

## Vice President for Research

The [Office of the Vice President for Research](#) (VPR) is responsible for stewardship of MIT's research enterprise. It seeks to foster strong, mutually beneficial relationships with groups that sponsor research, including federal agencies, Congress, industry, foundations, and foreign governments. The VPR's responsibilities also include research administration, policy, integrity, and compliance, all executed in a manner to maximize the effectiveness of, and minimize burden on, faculty and research staff. The Office of the VPR is also responsible for environmental health and safety at the Institute, as well as for postdoctoral affairs and international scholars.

In FY2016, MIT's total research volume (independent of Lincoln Laboratory) reached \$728 million, compared to \$697 million in FY2015. This is a 4.5% increase over last year. Federal funding constitutes 65.5% of the campus research expenditures, continuing the downward trend of the past few years. Significant increases in support from industry and foundations continue to mitigate decreased federal support.

Readers should consult the individual reports on each of the laboratories, centers, programs, and offices that report to the VPR to learn about research highlights and accomplishments. Some notable achievements of VPR and changes for this very productive year include the following items.

In October 2015, [MIT Climate Action](#) released the [Plan for Action on Climate Change](#), a five-year plan aimed at fighting climate change. This plan embodies the fundamental agreement across the MIT community that the problem of climate change—the subject of serious work at MIT for decades—demands society's urgent attention, and that given the Institute's mission, history, and capabilities, MIT has a particular responsibility to lead. The objective of the plan's participants is “to minimize emission of carbon dioxide, methane and other global warming agents into the atmosphere, and to devise pathways for adaptation to climate change, through the active involvement of the MIT community, proactively engaged with industry, government, academia, foundations, philanthropists and the public.” The plan focuses on five areas of climate action: research to further understand climate change and advance solutions to mitigate and adapt to it; the acceleration of low-carbon energy technology via eight new research centers; the development of enhanced educational programs on climate change; new tools to share climate information globally; and measures to reduce carbon use on the MIT campus.

Over the past year, my office has overseen the implementation of the plan that involves many offices, programs, and initiatives, including the [MIT Energy Initiative \(MEITI\)](#), [MIT Energy Solutions Initiative \(MIT ESI\)](#), and the [Abdul Latif Jameel World Water and Food Security Lab \(J-WAFS\)](#) in the VPR area.

Here are a few of the highlights of our progress with the plan over the past year:

Last Spring, we formed the Climate Action Advisory Committee. This group, chaired by me, is meant to be broadly representative of the various constituencies

across the Institute and is charged to advise and consult with me on the implementation and ongoing assessment of the plan.

The MIT Energy Initiative is making progress in establishing eight new [Low-Carbon Energy Centers \(LCEC\)](#) to advance research in specific technology areas key to addressing climate change, and is assembling their faculty teams and directors. MITEI is actively recruiting companies to join the centers. Exelon, a new MITEI Associate Member, is the first member of the LCEC.

The MIT Environmental Solutions Initiative supports climate and environmental research through a multidisciplinary seed grant program. In 2015, nine two-year grants involving 24 principal investigators were funded covering the broad areas of sustainability, metals and mining, healthy cities, and climate change risk mitigation.

Professor John Fernandez was named the director of the Environmental Solutions Initiative last October, succeeding the founding director Professor Susan Solomon. Over the past year he has built a team and has been working to expand and accelerate the ESI mission. After an extensive listening tour involving more than 90 meetings, the effort culminated in the release of the ESI Agenda, which aims to harness the MIT community's ingenuity and altruism, and the Institute's unique culture of collaboration through diverse activities in education, research, and convening.

In September, the Computer Science and Artificial Intelligence Laboratory (CSAIL) announced a new \$25 million research center funded by Toyota to further the development of autonomous vehicle technologies, with the goal of reducing traffic casualties and potentially even developing a vehicle incapable of getting into an accident.

Last fall, the Commonwealth Foundation for Cancer Research pledged \$20 million to the Bridge Project, a collaborative research program of the Koch Institute for Integrative Cancer Research at MIT and the Dana-Farber/Harvard Cancer Center, to accelerate the translation of interdisciplinary cancer solutions toward the clinic.

Advanced Functional Fabrics of America, an independent nonprofit founded by MIT, won a national competition last March for new, \$317 million public-private partnership with \$75 million in federal funding to create the eighth Manufacturing Innovation Institute in the United States. It is designed to accelerate innovation in high-tech, US-based manufacturing involving fibers and textiles. Professor Yoel Fink, director of MIT's [Research Laboratory of Electronics](#), led the proposal for the Institute. The partnership includes 32 universities, 16 industry members, 72 manufacturing entities, and 26 startup incubators, spread across 27 states and Puerto Rico. MIT is currently assisting the new institute.

The MIT [Center for Environmental Health Sciences](#) received word last spring that its funding as a Core Center by the National Institute of Environmental Health Sciences has been renewed for five years.

With a gift from Curtis and Kathleen Marble, the Koch Institute launched the Marble Center for Cancer Nanomedicine. The Center, under the leadership of Professor Sangeeta Bhatia, brings together leading faculty from the Koch Institute for Integrative Cancer Research to focus on grand challenges in cancer detection, treatment, and monitoring that could benefit from the emerging biology and physics of the nanoscale.

In June 2016, the report, [Convergence: The Future of Health](#), which proposes innovative strategies for an integrated approach to scientific research that could lead to advances in biomedicine, health, and related fields was released. MIT hosted a forum at the National Academies on June 24, 2016. This effort was co-chaired by Tyler Jacks, the David H. Koch Professor of Biology and director of MIT's Koch Institute for Integrative Cancer Research; Susan Hockfield, noted neuroscientist and president emerita of MIT; and Phillip Sharp, Institute Professor at MIT and Nobel laureate and funded by the Raymond and Beverly Sackler Foundation, The Kavli Foundation, and the Burroughs Wellcome Fund.

**Maria T. Zuber**

**Vice President for Research**

**E. A. Griswold Professor of Geophysics**