

Report of the President

This year saw many achievements at the Institute. The convergence of engineering and life sciences continued to produce exciting opportunities, including the introduction of the newest undergraduate major, in biological engineering. The Institute also strengthened its financial commitments to eligible undergraduate students by announcing a matching program for Federal Pell Grants. Research highlights included the report of the Energy Research Council and its blueprint for a campus-wide Energy Initiative. In these and other important areas, the Institute continued activities that advance discoveries for the betterment of the world.

Undergraduate and Graduate Education

Student Enrollment

The Institute received 11,374 applications for the class of 2010, an increase of 9 percent over last year and the first significant increase in application numbers in more than five years. Thirteen percent of the applicants were admitted and 1,003 enrolled. Among the enrolled students, 45 percent are women, 21 percent are underrepresented minorities, 89 percent graduated in the top 5 percent of their high school classes, and 44 percent were valedictorians. Seventeen percent of enrolled students represent the first generation in their families to attend college.

Financial Aid

The Institute remained committed to its policy of need-blind admissions for every undergraduate student who has the talent and determination to thrive at MIT. With anticipated reductions in federal support through the Pell Grant Program, the Institute announced that it will further strengthen its commitment to need-blind access by matching Federal Pell Grants for all eligible students beginning in fall 2006. This decision was made to help students who would otherwise see the maximum amounts for their individual Pell Grants frozen despite continued increases in the cost of higher education. The new MIT Pell Matching Grant will double the amount each Pell recipient receives; it represents an additional institutional commitment of approximately \$1.5 million per year. It will also significantly reduce the indebtedness of the neediest students. Future fundraising will be directed toward providing financial flexibility in these times of constrained federal funding, with specific focus on raising endowment funds for scholarships and student financial aid. This effort is aligned with the Institute's longstanding belief that adequate need-based student aid, especially in the form of scholarships, is essential if this country is to develop the talents of our young people to the fullest.

Faculty

Many of the Institute's faculty members are at the forefront of their respective areas of study and with regularity receive recognition from their peers. While all of the awards received by our faculty in any year are too numerous to list, the award of the Nobel Prize in chemistry to Richard R. Schrock, the Frederick G. Keyes Professor of Chemistry must be noted. Professor Schrock was one of three winners of this year's 2005 Nobel Prize in chemistry, cited for his development of catalysts for metathesis, a chemical reaction, that

has led to faster, less toxic industrial processes for pharmaceuticals and plastic coatings. His work provides an example of how basic research, pursued out of curiosity and the desire to understand and modify structures, can have tremendous, and unanticipated, public benefits. Professor Schrock is the ninth member of the faculty to win a Nobel Prize since 1990 and the fourth since 2001. The number of Nobel Prize-winning MIT faculty is unmatched by any other university. That six of MIT's nine Nobel Prize winners joined the Institute in junior faculty positions and grew their talent at MIT reflects the Institute's culture of hiring, stewarding, and promoting excellence.

Also this year, Stephen J. Lippard, the Arthur Amos Noyes Professor of Chemistry, and Institute Professor Phillip A. Sharp, a Nobel Prize laureate, received the 2004 National Medal of Science. The 2004 medals were announced in 2005 and awarded at a ceremony at the White House on February 13, 2006. Professor Lippard was recognized for his pioneering work in bioinorganic chemistry and Institute Professor Sharp was recognized for his discovery of RNA splicing. The MIT faculty now includes eight winners of the National Medal of Science, along with another four faculty emeriti. The National Medal of Science is the country's highest honor for scientific achievement.

Minority Faculty Recruitment and Retention

Identifying and retaining the most accomplished scholars and teachers is an ongoing priority for the Institute, and the importance of diversity within the faculty cannot be overemphasized. Diversity is among the fundamental guarantees of the Institute's continued excellence and leadership in the world. For this reason, Provost L. Rafael Reif announced the appointment of three committees to advance the agenda of minority faculty recruitment and retention. This effort, which will work with the existing Council on Faculty Diversity, will include a new Committee on Minority Faculty Recruitment that will be co-chaired by Professors Paula T. Hammond and Akintunde Ibitayo Akinwande. Professor Wesley L. Harris will chair a new Committee on the Retention of Minority Faculty. Professor Rafael L. Bras will lead a review of the Dr. Martin Luther King Jr. Visiting Professors and Scholars Program. The Institute faculty has not yet achieved a sufficient level of diversity, and we believe that the ongoing modification and improvement of our recruitment and retention efforts will help MIT build an unparalleled community of thinkers and teachers.

Research Initiatives

Energy Research Council

As part of the Institute's efforts to accelerate a global shift toward sustainable energy in the 21st century, MIT charged an [Energy Research Council](#) (ERC) to bring together and to expand MIT's efforts to address the world's mounting energy challenges. The ERC is co-chaired by Professor Robert Armstrong of the Department of Chemical Engineering and Professor Ernest J. Moniz of the Department of Physics and the Engineering Systems Division; it includes 16 faculty members, representing all five Schools. The council surveyed energy-related expertise across the Institute and compiled an inventory of current energy-related research at MIT. Their study included a series of high-level colloquia on campus, as well as workshops to bring industry perspectives to bear on the council's work. At the Institute-wide Energy Forum in May, the ERC proposed a

compendium of promising research areas, matching MIT's capabilities to global needs. Enthusiasm for the energy initiative has been widespread. More than 100 faculty members contributed energy white papers, while the 300 members of the student-led MIT Energy Club sponsored 100 events during the year, including the daylong Energy Forum, which drew 800 attendees. Alumni interest is also strong. As a capstone to the Energy Forum, United States Secretary of Energy (and former Corporation life member) Samuel A. Bodman '65 spoke on the federal government's approach to the energy crisis.

The Convergence of Engineering with the Physical and Life Sciences

With interest growing in new strategies to tackle biological and biomedical challenges, in 2001 the Institute launched the Biological Engineering Division, which was formerly the Division of Bioengineering and Environmental Health. The expansion and success of the Biological Engineering Division led to this year's launch of the Institute's newest undergraduate course of study: Course 20, Biological Engineering. The extraordinary popularity of the new major in biological engineering, with 128 students enrolled, underscores the power and the attraction of the convergence of engineering with the physical and life sciences. The importance of Course 20 to leading-edge research is already clear, and the new course of study augurs well for its success as a pillar of the School of Engineering, which continues to top the annual *U.S. News and World Report* rankings.

In seizing opportunities to improve health and quality of life through the convergence of the life, physical, and engineering sciences, alumni, friends, and funding agencies alike recognized the importance of supporting MIT research to solve the great problems in medicine and world health. Donors of extraordinary vision and generosity helped move the Institute forward in this work with a series of remarkable gifts. Supplementing an extraordinary initial gift of \$100 million to MIT, Edythe and Eli Broad gave a second \$100 million to Harvard University as an expression of their enthusiasm for the accomplishments of the Broad Institute of MIT and Harvard in its first 18 months of existence, under the leadership of Professor Eric Lander. The combined gift will be distributed at \$20 million per year over 10 years to support the Broad Institute in bringing "the power of genomics to biology and medicine." The Broad Institute's new research facility on Main Street opened in spring 2006. Strategic investments like these help to pioneer new directions to advance knowledge and support innovation.

The convergence of engineering with the physical and life sciences holds the promise for unprecedented advances in biomedicine, including new approaches to the diagnosis, monitoring, and treatment of cancer. The Institute will continue to pursue these and other opportunities in this important field.

Data-Based Strategy to Alleviate Poverty

This year, the Institute established the [Abdul Latif Jameel Poverty Action Lab](#), dedicated to poverty alleviation and development economics. Centered in the Department of Economics under the leadership of Professors Esther Duflo and Abhijit Banerjee, the Abdul Latif Jameel Poverty Action Lab seeks to combat global poverty by using randomized, controlled evaluations, similar to those used in drug trials, to determine the effectiveness of poverty alleviation programs. Under this paradigm, data-derived analysis can provide guidance to policymakers.

Campus Development

The architecture of the MIT campus supports and encourages the Institute's culture of collaboration. The siting and design of campus buildings has historically bolstered the processes of discovery and innovation, enabling the Institute to make great contributions to knowledge and society. As the Institute approaches the centennial of the original 1916 Cambridge campus, this architecture continues to play a central role in the intellectual life of the Institute. We have begun the very demanding, but critically important, work to develop an evolving framework for the renewal of existing buildings and for the design of new facilities that contribute to the evolution of the MIT campus.

Brain and Cognitive Sciences Complex

MIT celebrated the opening of its new brain and cognitive sciences complex in December. The complex provides a home for the McGovern Institute for Brain Research, the Picower Institute for Learning and Memory, and the Department of Brain and Cognitive Sciences. This complex is located on Vassar Street, across from the Ray and Maria Stata Center, which is home to the Computer Science and Artificial Intelligence Laboratory and the Department of Linguistics and Philosophy. The expectation is that the physical proximity between these two buildings will facilitate productive research connections.

Several celebrations marked the dedication of this magnificent addition to campus. Among them, the McGovern Institute symposium featured talks by Nobel laureates Eric R. Kandel of Columbia University and Institute Professor Phillip A. Sharp, as well as United States Senator John Kerry, Jane Pauley of NBC News, and Ethernet inventor Robert A. Metcalfe '68. The Picower Institute held a daylong symposium, "The Future of the Brain," that explored the frontiers of neuroscience research. It featured five Nobel laureates, including Susumu Tonegawa, director of the Picower Institute, and James D. Watson, chancellor of Cold Spring Harbor Laboratory. In addition, the Department of Brain and Cognitive Sciences celebrated the 40th anniversary of its graduate program with a symposium, "Looking Back, Looking Forward: Shaping Neuroscience and Cognitive Science," which highlighted the department's interdisciplinary approach to understanding the brain and mind in health and in disease. The Institute is deeply indebted to the McGovern and Picower families for their visionary philanthropy.

The relocation of the Department of Brain and Cognitive Sciences to the new brain and cognitive sciences complex allowed for the renovation of Building E25 and enabled the Harvard–MIT Division of Health Sciences and Technology to consolidate and expand. Building E25 renovations also created new space for faculty and researchers from the Department of Earth, Atmospheric, and Planetary Sciences.

PDSI and Vassar Street Projects

Construction of the Physics/Department of Materials Science and Engineering/Spectroscopy Infrastructure (PDSI) project continued this year with the completed sections occupied almost immediately. The new building provides an architecturally stunning home for the [Green Center for Physics](#), and it also consolidates departmental space to encourage interaction among faculty, students, and staff. It sets a model for an approach to future improvements to the William W. Bosworth's Main Group complex.

As the 2016 centennial of Bosworth's creation draws near, the complete renovation and restoration of the Main Group stands as an important goal.

The Institute will begin the upgrade and beautification of Vassar Street west of Massachusetts Avenue this summer. The Vassar Streetscape West project will provide a welcoming gateway to the residential and athletic facilities of west campus, while transforming Vassar Street into a comfortable route for bicycles and pedestrians.

Construction of a new graduate residence at the corner of Albany and Pacific Streets has also been approved. The new residence will enable the conversion of the current Ashdown House graduate residence into undergraduate housing. As the year drew to a close, successful fundraising made it possible to finalize construction plans for two more facilities: A new building for the Sloan School of Management will support a curricular emphasis on collaboration and active learning environments; and an extension will provide much needed additional space for the Media Lab. The Media Lab extension, adjacent and connected to the existing Wiesner Building, will also permit the relocation of selected School of Architecture and Planning programs.

Institute Outreach

This year called on the Institute to reach out to those in need. When Hurricane Katrina struck the Gulf Coast of Alabama and Louisiana in August 2005, it ranked as one of the five deadliest hurricanes in United States history. It was a clear call to action for our students, faculty, and staff, who responded with a combination of energy and creative insight that is characteristic of the Institute. They produced a combination of support for relief efforts, service projects, and new educational and research initiatives. To coordinate and amplify these efforts, Chancellor Phillip Clay and Vice President and Secretary of the Corporation Kathryn Willmore convened a Katrina Response Working Group that sponsored a series of symposia and other activities. The Institute hosted 10 undergraduates and 15 graduate students from the stricken area as special visiting students for the fall term, waiving tuition and fees and providing housing. Bench space was made available in our labs for many of the faculty, postdocs, and graduate students affected in the Gulf Coast region.

Several faculty members figured prominently in media reports and discussions about the hurricane. In particular, Professor Kerry Emanuel of the Department of Earth, Atmospheric, and Planetary Sciences, already a major spokesperson on hurricanes and global warming, became even more so following the September 2005 publication of his book *Divine Wind: The History and Science of Hurricanes*. Professor Yossi Sheffi of the Center for Transportation and Logistics discussed the resilience of organizations in natural disasters, and Professor Lawrence Vale, head of the Department of Urban Studies and Planning, provided his expertise on how cities can recover from disasters.

Closing Thoughts

The outstanding work of the Institute's faculty, scholars, and students continues to advance the progress of science and technology in the world. Hurricane Katrina's destructive effects highlight today's pressing challenges in energy, urban infrastructure, and many other domains that are engaged at MIT. The Institute's distinctively

interdisciplinary approach, exemplified by its work at the intersection of the life sciences, physical sciences, and engineering, will continue to generate creative insights and innovations. MIT must continually rededicate itself to education that prepares its students to be the leaders of a world that is increasingly dependent upon, and interconnected through, technology.

Susan Hockfield
President