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 26 students enrolled in PPST in AY2008, with home departments in materials science and engineering, chemical engineering, and mechanical engineering. This year two students in the program graduated from the Department of Materials Science and Engineering, one with a PhD and one who elected to pursue an industrial opportunity abroad after completing a master's degree. Five new PPST students were admitted into the program, four from the Department of Materials Science and Engineering and one from the Department of Chemical 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. Gareth H. McKinley was elected a fellow of the American Physical Society in November 2007 and Darrell J. Irvine was appointed as a Howard Hughes Medical Investigator in May 2008. Both of these PPST faculty members are also former graduates of the PPST doctoral program.

The core curriculum remains focused upon fundamental courses in physical chemistry and synthetic chemistry of polymers, biopolymers, and mechanical behavior of plastics. During IAP, PPST students were 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 and the US Air Force Research Laboratory. Professors Krystyn Van Vliet and Darrell Irvine, both from the Department of Materials Science and Engineering, were in charge of organizing of this seminar series and agreed to continue for the coming year.

In his fourth year as PPST director, professor Gareth McKinley of mechanical engineering continued his efforts 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 to recruit incoming students to PPST from additional departments at MIT were made. This year, offers were made to students in two departments. Additionally, a second gift of $6,000 from Schlumberger was successfully solicited and will be used to sponsor a student poster competition in polymer research during fall 2008. Professor McKinley looks forward to a successful year of interdisciplinary engagement and organizational growth in the year ahead.

Gareth H. McKinley
Director
Professor of Mechanical Engineering

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