Dean, School of Science

School of Science faculty members seek to answer fundamental questions about nature ranging in scope from the microscopic—where a neuroscientist might isolate the electrical activity of a single neuron—to the telescopic—where an astrophysicist might scan hundreds of thousands of stars to find Earth-like planets in their orbits. Their research will bring us a better understanding of the nature of our universe, and will help us address major challenges to improving and sustaining our quality of life, such as developing viable resources of renewable energy or unravelling the complex mechanics of Alzheimer's and other diseases of the aging brain.

These profound and important questions often require collaborations across departments or schools. At the School of Science, such boundaries do not prevent people from working together; our faculty cross such boundaries as easily as they walk across the invisible boundary between one building and another in our campus's interconnected buildings. Collaborations across School and department lines are facilitated by affiliations with MIT's numerous laboratories, centers, and institutes, such as the Institute for Data, Systems, and Society, as well as through participation in interdisciplinary initiatives, such as the Aging Brain Initiative or the Transiting Exoplanet Survey Satellite.

Our faculty's commitment to teaching and mentorship, like their research, is not constrained by lines between schools or departments. School of Science faculty teach General Institute Requirement subjects in biology, chemistry, mathematics, and physics that provide the conceptual foundation of every undergraduate student's education at MIT. The School faculty solidify cross-disciplinary connections through participation in graduate programs established in collaboration with School of Engineering, such as the programs in Biophysics, Microbiology, or Molecular and Cellular Neuroscience. The faculty's participation in the Undergraduate Research Opportunities Program, established in 1969 by physics professor Margaret MacVicar, enables students to work across departmental and disciplinary boundaries and gain hands-on experience in basic research. Through their contributions to EdX, our faculty's commitment to excellence in education has reached beyond the walls of MIT's classrooms and laboratories to students around the world.

Initiatives and Programs

Aging Brain Initiative

Spearheaded by Li-Huei Tsai, director of the Picower Institute, and Dean Michael Sipser, the Aging Brain Initiative was established to support interdisciplinary research on Alzheimer's disease and other diseases of the aging brain. Its aim is to focus a broad range of research talent on a single goal: improving quality of life through fundamental research into how the brain ages in health and in decline. Although the number of Americans with Alzheimer's disease is predicted to increase from 5.2 million people at the present time to 13.8 million by 2050, there is neither a cure for Alzheimer's disease nor an effective means of slowing its progress. Until we know more about what causes brain functions to change with age, we will be no closer to a cure or a disease-modifying therapy. The Aging Brain Initiative seeks to address this gap in knowledge through collaborative efforts by researchers in the areas of the neurosciences, bioengineering, biology, computer science, artificial intelligence, medicine, and health policy.

Center for Brains, Minds and Machines

The Center for Brains, Minds and Machines (CBMM), a multi-institutional collaboration headquartered at MIT, aims to create a new field—the science and engineering of intelligence—by bringing together computer scientists, cognitive scientists, and neuroscientists to work in close collaboration. Led by Brain and Cognitive Science Professor Tomaso Poggio, the vision of this multi-institutional collaboration is to develop a deep understanding of intelligence and the ability to engineer it; to train the next generation of scientists and engineers in this emerging new field; and to catalyze continuing progress in and cross-fertilization between computer science, mathematics and statistics, robotics, neuroscience, and cognitive science.

Institute for Data, Systems, and Society

Launched in 2015 with participation of all five MIT Schools, the Institute for Data, Systems, and Society (IDSS) brings together researchers working in the mathematical, behavioral, and empirical sciences to capitalize on their shared interest in tackling complex societal problems. Led by Electrical Engineering and Computer Science professor Munther Dahleh, IDSS offers a range of cross-disciplinary academic programs, using tools and methodologies in statistics, information and decision systems, and social sciences to address challenges and opportunities in complex systems. IDSS research encompasses a variety of domains, including finance, social networks, urbanization, energy systems, and health analytics.

Transiting Exoplanet Survey Satellite

The first MIT-led NASA mission, the Transiting Exoplanet Survey Satellite (TESS) will monitor over 200,000 stars in search of exoplanets capable of supporting life. Faculty members in the departments of AeroAstro, Physics, and Earth, Atmospheric and Planetary Sciences will participate in the project, with support from staff in the Lincoln Laboratory. George Ricker, a principal investigator at the MIT Kavli Institute, leads the project. In November 2014, NASA cleared TESS to move into the development phase, with a planned launch in 2017.

TESS will use an array of wide-field cameras to survey the entire sky, looking for the transient dimming of stars that indicates that planets are passing in front of them. The satellite will employ a number of innovations, such as an offset, highly-eccentric orbit that oscillates close enough for high data-downlink rates and far enough away to avoid Earth's harmful radiation belts. Once TESS is in orbit, the all-sky survey will be carried out by cameras designed at the Lincoln Laboratory, containing novel CCD detectors with high signal-handling capacity and photometric accuracy and speed, also developed and fabricated at the Lincoln Laboratory. The TESS mission will provide extraordinary opportunities for MIT to raise its international profile in space science, expand its educational and research mission, and enhance MIT's strength at developing space exploration missions.

Education

MIT is exceptional among major research institutions for its dedication to undergraduate education. Unlike most leading schools of science, MIT puts great emphasis on hiring and promoting young faculty members and using undergraduate teaching as important criterion for promotion and tenure. It is not uncommon for Nobel Prize winners and others among our best researchers to teach freshman subjects. Committed to providing undergraduates with a strong science base for studies in their major, the School and its departments participate in and support a variety of programs designed to create more active, student-centered learning environments inside the classroom. For instance, the Department of Physics participates in both the d'Arbeloff Interactive Mathematics Project and the Technology-Enabled Active Learning (TEAL) program, which integrate technology into coursework to help students engage with concepts. Likewise, the Undergraduate Research-Inspired Experimental Chemistry Alternatives (URIECA) curriculum integrates cutting-edge research with core chemistry concepts.

Interdisciplinary Graduate Programs

Over the past several years, the School of Science has been working to expand educational and training opportunities for graduate students, collaborating with the School of Engineering to create innovative graduate program in fields in which MIT shows great strength. These programs allow MIT to attract the most talented students in their respective fields and to build cross-disciplinary connections among the Institute's faculty members, departments, and schools.

Biophysics

The Biophysics program trains graduate students in the application of the physical sciences and engineering to fundamental biological questions at the molecular, cellular, and systems levels. The program exemplifies the Institute-wide goal of reducing boundaries between disciplines, spanning the Schools of Science and Engineering, including the departments of Biology, Biological Engineering, Brain and Cognitive Sciences, Chemical Engineering, Chemistry, Civil and Environmental Engineering, Electrical Engineering and Computer Science, Health Sciences and Technology, Materials Science and Engineering, Mechanical Engineering, Nuclear Engineering, and Physics.

Microbiology

The Microbiology program is an interdisciplinary doctoral program in microbial science and engineering with over 50 faculty members from several departments in the Schools of Science and Engineering. Students receive training in a wide range of approaches to microbiology, including biochemistry, biotechnology, cell and molecular biology, chemical and biological engineering, computational biology, ecology, environmental biology, evolutionary biology, genetics, genomics, geobiology, immunology, pathogenesis, structural biology, synthetic biology, systems biology, and virology. This program integrates educational resources across participating departments, builds connections among faculty with shared interests, and creates an educational and research community for training students in the study of microbial systems.

Molecular and Cellular Neuroscience

The Molecular and Cellular Neuroscience training program carries out cutting-edge neuroscience research and education across multiple sub-disciplines, providing critical bridges from the molecular and cellular neuroscience field to neuro-engineering, systems neuroscience, genomics, optogenetics, and neurochemistry. The program provides elective offerings in key cross-discipline courses, such as neuroengineering, biochemistry, genetics, systems neuroscience, neuroimaging, cell biology, neural networks, quantitative biology, and neuronal dynamics, which complement less formal program aspects and bring faculty and students together with different levels of expertise and technology in studying the brain. The program graduates trainees with unique abilities to solve complex problems in basic neuroscience and neuropsychiatric disease.

EdX

In order to support MIT's goals to establish leadership in online education through our involvement with EdX and our own MITx initiative, School of Science departments continue to add to MITx curricula. This year, the Department of Physics launched 8.421.1-5x, Atomic and Optical Coherence, led by Wolfgang Ketterle, David Pritchard, and Isaac Chuang. The Department of Biology launched 7.28.2x, Molecular Biology—Part 2: Transcription and Transposition, led by Stephen Bell and Tania Baker.

Teaching Prizes for Graduate and Undergraduate Education

In order to reward individual faculty members for supporting the Institute's mission to foster strong teaching, the School awards student-nominated professors with the School of Science Prizes in Undergraduate and Graduate Teaching. This year, Larry Guth, professor of mathematics, awarded also the Teaching Prize for Graduate Education for his course 18.156, Differential Analysis. Wolfgang Ketterle, the John D. MacArthur Professor of Physics, was also awarded the Teaching Prize in Graduate Education for his courses 8.421 and 8.422, Atomic, Molecular, and Optical Physics I and II. Professor of Biology Eric Lander was awarded the Teaching Prize in Undergraduate Education for his course 7.012, Introductory Biology.

Research

Catherine Drennan, professor of chemistry and biology, solved a longstanding puzzle of how a single enzyme known as ribonucleotide reductase (RNR) generates the four chemical building blocks that make up DNA, the deoxyribonucleosides deoxyadenosine, deoxyguanosine, deoxycytidine, and thymidine (A, G, C, and T), as well as how the enzyme maintains the correct balance among them. RNR is unusual because most enzymes specialize in converting just one type of molecule to another. Using X-ray crystallography to image the enzyme as it interacted with all four ribonucleotide substrates, Drennan and her team found that the enzymes active site changes shape depending on which effector molecule is bound to a distant site on the enzyme. Effector binding promotes closing of part of the protein over the active site like a latch to lock in the substrate. If the wrong base is in the active site, the latch cannot close and the substrate will diffuse out. Not only may the study help scientists design better RNR-inhibiting anti-cancer drugs, RNR could also make a good target for antibacterial or antiviral drugs.

Jörn Dunkel, assistant professor of applied mathematics, identified an unexpected shared pattern in the collective movement of bacteria and electrons: as millions of bacteria stream through a microfluidic lattice, they synchronize and swim in patterns similar to those of electrons orbiting around atomic nuclei in a magnetic material. Dunkel and his colleagues at MIT and Cambridge University found that by tuning certain dimensions of the microfluidic lattice, they were able to direct millions of microbes to align and swim in the same direction, much the way electrons circulate in the same direction when they create a magnetic field. With slight changes to the lattice, groups of bacteria flowed in opposite directions, resembling electrons in a nonmagnetic material. The group identified a mathematic model that applies to the motions of both bacteria and electrons deriving from a general lattice field theory typically used to describe the quantum behavior of electrons in magnetic and electronic materials.

Nikta Fakhri, an assistant professor of physics, developed a noninvasive data analysis technique that can discern whether the random motion of an object inside a cell is actively or thermally driven. After tracking the conformations or locations that a structure within the cell or a particle passes through as it moves, and observing how the particle transitions back and forth between such states, Fakhri and her colleagues at MIT, the University of Göttingen, Ludwig Maximilians University of Munich, the Free University Amsterdam, and Yale University applied a fundamental principle of statistical physics to determine whether the random motions are active or thermal. Using video microscopy, they studied, frame by frame, the oscillatory motion of the flagellum of a Chlamydomonas algae. They deconstructed the backbone of the flagellum into a series of shapes, thus creating a phase space of the states the flagellum passes through as it completes an oscillatory cycle. They then counted the transitions between states. In thermal equilibrium, the back-and-forth transitions between all states must be balanced. However, they observed a clear imbalance in these transitions, confirming the already known fact that the flagellum expends energy for this active oscillatory motion. The new method will help scientists to uncover new ways in which cells dissipate energy — which, ultimately, is the key to sustaining life.

Robert Field, the Robert T. Haslam and Bradley Dewey Professor of Chemistry, measured the energy of the transition state of a chemical reaction, a short-lived, unstable state previously thought impossible to experimentally characterize. Field and his colleagues investigated a type of reaction known as isomerization, in which a molecule undergoes a change of shape. The researchers used tunable laser spectroscopy to monitor changes in the vibrations of acetylene molecules, adding energy to the system and observing the vibration of the molecules at frequencies that evolve in a predictable pattern with increasing energy. From these patterns, the researchers inferred the vibrational motion of the molecules at each energy level. As the researchers systematically explored increasing energy levels, they observed the predicted patterns until the molecules reached a carefully chosen internal energy arrangement. At this point the patterns broke down and the molecules exhibited vibrations at significantly lower frequencies than expected. Breaks in the patterns correlated with the kinds of structural changes that should be happening at the transition state between two forms of the acetylene molecule. The researchers were able to devise a formula that enabled them to predict the structure and energy of isomerization reactions, and believe that the approach could be applied to any reaction that must overcome an energy barrier.

Guoping Feng, the James W. and Patricia T. Poitras Professor of Neuroscience, reversed some of the behavioral symptoms of autism in adult mice by activating Shank3, a gene missing in about one percent of people with autism. In the study, Feng genetically engineered mice so that their Shank3 gene was turned off during embryonic development but could be turned back on by adding tamoxifen to the mice's diet. When Shank3 was turned on in young adult mice (two to four and half months after birth), they were able to eliminate some behaviors typically associated with autism: repetitive behavior and a tendency to avoid social interaction. The study suggests that the brain retains a significant degree of plasticity even into adulthood, and that it may be possible to develop effective gene therapy for individuals with Shank3-related and other forms of autism.

Nancy Kanwisher, the Walter A. Rosenblith Professor of Brain and Cognitive Sciences, discovered a link between hypersensitivity to input (a symptom of autism) and the inhibitory neurotransmitter GABA. The study, conducted with researchers at Harvard University and Massachusetts General Hospital, is the first to establish a connection between a neurotransmitter and an autistic behavioral symptom in humans. The researchers measured the difference in performance by autistic and non-autistic people on a visual task known to be more difficult to people with autism. Participants were shown two different images, one to each eye, as researchers tracked the natural oscillation between the two images. They found autistic participants switched between images less frequently and fully suppressed one of the images less often than non-autistic participants. Then, using magnetic resonance spectroscopy while participants performed the same task, the researchers found that GABA levels correlated with a better ability to suppress one image in non-autistic participants, but that there was no relationship between GABA levels and performance in autistic participants, showing that GABA is present in the brain but that the action of the GABA pathway was reduced. In addition to offering a new possible drug target, the study may also help researchers develop better diagnostic tools for autism.

Marin Soljačić, professor of physics, confirmed for the first time a kind of massless particle that features a singular point in its energy spectrum called the "Weyl point" by direct observation. The particles were first predicted in 1929 by physicist Hermann Weyl, and were thought for several decades to be neutrinos, a possibility that was ultimately eliminated by the 1998 discovery that neutrinos do have a small mass. While thousands of scientific papers have been written about the theoretical particles, there had seemed little hope of actually confirming their existence. The achievement was made possible by a novel use of a material called a photonic crystal. Precise measurements were made for the construction of a photonic crystal predicted to produce the manifestation of Weyl points — with dimensions and precise angles between arrays of holes drilled through the material, a configuration known as a gyroid structure. This prediction was then proved correct by a variety of sophisticated measurements that exactly matched the characteristics expected for such points. The finding could lead to new kinds of high-power single-mode lasers and other optical devices.

Susan Solomon, the Ellen Swallow Richards Professor of Atmospheric Chemistry and Climate Science, and a team of researchers at the Department of Earth, Atmospheric and Planetary Sciences, the National Center for Atmospheric Research, and the University of Leeds identified the first signs that the hole caused by chlorofluorocarbons (CFCs) in the ozone layer over Antarctica is healing. Because chlorine only degrades ozone in the presence of sunlight and when the atmosphere is cold enough for the chlorine chemistry to occur, ozone depletion typically begins in August, as Antarctica emerges from its dark winter. Whereas in past years, scientists have tracked ozone depletion using measurements taken in early October, when the hole is fully formed, Solomon and her colleagues believed they would get a clearer picture of chlorine's effects by looking earlier in the year, at ozone levels in September, when cold winter temperatures still prevail and the ozone hole is opening up. The team showed that as the chlorine has decreased, the rate at which the hole forms in September has slowed down, confirming that international efforts to ban the use of CFCs are having a significant positive effect.

Roger Summons, Schlumberger Professor of Geobiology, and Shuhei Ono, an associate professor in the Department of Earth, Atmospheric and Planetary Sciences, found that the Earth's atmosphere experienced the first significant, irreversible influx of oxygen 2.33 billion years ago, plus or minus 7 million years. This period marks the start of the Great Oxygenation Event, which was followed by further increases later in Earth's history. Previous estimates have placed the start of the GOE at around 2.3 billion years ago, although with uncertainties far greater than in the present study, ranging from tens to hundreds of millions of years. The study also determined that this initial rise in atmospheric oxygen, although small, took place within just 1 to 10 million years and set off a cascade of events that would ultimately lead to the advent of multicellular life.

Susumu Tonegawa, Picower Professor of Biology and Neuroscience and Director of the RIKEN-MIT Center for Neural Genetics, found that memories apparently lost to early-stage Alzheimer's may still be encoded in the brain, but cannot be easily accessed. In the study, mice in the early stages of Alzheimer's disease formed new memories just as readily as normal mice, although they could not recall them a few days later. When researchers in the Tonegawa Lab artificially stimulated the neurons encoding the memory, the mice were able to access the memory. Researchers further found that those neurons grew an abnormally small number of dendritic spines, which are small buds that allow neurons to receive signals from other neurons. The researchers were able to achieve longer-term reactivation of the "lost" memory by using optogenetics to stimulate new connections between the hippocampal neurons encoding the memory and the entorhinal cortex, a region of the brain where sensory signals that cue a memory are received. Although optogenetic techniques are too invasive to be used in human patients, the results of the study point to the promise of synapse-strengthening treatments for memory deficits caused by Alzheimer's disease.

In February 2016, scientists at the Laser Interferometer Gravitational-Wave Observatory (LIGO) announced that they made the first detection of gravitational waves, confirming a major prediction of Albert Einstein's 1915 general theory of relativity. The gravitational waves originated from the collapse of a binary black hole system, in which two black holes of about 29 and 36 times the mass of the sun collided at nearly one-half the speed of light about 1.3 billion years ago, resulting in a single, more massive black hole. A second detection of gravitational waves produced by a binary black hole system was announced in June, with more detections expected when LIGO goes back online in the fall of 2016 after undergoing upgrades to improve its sensitivity. LIGO was originally proposed as a means to detect gravitational waves by **Rainer Weiss**, professor of physics emeritus, along with Caltech profesors Kip Thorne and Ronald Drever. **David Shoemaker**, a senior research scientist at the MIT Kavli Institute, currently directs the LIGO effort at MIT. **Nergis Mavalvala**, the Curtis and Kathleen Marble Professor of Astrophysics, and **Matthew Evans**, assistant professor of physics, also made significant contributions to the effort.

Feng Zhang, the W. M. Keck Career Development Associate Professor of Brain and Cognitive Sciences and Biological Engineering, along with his colleagues at the Broad Institute, the McGovern Institute, the NIH, Rutgers, and the Skolkovo Institute of Science, characterized a new CRISPR system that targets RNA rather than DNA. The new system, which deploys a viral defense mechanism in bacteria called C2c2, will allow for greater flexibility in cellular manipulation: whereas DNA editing makes permanent changes to the genome of a cell, the

CRISPR-based RNA-targeting approach may allow researchers to make temporary changes that can be adjusted up or down, and with greater specificity and functionality than existing methods for RNA interference.

Awards and Honors

Faculty Awards and Honors

Every year, academic and professional organizations honor numerous School of Science faculty members for their innovative research, as well as their service to the community. Because this past year was no exception, the individual reports from the School's departments, labs, and centers will document these awards more completely. Several notable awards deserve additional mention here:

John Belcher, the Class of 1922 Professor of Physics, was awarded the 2016 Hans Christian Oersted Medal by the American Association of Physics Teachers. The award was given in recognition of Belcher's "tireless work with TEAL (Technology Enabled Active Learning) and Massive Open Online Courses (MOOCs)."

Alexei Borodin, professor of mathematics, was awarded the 2015 Henri Poincaré Prize by the International Association of Mathematical Physics for "his seminal contributions to the theory of big groups, to determinantal processes and most notably to the elucidation of Macdonald processes, which have important applications to the statistical physics of directed polymers, tiling models and random surfaces."

Ed Boyden, associate professor of biological engineering and brain and cognitive sciences, won the 2015 BBVA Foundation Frontiers of Knowledge Award in Biomedicine and the 2016 Breakthrough Prize in Life Sciences, both given for his work in optogenetics.

Mircea Dincă, associate professor of chemistry, was given the Alan T. Waterman Award by the National Science Foundation for his work demonstrating that metal organic frameworks (MOFs) can store electrical energy and for developing new MOFs with unprecedented conductivity.

Robert Griffin, professor of chemistry, received the 2016 E. Bright Wilson Award in Spectroscopy from the American Chemical Society in recognition of his pioneering contributions to the field of nuclear magnetic resonance spectroscopy.

Larry Guth, professor of mathematics, won the 2015 Clay Research Prize for his contributions to the field of combinatorial incidence geometry.

Eric Lander, professor of biology, was awarded the 2015 Philip Hauge Abelson Prize by the American Association for the Advancement of Science for his "extraordinary contributions to science." He was also named the 2016-2017 recipient of the James R. Killian Jr. Faculty Achievement Award.

Matthew Shoulders, assistant professor in the Department of Chemistry, received the NIH director's 2016 New Innovator Award for his project entitled, "Continuous Directed Evolution of Biomolecules in Human Cells for Medical Research."

Michael Sipser, Dean of Science and Donner Professor of Mathematics, was named a 2016 MacVicar Faculty Fellow.

Rainer Weiss, professor of physics emeritus, shared three major prizes with his fellow co-founders of the Laser Interferometer Gravitational-wave Observatory, Kip Thorne and Ronald Drever of Caltech, for the direct detection of gravitational waves: the 2016 Kavli Prize in Astrophysics, the 2016 Shaw Prize in Astronomy, and the Special Breakthrough Prize in Fundamental Physics.

In recognition of his role in developing the CRISPR-Cas9 gene-editing system, Feng Zhang, the W. M. Keck Career Development Associate Professor in Brain and Cognitive Sciences and Biological Engineering, was named a recipient of the 2016 Canada Gairdner International Award as well as a 2016 Tang Prize Laureate in Biopharmaceutical Science.

Pavel Etingof, professor of mathematics, John Gabrieli, the Grover M. Hermann Professor in Health Sciences and Technology, and Jacqueline Hewitt, professor of physics and director of the MIT Kavli Institute, were elected as members to the American Academy of Arts and Sciences.

Edmund Bertschinger, professor of physics, was elected as a fellow of the American Association for the Advancement of Science.

Ann Graybiel, Institute Professor, and Stephen Lippard, Arthur Amos Noyes Professor of Chemistry, were elected as members to the American Philosophical Society.

Professors of Biology Hidde Ploegh and David Sabatini were elected as members to the National Academy of Sciences.

School of Science Rewards and Recognition

The School of Science Rewards and Recognition program continues to acknowledge the dedication and hard work of the people who fill our departments, labs, and centers and whose efforts are the source of our prestige. The School continues its Spot Awards, which rewards employees "on the spot" for going beyond the requirements of their normal duties.

Since the Infinite Mile Award program was established in 2001, the School of Science has presented the awards to more than 300 of its members based on the nominations of grateful colleagues. This year's winners were: Melody Abedinejad (EAPS), Asha Bhakar (Picower Institute), Jacqueline Carota (Biology), Scott Morley (LNS), Danielle Randall, (Chemistry), Mary Ellen Wiltrout (Biology), and Monica Wolf (Physics).

The Infinite Kilometer, which is designated for postdoctoral researchers and research scientists, was added in 2012 to recognize their contributions both to our scientific endeavors, as well as to the MIT community as mentors and advisors to students and colleagues. This year's winners were: Ivan Amos Cali (LNS), Michael Campbell (Chemistry), Ross Corliss (LNS), Takashi Kitamura (Picower Institute), Michael Leyton (LNS), Ram Madabhushi (Picower Institute), Rebecca Masterson (AeroAstro), Efrén Navarro-Moratalla (Materials Processing Center), Madeleine Oudin (Koch Institute), Michele Pignatelli di Spinazzola (Picower Institute), Lindsey Powell (BCS), Sai Ravela (EAPS), Zach Berta-Thompson, (MIT Kavli Institute), Wenjing Wang (Chemistry), and Feng-Ju Weng (McGovern Institute).

Personnel

Appointments and Promotions

The following professors were promoted to full professor: Joseph Formaggio (Physics), Dennis Kim (Biology), Michael Laub (Biology), Peter Reddien (Biology), and Joshua Winn (Physics).

Davesh Maulik was appointed to the Department of Mathematics as a full professor.

The following faculty members were granted tenure: Oliver Jagoutz (EAPS), Markus Klute (Physics), Elizabeth Nolan (Chemistry), Philippe Rigollet (Mathematics), and Feng Zhang (BCS).

In the Department of Brain and Cognitive Sciences, Roger Levy joined the faculty as an associate professor with tenure.

The following professors were promoted to associate professor without tenure: Jeremy England (Physics), Mary Gehring (Biology), Piyush Gupta (Biology), Adam Martin (Biology), Brad Pentelute (Chemistry), Jared Speck (Mathematics), Gonçalo Tabuada (Mathematics), and Nevin Weinberg (Physics).

The following professors were appointed to the School faculty as assistant professors: Kristin Bergmann (EAPS), Steven Flavell (BCS), Michael McDonald (Physics), Andrei Negut (Mathematics), and Aaron Pixton (Mathematics).

Faculty Lunch Programs

Tenure-track faculty lunch meetings are intended to help junior faculty members meet their peers in different departments and to provide a forum for discussion of important issues. This year's meetings included discussions regarding student advising and conflict of interest and start-ups, as well as faculty presentations on the detection of gravitational waves, the dietary control of stem cells, and the study of jet substructure at the Large Hadron Collider.

School of Science Learn@Lunch Series

To provide administrative staff the support they need to do their jobs effectively as possible, the School of Science holds a monthly lunch series for staff members on a variety of subjects. This year, topics included the Supplemental 401(k) Plan, the Work-Life Center, the new MIT campaign, and a campus art tour guided by the List Visual Arts Center.

School of Science Peer Connections

The Peer Connections Program pairs new School of Science staff with mentors who will help them navigate job responsibilities, MIT policies and procedures, and Institute organization and culture. The program provides opportunities for both mentors and new employees to expand their skill sets, increase their confidence, and make connections with School of Science community members outside of their home department, lab, or center.

Michael Sipser
Dean
Barton L. Weller Professor of Mathematics