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 new 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 a means of effectively 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, health economics 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 neuroscientist 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; 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 Daleh, 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 the support from staff in the Lincoln Laboratory. George Ricker, a principal investigator at the MIT Kavli Institute, will lead 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.

Simons Center for the Social Brain

Led by Newton Professor of Neurosciences Mriganka Sur, the Simons Center for the Social Brain (SCSB) was established with the goal of understanding the neural mechanisms underlying social cognition and behavior and to translate this knowledge into improved diagnosis and treatment of autism spectrum disorders. Autism spectrum disorders are complex developmental disorders characterized by deficits in social interaction and communication, as well as repetitive behaviors and restricted interests. The social brain shapes our ability to interact with other people. To understand autism and the social brain, neural correlates of social cognition and behavior will be investigated at many levels, including molecules, cells, neural circuits, and brain modules in both humans and relevant model organisms and systems.

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 interdepartmental and 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 ambitious 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 Biology led 7.28.1x Molecular Biology: DNA Replication and Repair, led by Stephen Bell and Tania Baker. The Department of Physics launched three courses this year: 8.MechCx Introductory Physics: Classical Mechanics, led by David Pritchard, 8.05x Mastering Quantum Mechanics, led by Barton Zwiebach, and 8.EFTx (8.S851) Effective Field Theory, led by Iain Stewart.

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, Professor Rick Danheiser was awarded the prize for graduate education for his class 5.511, Principles of Chemical Science. This is Danheiser's second teaching prize, having won the undergraduate prize in 1998. Professor Bjorn Poonen was awarded the undergraduate education prize for his class 18.03, Differential Equations.

Research

The School of Science faculty made significant advances in a broad range of research fields this year, ranging from unravelling the genetics of diseases of the aging brain to developing better models of climate change to searching for the origins of dark matter. The following are but a few notable examples:

Samuel Bowring, Robert R. Shrock Professor of Geology, determined that one of the largest volcanic eruptions on Earth began 250,000 years before the asteroid strike widely believed to have killed the dinosaurs 66 million years ago, and to have continued for 500,000 years after the impact. Bowring and his colleagues at Princeton precisely dated zircon-containing rock samples collected from the Deccan Traps in west-central India. The zircon forms shortly after an eruption and contains uranium, enabling precise dating of the eruption. The results of the study suggest that volcanic eruptions may have exacerbated the hostile environmental conditions caused by the asteroid impact, since the eruptions may have released dangerous levels of volatile chemicals into the atmosphere and oceans, which could have led to ocean acidification.

Jörn Dunkel, assistant professor of mathematics, worked with Pedro Reis, associate professor of mechanical engineering and civil and environmental engineering, to develop a mathematical theory that predicts how wrinkles on curved surfaces take shape, and then confirmed the theory through experiments. They found that curvature is the main factor in the type of pattern that forms: the more curved the surface, the more the surface pattern will resemble a crystalline lattice. In a past experiment, Reis observed that as ping pong-size balls of polymer were deflated, their surface would begin to dimple in a regular polygon pattern before collapsing into a more convoluted configuration. Dunkel used the data, along with ideas from fluid mechanics and elasticity theory, to develop an equation that accurately predicts the wrinkling pattern observed by Reis. In addition to curvature, the study identified the thickness of the object's shell as the next most significant factor in wrinkle formation. The thinner the object's shell, the more convoluted the wrinkling pattern. The Dunkel and Reis groups are working together to apply their mathematical framework to more complex objects and to confirm adaptations in experiment. If they are successful, the framework will serve as a design tool for engineering complex objects with morphable surfaces.

Tyler Jacks, Director of the Koch Institute for Integrative Cancer Research and David H. Koch Professor of Cancer Research, and **Phillip Sharp**, Institute Professor and professor of biology, adapted CRISPR-Cas9 to introduce cancer-causing mutations into the livers of living mice by knocking out the genes p53 and pten, which protect cells from becoming cancerous by regulating cell growth. Mice engineered with these mutations via conventional methods develop cancer within a few months, but the overall process of engineering the mice takes more than a year and costs hundreds of thousands of dollars. The CRISPR-Cas9 method, however, produced mutations within three months of direct injection of the complex into a mouse liver. While direct injections will not work for all organs, the new technology should be adaptable to other delivery methods.

John Marshall, Cecil & Ida Green Professor of Oceanography, developed a computer simulation that may explain why the Arctic has warmed and is losing sea ice while Antarctica has cooled and may be gaining sea ice. In the model, the ocean's ability to absorb and transport enormous amounts of heat plays a critical role in this phenomenon: excess heat from greenhouse gas emissions is absorbed into the Southern ocean around Antarctica follows currents toward the equator, while the excess heat absorbed in the North Atlantic is shunted to the Arctic. In the new model, the ozone hole over Antarctica intensified winds and shifted them southward, initially cooling the sea surface and expanding the ice, suggesting that the ozone hole may have delayed warming around Antarctica for several decades. However, in the model, eventually the strong winds dredge up warmer waters from the deep ocean, bringing the initial cooling effect of the winds to a close.

Brad Pentelute, Pfizer-Laubach Career Development Assistant Professor, adapted the machinery that anthrax bacteria use for injecting toxic proteins into cells into a system for administering antibody-based cancer drugs into cells. Antibodies have been successfully transformed into cancer drugs, capable of disrupting proteins on the surface of cancer cells. However, there are many potential targets for antibodies found only inside cells and there is no universal technology for injecting antibodies inside cell membranes. Pentelute disarmed the anthrax by removing sections of two components of its toxin, the lethal factor and the edema factor, leaving behind the sections that allow the factors to penetrate cells. The excised sections were replaced with antibody mimics that can be designed to target different proteins in the cell. The researchers successfully targeted several proteins, including Bcr-Abl, which causes chronic myeloid leukemia, and hRaf-1, which is overactive in many cancers.

Advanced Laser Interferometer Gravitational Observatory (LIGO), a project led by **David Shoemaker**, a senior research scientist in the Department of Physics, went online in May 2015. **Nergis Mavalvala**, the Curtis and Kathleen Marble Professor of Astrophysics, also plays a significant role in the project. Advanced LIGO is designed for the direct detection of gravitational waves, ripples in the fabric of time and space produced by violent events in the distant universe. The direct detection of gravitational waves has not yet been accomplished, despite global participation by scientists in multiple projects. The detection of gravitational waves would allow scientists to confirm relativistic principles under extreme conditions, such as in neutron stars, black holes, and pulsars. Advanced LIGO will also be used to search for gravitational cosmic background, which would allow scientists to study the universe in its earliest moments.

Timothy Swager, John D. MacArthur Professor, developed an inexpensive portable sensor that detects gases emitted by rotting meat. Similar to a device Swager developed for detecting the ripeness of fruit, the sensors consist mostly of carbon nanotubules that have been chemically modified so that their ability to carry an electric charge changes in the presence of a particular gas. Carbon nanotubes were modified with a metalloporphyrin, a class of compounds with a central metal atom bound to several nitrogen-containing rings. In this case, researchers used a metalloporphyrin with cobalt in the center. Metalloporphyrins bind easily to nitrogen-containing compounds called amines, including the putrescine and cadaverine produced by decaying meat. Once bound to an amine, the cobalt-containing porphyrin increases the electrical resistance of the carbon nanotube, which is easily measured. In addition to being inexpensive, the new sensor uses very little power and can be employed in tandem with Swager's wireless platform that allows a smartphone to read the sensor.

Samuel C. C. Ting, Thomas Dudley Cabot Professor of Physics, led an international collaboration of scientists to analyze two and a half years' worth of data taken by the Alpha Magnetic Spectrometer (AMS) aboard the International Space Station, with results that represent a major step toward uncovering the origin of dark matter. The AMS experiment maps cosmic rays, which contain positrons, the antimatter counterparts of electrons. In this set of results, 41 billion cosmic ray events were observed, with 10 million electrons and positrons identified by the researchers. Researchers unequivocally confirmed that there are more positrons within the cosmic ray flux than can be produced by collisions within the cosmic rays themselves, indicating that there are new sources of positrons in the universe. The results contained the first experimental observation of the positron fraction maximum, showing an increase of positrons that begins at 8 GeV and levels off at 275±32 GeV. The source of the positrons may yet prove to be objects like pulsars, but these results are consistent with the source being dark matter particles with mass on the order of 1 TeV.

Susumu Tonegawa, Picower Professor of Biology and Neuroscience and Director of the RIKEN-MIT Center for Neural Genetics, reactivated memories in mice that could otherwise not be retrieved. The research settles an important debate about the nature of retrograde amnesia, a type of amnesia that results from traumatic injury, stress, and diseases such as Alzheimer's. The research shows that, contrary to the prevailing theory, the brain cells that contain the memory are undamaged, but access to them has been blocked. In the study, researchers identified the set of neurons, or "memory engram," activated as mice were triggered to remember a negative stimulus, and showed that the connections between them were strengthened. In a new set of mice, the memory engram was altered via optogenetics to activate when exposed to light. After exposure to the negative stimulus, the second set of mice were given anisomycin, a drug that inhibits memory formation: these mice exhibited no fear of the stimulus. However, when the engram cells were reactivated with light, the mice's fear response returned. The study showed that memory storage and memory retrieval mechanisms are separate: the strengthening of engram synapses enables retrieval of memories, while the connectivity pathway between engram cells in a circuit enables the memory to be formed.

Kay Tye, Whitehead Career Development Assistant Professor, identified two populations of neurons in the basolateral amygdala that process positive and negative emotions separately and then relay the information to brain regions that initiate appropriate behavioral responses. The study represents a significant step towards understanding how the brain assigns emotions to experiences, since it has not been clear how one brain structure responds to both positive and negative inputs. Tye targeted mouse cells in the nucleus accumbens and the centromedial amygdala and, after subjecting the mice to a fear-conditioning or a reward task, measured the strength of their connections to the basolateral amygdala. The neurons that connect to the nucleus accumbens received stronger input after reward learning, but weaker input after fear learning. The reverse was true for the neurons that connected to centromedial amygdala. The results suggest that the two populations serve as gates for sensory information coming into the basolateral amygdala, shifting the flow of information through one population or the other.

Li-Huei Tsai, Picower Professor of Neuroscience and Director of the Picower Institute for Learning and Memory, collaborated with CSAIL professor Manolis Kellis, to characterize epigenetic changes to DNA over the progression of Alzheimer's disease from its earliest stages, before symptoms appear. Previous studies have identified common genetic variants among Alzheimer's patients, but their role in the disease's progression was unknown since they were largely found in regions of DNA that do not code for protein. By profiling epigenetic marks (chemical modifications to DNA regions that influence genes' activity), the researchers demonstrated that these genetic variants were located only in the regulatory regions of genes associated with immune processes, rather than neural processes. Their results suggest that a genetic predisposition to Alzheimer's is not a function of the repression of neural pathways, but rather is a consequence of aging and environmental factors, in conjunction with altered immune pathways.

Feng Zhang, W. M. Keck Career Development Assistant Professor in Biomedical Engineering, adapted the CRISPR-Cas9 gene editing system, originally developed to delete or replace specific genes, to be able to turn genes on. In structural studies of CRISPR-Cas9, Zhang found that previous attempts to alter the complex to turn genes on did not work reliably because the points of attachment to DNA activation domains did not allow enough flexibility in recruiting transcription factors. Zhang identified two loops of RNA guides that obtrude from Cas9 that improved transcription factor recruitment. Zhang tested the new complex by applying it to several genes that have been difficult or impossible to turn on using other Cas9 activators. He was able to show at least a two-fold boost in transcription in all cases and an increase of several orders of magnitude in some cases. Zhang further demonstrated the new complex's potential to enable large-scale screens for a wider spectrum of genes than was previously possible, since conventional methods relying on viruses to deliver genes do not work for all genes. Zhang created a library of approximately 70,290 guide RNAs targeting the more than 20,000 genes in the human genome. He used the library to screen for genes in cancer cells that confer resistance to melanoma drug PLX-4729, identifying several resistance-conferring genes, some previously unknown.

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:

Tania Baker, E.C. Whitehead Professor of Biology, was honored with the Arthur Kornberg and Paul Berg Lifetime Achievement Award from the Stanford University Medical Center Alumni Association.

Emery Brown, Edward Hood Taplin Professor of Medical Engineering and professor of computational neuroscience, was named a 2015 Guggenheim Fellow. He was also elected to the National Academy of Engineering.

Stephen Buchwald, Camille Dreyfus Professor in Chemistry, received the BBVA Foundation Frontiers of Knowledge Award in Basic Sciences. He was also honored by the University College Dublin with the Ulysses Medal.

Ibrahim Cissé, assistant professor of physics, received a 2014 Director's New Innovator Award from the National Institutes of Health.

Nuh Gedik and Pablo Jarillo-Herrero, associate professors of physics, were named Experimental Investigators in Quantum Materials by the Gordon and Betty Moore Foundation.

Larry Guth, professor of mathematics, and Iain Stewart, professor of physics, were named investigators by the Simons Foundation.

Professor of mathematics Victor Kac was awarded the 2015 Leroy P. Steele Prize for Lifetime Achievement by the American Mathematical Association.

The American Physical Society awarded John D. Joannopoulos, Francis Wright Davis Professor of Physics and Director of the Institute for Soldier Nanotechnology, the 2015 Aneesur Rahman Prize for Computational Physics.

Michael Laub, associate professor in the Department of Biology, was named a Howard Hughes Medical Investigator.

Stephen Lippard, Arthur Amos Noyes Professor of Chemistry, was selected to receive the 2015 Benjamin Franklin Medal in Chemistry.

Tomaso Poggio, Eugene McDermott Professor in the Brain Sciences, and Feng Zhang, W.M. Keck CD Assistant Professor in Biomedical Engineering, received awards from the Society for Neuroscience in 2014: Poggio won the Swartz Prize for Theoretical and Computational Neuroscience and Zhang won the Young Investigator Award.

David Sabatini, professor of biology, received the 2015 Award in Molecular Biology from the National Academy of Sciences.

Richard R. Schrock, Frederick G. Keyes Professor of Chemistry, was honored with the 2014 Paracelsus Prize, the highest award given by the Swiss Chemical Society.

Alex Shalek, Hermann L.F. von Helmholtz CD Assistant Professor, received a Searle Scholars Award.

The following professors were elected to the American Academy of Arts and Sciences: Thomas Greytak (Physics), John Joannopoulos (Physics), and William Minicozzi (Mathematics).

The following professors were elected to the American Association for the Advancement of Science: Timothy Jamison (Chemistry), Richard Schrock (Chemistry), and JoAnne Stubbe (Chemistry).

The following professors received Faculty Early Career Development (CAREER) Awards from the National Science Foundation: Joshua McDermott (BCS), Mirea Dincă (Chemistry), Ankur Moitra (Mathematics), Philippe Rigollet (Mathematics), Jared Speck (Mathematics), and Yogesh Surendranath (Chemistry).

The following professors were elected to the National Academy of Sciences: Samuel Bowring (EAPS), Tomasz Mrowka (Mathematics), and Sara Seager (EAPS and Physics).

The following professors won Sloan Research Fellowships: Jörn Dunkel (Mathematics), Emmy Murphy (Mathematics), and Bradley Pentelute (Chemistry).

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: Dan Delgado (Mathematics), Jonathan Harmon (Mathematics), Katie Lewis (Physics), Gang Liu (Chemistry), Sean Robinson (Physics), and Jennifer Weisman (Chemistry).

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 winner was Gian Michele Innocenti (LNS).

Personnel

Appointments and Promotions

Timothy Jamison, John D. MacArthur Professor of Chemistry, was named head of the Department of Chemistry. He succeeds Sylvia Ceyer, the John C. Sheehan Professor of Chemistry.

Tomasz Mrowka, the Singer Professor of Mathematics, was named head of the Department of Mathematics after serving for six months as interim head. Mrowka succeeds Michael Sipser, the Barton L. Weller Professor of Mathematics and dean of the School of Science.

Professor Boleslaw Wyslouch was named head of the Laboratory for Nuclear Science, succeeding Professor Richard Milner.

The following faculty members were promoted to full professor: Steven Johnson (Mathematics), Amy Keating (Biology), Aviv Regev (Biology), Rebecca Saxe (BCS), and Thomas Schwartz (Biology).

In the Department of Chemistry, Mei Hong joined the faculty as full professor.

The following faculty members were granted tenure: Shuhei Ono (EAPS), Laurent Demanet (Mathematics), Nuh Gedik (Physics), and Pablo Jarillo-Herrero (Physics).

The following professors were promoted to associate professor without tenure: Clark Barwick (Mathematics), Mircea Dincă (Chemistry), Jeffrey Gore (Physics), Yingxi Lin (BCS), and Jesse Thaler (Physics).

The following professors joined the School of Science faculty as assistant professors: Semyon Dyatlov (Mathematics), Nikta Fakhri (Physics), Gregory Fournier (EAPS), Vadim Gorin (Mathematics), Mark Harnett (BCS), Gene-Wei Li (Biology), Emmy Murphy (Mathematics), Philippe Rigollet (Mathematics), Gabriella Schlau-Cohen (Chemistry), Alex Shalek (Chemistry), Jeffrey van Humbeck (Chemistry), and Lindley Winslow (Physics).

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 a panel discussion on career management and a presentation from the MIT Technology Licensing Office, as well as presentations of faculty research.

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, the program's theme was "Supporting Our Students," with speakers on topics including student support resources, Title IX and sexual assault prevention and resources, and mental health and counseling.

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