

Provost

Academic year 2007–2008 saw a number of changes among the administrative leadership positions at MIT and several new initiatives related to the advancement of our research and educational programs, including some with corporate partners and others with international dimensions. The Institute proceeded with the current phase of campus development that includes the construction of major academic facilities to accommodate our core research and educational activities. The Institute ended the fiscal year on a strong financial footing, in terms of both the general budget and research revenues. This report attempts to describe some of the important events and accomplishments in these and other areas of the Institute.

People

Continuing as members of the provost's senior staff were vice president and associate provost Claude Canizares and associate provost Philip Khoury.

Israel Ruiz, previously director of finance, was appointed vice president for finance on July 1, 2007.

Marc Kastner, Donner professor of science and head of the Department of Physics, began his appointment as dean of the School of Science on July 1, 2007, succeeding Robert Silbey.

Subra Suresh, Ford professor of engineering in the Department of Materials Science and Engineering, began his appointment as dean of the School of Engineering on July 1, 2007, succeeding Thomas Magnanti.

Barbara Liskov, Ford professor of engineering in the Department of Electrical Engineering and Computer Science, and Wesley Harris, Charles Stark Draper professor of aeronautics and astronautics and formerly head of the Department of Aeronautics and Astronautics, were selected to share the newly created office of Associate Provost for Faculty Equity. Professor Liskov's appointment took effect July 1, 2007, and Professor Harris' appointment took effect on February 16, 2008. As associate provosts for faculty equity and as members of the Academic Council, Professors Liskov and Harris focus on faculty diversity and gender issues across the Institute, including the recruitment, retention, promotion, and career development of minority and women faculty.

Robert Randolph was formally installed as MIT's first chaplain to the Institute on September 30, 2007. Mr. Randolph previously was senior associate dean in the Division of Student Life.

David Schmittlein was appointed John C. Head III dean of the MIT Sloan School of Management, effective October 15, 2007. Professor Schmittlein, who previously served as deputy dean of the University of Pennsylvania's Wharton School, is a specialist in market research. We are very grateful to Steven Eppinger, deputy dean in the Sloan School and General Motors LFM professor of management, for his service as interim dean prior to Dean Schmittlein's arrival.

Stuart Schmill was appointed dean of admissions in March 2008 after having served as interim director of admissions during the preceding year.

Steven Lerman, Class of 1922 distinguished professor of civil and environmental engineering, was appointed vice chancellor, effective July 1, 2008. He will also continue in his position as dean for graduate education. In his additional role as vice chancellor, he will act as a full deputy in support of the chancellor on operational issues related to students and education.

Professor Martin Schmidt of the Department of Electrical Engineering and Computer Science was named to succeed Lorna Gibson as associate provost, effective July 1, 2008. Professor Schmidt's responsibilities will include the oversight of space planning, allocation, and renovation across the Institute as well as the management of faculty development, renewal and grievance policies and procedures, building on the strong foundations that Professor Gibson developed in all these areas. Professor Gibson will return to the Department of Materials Science and Engineering, where she is the Matoula S. Salapatas professor.

Larry Benedict will retire as dean for student life in August 2008. The Institute is extremely grateful to Larry for his many years of outstanding effort on behalf of MIT students.

We were greatly saddened this year by the deaths of Professor Jin Au Kong of the Department of Electrical Engineering and Computer Science; Professor J. Mark Schuster of the Department of Urban Studies and Planning; Louis Menand, who was a former special assistant in the provost's office; and Herb Pomeroy, founder of the MIT Festival Jazz Ensemble.

Academic Programs

Many new developments transpired in the academic areas during AY2008. Described below are some of the most prominent activities. Please refer to the separate reports of individual academic units for detailed information about these areas.

Ground was broken this past year for the new David H. Koch Institute for Integrative Cancer Research, the cornerstone of a major new research initiative made possible by a \$100 million gift from David H. Koch (SB 1962, SM 1963), one of the largest gifts in MIT's history. The Koch Institute will be unique in its approach of bringing scientists and engineers together under a single research effort which aims to identify new approaches to cancer detection, treatment, and prevention. The new institute is scheduled to open in 2010.

The Legatum Center for Development and Entrepreneurship was created this year to support business and technological advancement in the developing world. Based on a structured gift of \$50 million from Legatum, a private firm that invests in initiatives that encourage sustainable development, the Legatum Center is designed to provide a locus for aspiring entrepreneurs to develop innovative businesses in emerging societies. The new center announced its first class of 12 Legatum Fellows for the 2008–2009 academic

year, comprised of incoming and current MIT graduate students who seek to develop the skills and knowledge necessary for pursuing enterprise solutions to difficult market challenges in low-income areas of the world.

Following detailed plans announced last year, the Singapore-MIT Alliance for Research and Technology (SMART) Centre was officially established in January 2008, formalizing a close collaboration between MIT and the National Research Foundation of Singapore. The SMART Centre represents MIT's largest international research program and the first MIT research center of its kind located off campus. Two of the five interdisciplinary research groups planned under SMART have now been established, one in infectious diseases, and the other in environmental sensing and modeling, with a third group expected to be formed in fall 2008.

The MIT Energy Initiative (MITEI), established last year to address global energy issues, announced the formation of three important partnerships aimed at critical areas of energy research. MIT and BP are collaborating on a major research effort focused on energy conversion technologies, with BP also becoming the inaugural founding member of MITEI through this partnership. Building on an existing MIT alliance with the Ford Motor Company, a new research partnership with Ford was established which focuses on automotive powertrain, fuel, and energy technologies. With this partnership, Ford became the inaugural sustaining member of MITEI. MIT has also established a partnership with the government of Portugal to encourage the development of sustainable energy technologies and transportation systems, among other areas of research. Portugal thus became the inaugural sustaining public member of the Energy Initiative.

The Novartis-MIT Center for Continuous Manufacturing was created this year as a long-term research collaboration intended to develop new technologies to improve the production of pharmaceuticals. Through this partnership, Novartis has committed an investment of \$65 million over the next 10 years to support research programs at the Center, which will involve MIT faculty, students, and scientific staff working closely with Novartis manufacturing and research and development staff.

OpenCourseWare (OCW), MIT's online open publication of its academic course content that was launched in 2001, reached the milestone this past year of publishing the core materials of virtually all MIT courses, 1,800 in total. It is estimated that 35 million individuals have accessed OCW since its inception, with roughly 60% of its usage coming from outside the US, demonstrating this resource's global reach.

The Institute announced changes in financial aid policies for undergraduate students, effective in the 2008–2009 academic year. Under the new policies, admitted students whose families earn less than \$75,000 a year will have all of their tuition covered by MIT, and families earning less than \$100,000 will no longer have their home equity included in determining their need. These new policies recognize the growing challenges that many families face in financing college education, and reaffirm MIT's commitment to admit all undergraduates on the basis of academic merit alone, without considering their ability to pay tuition.

Upon the recommendation of the Committee on the Undergraduate Program, the faculty voted to establish double majors for undergraduates who complete the requirements of two department programs, replacing the current policy of awarding two separate degrees to such students. Double degrees will be eliminated beginning with the class of 2012.

A new graduate program in microbiology was established this year, bringing together faculty members from 10 MIT departments and divisions who use microbes in their scientific or engineering research. The new program began accepting applications for admission for the fall 2008 term.

Following a successful five-year probationary period, the SB degree program in comparative media studies was approved as a permanent program.

Karl Taylor Compton Lectures were delivered in 2008 by Tom Brokaw, former anchor and managing director of NBC Nightly News, and by Jeff Bingaman, US Senator from New Mexico. The Compton lecture series was established in 1957 to honor the late Karl Taylor Compton, who served as president of MIT from 1930 to 1948 and as chairman of the Corporation from 1948 to 1954.

Facilities

The Institute continued this past year to undergo a renewal of its physical environment through the construction of new buildings and the renovation of existing facilities.

The new Green Center for Physics, the cornerstone of a major renovation project which also included upgraded facilities for the Department of Materials Science and Engineering and the Harrison Spectroscopy Laboratory, was dedicated in fall 2007.

The MIT Museum celebrated the opening of a 5,000-square-foot addition to its facilities, which houses the Mark Epstein (SB '63, SM '64) Innovation Gallery, a new program and activity area, and a new museum store.

Construction continued on a new 550-bed graduate student residence at 235 Albany Street, which is scheduled for completion in summer 2008.

Plans were announced for a major renovation of Ashdown House, MIT's oldest graduate residence hall, which will convert this building into an undergraduate residence. The work is scheduled to begin in fall 2008 and continue for two years.

As mentioned above, groundbreaking took place this year for the David H. Koch Institute for Integrative Cancer Research. Construction continued on the new Media Lab facility, which is scheduled to open in 2009, and on the new building to house the Sloan School of Management, which is expected to be completed in 2010.

Task Force and Committee Activities

Following its establishment in spring 2007, the Initiative on Race Matters and Underrepresented Minority Faculty at MIT has engaged in the rigorous study of the ways in which race affects the recruitment, retention, professional development, and

institutional experiences of underrepresented minority faculty members at MIT. The Race Initiative Committee, which is comprised of faculty members representing each of MIT's five schools, issued a preliminary report in July 2007 which provided a detailed plan for carrying out the study, and also included some practical recommendations for aiding minority faculty recruitment and increasing the awareness within academic departments of the career development needs of existing junior minority faculty. The committee proceeded throughout the year to collect quantitative data on key parameters related to minority faculty appointments and to hold a series of faculty forums designed to encourage candid discussions on the impact of race on faculty life at MIT. Resources were provided to the committee to enable the addition of dedicated professional scholars to help coordinate the collection of data and the overall research effort. The committee intends to produce a final report identifying specific ways for the Institute to strengthen its recruitment and retention of minority faculty and to maximize the quality of professional life for these faculty at MIT.

The Committee to Assess Environmental Activities at MIT, convened in 2007, submitted its final report, entitled "Creating a Sustainable Earth: An MIT Research, Teaching, and Public Service Initiative for Understanding, Restoring and Managing the Environment." As its name implies, the report offers a comprehensive examination of activities related to the environment already underway at MIT, and provides a set of recommendations for organizing and integrating these activities in ways which will both add to their intellectual strength and enhance their visibility inside and outside MIT. The report discusses the importance of emphasizing sustainability within environmental studies, points out the need to balance our environmental efforts among research, application and teaching, and identifies the potential intellectual synergies between our environment-related activities and the MIT Energy Initiative. Plans are currently underway to implement the report's recommendations and work with the faculty toward a common goal of advancing our accomplishments in this area.

The International Advisory Committee has continued its efforts to assess MIT's increasing international activities in research and education and to develop a comprehensive framework for evaluating, prioritizing, and administering these activities as they arise. The committee intends to submit a report to the president and provost in the coming year.

Faculty

Nine faculty members retired from MIT at the end of AY2008.

Faculty recruitment continued at a strong pace this past year. A total of 51 new faculty (36 men, 15 women) began their MIT appointments during 2007–2008. Also this year, 20 faculty members were awarded tenure within MIT, including four women and four members of underrepresented minority groups. These promotions to tenure are effective July 2008.

The Institute announced the establishment of a Faculty Renewal Program designed to enable eligible senior faculty members to retire voluntarily with a choice of retirement incentives. The program will be in effect for a period of three years beginning in 2009.

The James R. Killian, Jr., Faculty Achievement Award is the highest honor bestowed by the MIT faculty on one of its own members. It was established in 1971 “to recognize extraordinary professional accomplishments by full-time members of the MIT faculty.” The Killian Award for 2007–2008 was awarded to John Dower of the History Faculty, who delivered the 36th annual Killian Award lecture in April 2008. Professor Dower, a specialist in modern Japanese history and winner of a Pulitzer Prize for general nonfiction, is the Ford International professor of history. In May 2008, it was announced that Rafael Bras, who is the Edward A. Abdun-Nur professor in the departments of Civil and Environmental Engineering and Earth, Atmospheric and Planetary Sciences, is the Killian Award recipient for 2008–2009.

The Harold E. Edgerton Faculty Achievement Award is the highest honor bestowed by the MIT faculty on one of its own junior faculty members. The Edgerton Award, a tribute to the late beloved inventor and photographer “Doc” Edgerton, recognizes exceptional distinction in teaching and research. The 2008 winner of the Edgerton Award was Professor Jay Scheib of the Theater Arts faculty.

Five faculty members were appointed as Margaret MacVicar Faculty Fellows this year in recognition of their outstanding contributions to the quality of undergraduate education at MIT. These awardees were Tania Baker, Department of Biology; W. Craig Carter, Department of Materials Science and Engineering; Sanjay E. Sarma, Department of Mechanical Engineering; Stephen J. Tapscott, Literature Section; and Barton Zwiebach, Department Physics. These additions bring the total number of active fellows to 45, with 30 emeritus fellows, who together form a small academy of scholars committed to excellent teaching and innovation in education. The 2008 MacVicar Day celebration included an address by Carl E. Weiman SB '73, a professor at the University of British Columbia who received the 2001 Nobel Prize in physics.

The Dr. Martin Luther King, Jr. Visiting Professor Program was established in 1995 to recognize the many contributions of outstanding minority scholars in the academy, to enhance their scholarship through intellectual interactions with MIT peers, and to enrich the intellectual life of MIT through their participation in MIT research and academic programs. The 2007–2008 Dr. Martin Luther King, Jr. visiting professors were: Dereje Agonafer, Mechanical Engineering; Tewodros Amdeberhan, Mathematics; Don Byron, Music and Theater Arts; Ana Castillo, Writing and Humanistic Studies and Women’s and Gender Studies; William Harris, Urban Studies and Planning; Dale Joachim, Media Arts and Sciences; Ainissa G. Ramirez, Materials Science and Engineering; and Dwight Williams, Nuclear Science and Engineering and Political Science. In addition, five visiting scholars were sponsored by the program: Melissa Blanco Borelli, Music and Theater Arts; Brenda Dixon-Gottschild, Women’s and Gender Studies; Frank Espinosa, Media Arts and Sciences and Writing and Humanistic Studies; Eugene “Gus” Newport, Urban Studies and Planning; and Wilton Virgo, Chemistry.

Numerous faculty were honored with outside awards, highlighted by the following:

Olivier Blanchard, Class of 1941 professor of economics, was appointed chief economist of the International Monetary Fund.

Junot Diaz, professor in the Program in Writing and Humanistic Studies, received the Pulitzer Prize for fiction for his novel, “The Brief and Wondrous Life of Oscar Wao.”

Ahmed Ghoneim, Ronald C. Crane professor of mechanical engineering, was selected to receive a \$10 million, five-year award from the King Abdullah University of Science and Technology for the support of research on advanced energy conversion systems.

Institute Professor Robert Langer received the Millennium Technology Prize as well as the Max Plank Research Award, for his development of innovative biomaterials.

Graduate Student Fellowships

The Presidential Graduate Fellowship Program provides full financial support to many of the of the Institute’s most promising first-year graduate students. In AY2008 the Presidential Graduate Fellowship Program awarded 102 fellowships over a wide range of MIT’s academic departments. Following is a list of those fellowships which are named for individual and corporate donors and a table showing the AY2008 distribution of fellowships across the academic areas.

- Akamai Technologies, Inc. (Mathematics and EECS)
- Agencourt Bioscience Corp. /Alnylam Pharmaceuticals
- Homer A. Burnell (Architecture and Urban Planning)
- Richard A. Denton
- Robert T. Haslam (Chemistry and Chemical Engineering)
- J. Kenneth Jamieson
- Grayce B. Kerr Fund in honor of Charles M. Vest
- The Kurtz Family Foundation in honor of Charles M. Vest
- James A. Lash
- William M. Layson (Physics)
- Edward H. Linde (Civil and Environmental Engineering)
- Curtis Marble
- Samuel H. and Luleta Maslak
- Momenta Pharmaceuticals
- Neurometrix. Inc.
- The Picower Foundation in honor of Norman B. Leventhal
- Charles A. Piper
- Praecis Pharmaceuticals, Inc. (Biology and the School of Science)
- Walter A. Rosenblith

- Kenan Sahin (Humanities, Arts, and Social Sciences)
- Henry E. Singleton (Brain and Cognitive Sciences)
- Craig and Rose Tedman for Robert M. Rose
- Edward Clark Walsh (Chemical Engineering)

Presidential Graduate Student Fellowships, by School/Area

School/Area	AY2008
Architecture and Planning	14
Engineering	24
Humanities, Arts, and Social Sciences	22
MIT Sloan School of Management	1
Science	38
Vice President for Research	3
Total	102

In addition, the Lemelson Foundation provided funding for 11 underrepresented minority students with interests in engineering innovation, and these fellowships were intended for incoming students. The School of Engineering designates the Lemelson Foundation Fellowships as part of the Presidential Fellowship Program. The DuPont-MIT Alliance supported 10 fellowships, which are also designated as Presidential Fellowships and are allocated to science and engineering disciplines. In addition, five students (one in each school) held Provost's Women and Minority Fellowships.

In order to build community among the fellows, the Society of Presidential Fellows hosted several events during the academic year, including beginning- and end-of-year receptions, and a lecture and dinner series cosponsored by the Sidney-Pacific Graduate Residence.

Fundraising for the Presidential Fellowship Program continued to be a high priority of the Institute. This past year a generous pledge of \$30 million was received from Irwin Mark Jacobs and Joan Klein Jacobs for the purpose of endowing Presidential Fellowships for the School of Engineering. The first awards of these new Jacobs Fellowships will be reflected in next year's report.

Finances

MIT tuition was increased by 4% to \$34,750 in AY2008. Following a policy begun in 2007, the level of self-help the Institute requires of students who receive federal Pell grants was reduced, so that the students who rely most heavily on financial aid were protected from an increased financial burden. Approximately 58% of all MIT undergraduates received some form of financial aid this year.

The new Institute budgeting method, referred to as rebalancing, was implemented in AY2008, providing a larger than normal increase in the endowment distribution rate in exchange for an equivalent reduction in general budget allocations to departments. This allowed the Institute to realize greater access to unrestricted general funds while preserving the purchasing power of individual departments, laboratories and centers. We expect that the success of the rebalancing method this year will provide a strong foundation for our annual budgeting process going forward.

The market value of investments in the Institute's endowment increased from \$9.98 billion at the close of AY2007 to \$10.11 billion at the end of AY2008, an increase of 1.3%. In the context of budget rebalancing, a one-time recalibration of endowment income distribution and a change in endowment spending policy approved by the Executive Committee enabled a 30.9% increase in the distribution rate in fiscal year 2008, with a similar rate increase planned for fiscal 2009.

While it remains challenging to identify resources to support expanded or new activities, the Institute's overall financial position remains strong. Fundraising continues to play a critical role in enabling our academic units to pursue new areas of research and education. For AY2008, the Provost's Office was able to provide a total of approximately \$3.5M for increases to the budgets of the academic areas, and an additional \$6.3 million for various programmatic and unrestricted purposes. Looking ahead, the Institute's budget for AY2009 reflects an anticipated operating surplus, adding to our flexibility to support future research and educational initiatives.

Research

Expenditures on sponsored research conducted on campus rose to \$643M in AY2008, an increase of 7.5% over the 2007 volume of \$598M. The federal government continues to be the largest sponsor of campus research funding, accounting for approximately 75% of the total volume. The National Institutes of Health, part of the Department of Health and Human Services, is the single largest sponsor of campus research with an approximate 35% share of total research expenditures, reflecting the continuing strength of research activities in the life sciences and neuroscience, and the collaboration of these disciplines with areas of engineering. The Department of Defense was the second largest sponsor (14% of total expenditures), followed closely by industrial sponsors (13%), the Department of Energy (10%), and the National Science Foundation (10%).

Lincoln Laboratory research volume was \$610M in AY2008, slightly less than the 2007 volume of \$612M.

This report marks the completion of my third year as provost.

L. Rafael Reif

Provost

Fariborz Maseeh Professor of Emerging Technology