredo Alexander-Katz (Department of Materials Science and Engineering) joined the PPST faculty in 2009.

The core curriculum remains focused on fundamental courses in physical chemistry and synthetic chemistry of polymers, biopolymers, and mechanical behavior of plastics. During Independent Activities Period, PPST students were offered opportunities to become familiarized with the analytical facilities of MIT's Center for Materials Science and Engineering through recommended introductory classes sponsored there. Additional topics in polymer morphology, colloids and surface science, macromolecular hydrodynamics, and polymer statistical mechanics will be alternated each year so the full curriculum can be completed in four semesters.

The PPST weekly seminar series was well attended and attracted an average of 50 to 80 students, faculty, and visitors per seminar. This past year, lectures were presented by leading polymer faculty from a number of US universities. Professors Krystyn J. Van Vliet and Darrell J. Irvine, both from the Department of Materials Science and

Engineering, were in charge of organizing this seminar series and agreed to continue for the coming year.

In his fifth year as PPST director, professor Gareth McKinley of Mechanical Engineering continued working to increase the visibility of PPST at MIT and beyond. A DuPont–MIT Alliance fellowship was secured for the program for the past two years, and attempts were made to recruit incoming students to PPST from additional departments at MIT. Unfortunately, these fellowship funds are no longer available because of changes in the DuPont–MIT Alliance research profile. Financial constraints and cutbacks across the Institute have made managing the budget of a small purely educational program like PPST increasingly difficult. In parallel to the ongoing Institute-wide task force planning exercises, PPST faculty are beginning a process of strategic planning to consider the optimal path forward for the polymer science program.

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