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TechTalk
SERVING THE MIT COMMUNITY

# Hurricane-ravaged museums get help

**Lynn Heinemann**
Office of the Arts

An MIT-based organization is responding to the devastation caused by Hurricanes Katrina and Rita by granting funds to affected institutions that have been often overlooked: museums.

"Some museums are still working out of trailers," said Lori Gross, director of the Museum Loan Network (MLN), which began at MIT in 1995 to facilitate the long-term loan of art and objects of cultural heritage among U.S. institutions. Gross says the MLN was concerned not only with the museums' physical damage, but also with the collateral damage of decreased funding, staff reductions and drastic declines in museum attendance.

After a streamlined application process that began last December, travel grants of $4,500 each will be given to 10 museums in Louisiana and Mississippi. The travel grants provide funds for museum staff and community members to visit museums in other parts of the country to research possible loans.

By offering these special grants, said Gross, the MLN hopes to provide weary hurricane-affected museum staff the opportunity to work with colleagues in other places to plan for the future.

"Our travel grants have always been about getting people in museums to work together and develop collegiality," Gross said. "We thought these special grants might break down the huge challenge into more manageable bits as one museum collaborates with another in an effort to rebuild its spaces and audiences."

Marjorie Gowdy, executive director of the Ohr-O'Keefe Museum of Art in Biloxi, Miss., one of the grant recipients, reported 35 feet of water at their facility, which had five Frank Gehry buildings in various

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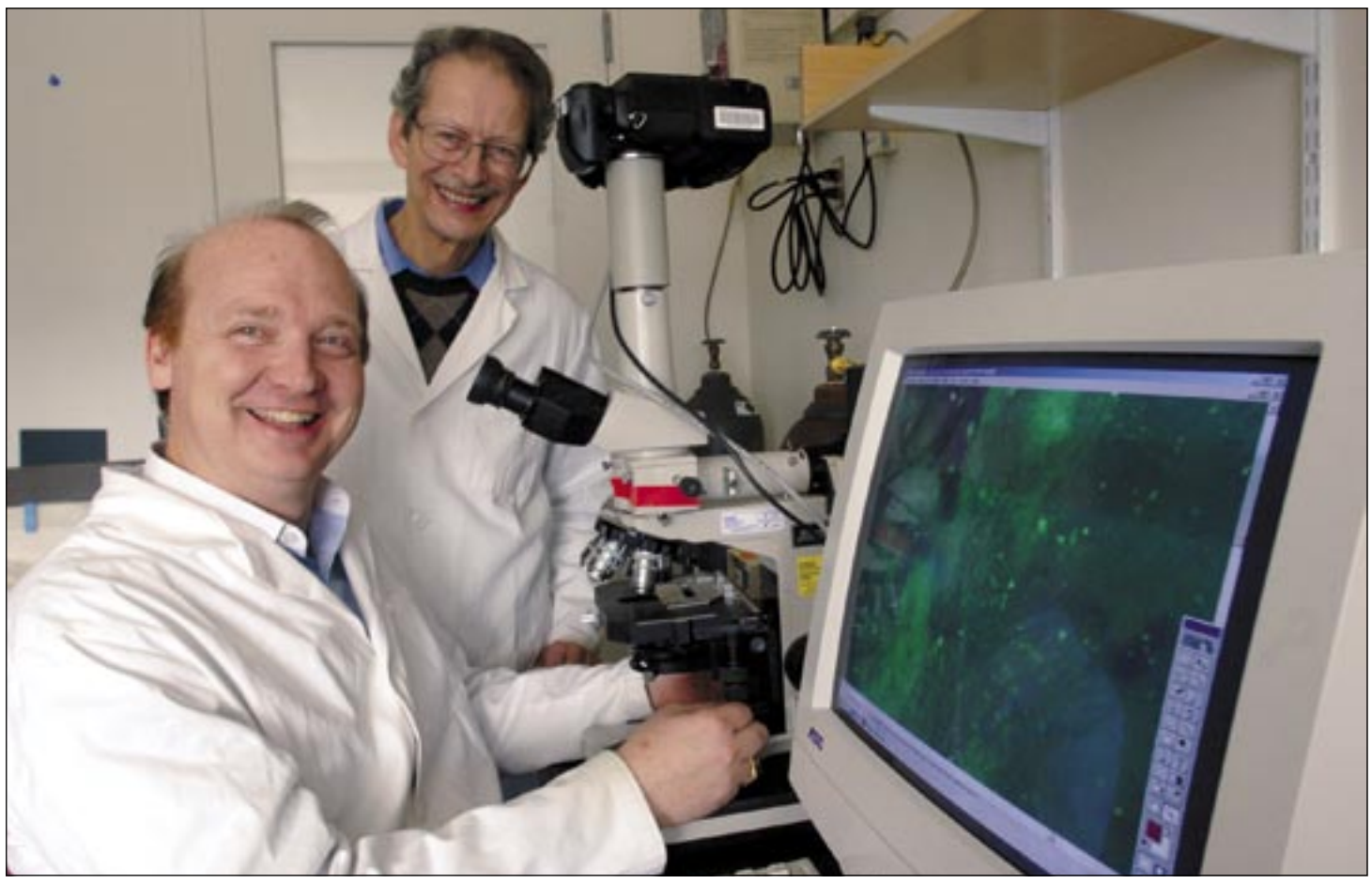

PHOTO /**DONNA COVENEY**

Research scientist Rutledge Ellis-Behnke, left, and Professor Gerald E. Schneider, both of brain and cognitive sciences, worked with others to create a technique that helps rodents recover from traumatic brain injuries. The monitor shows a microscopic view of the brain repair.

# Researchers restore sight to brain-damaged rodents

**Deborah Halber**
News Office Correspondent

Rodents blinded by a severed tract in their brains' visual system had their sight partially restored within weeks, thanks to a tiny biodegradable scaffold invented by MIT bioengineers and neuroscientists.

This technique, which involves giving brain cells an internal matrix on which to regrow, just as ivy grows on a trellis, may one day help patients with traumatic brain injuries, spinal cord injuries and stroke.

The study, which will appear in the online early edition of the Proceedings of the National Academy of Sciences (PNAS) the week of March 13–17, is the first that uses nanotechnology to repair and heal the brain and restore function of a damaged brain region.

"If we can reconnect parts of the brain that were disconnected by a stroke, then we may be able to restore speech to an individual who is able to understand what is said but has lost the ability to speak," said co-author Rutledge G. Ellis-Behnke, research scientist in the MIT Department of Brain and Cognitive Sciences. "This is not about restoring 100 percent of damaged brain cells, but 20 percent or even less may be enough to restore function, and that is our goal."

Spinal cord injuries, serious stroke and severe traumatic brain injuries affect more than 5 million Americans at a total cost of $65 billion a year in treatment.

"If you can return a certain quality of life, if you can get some critical functions back, you have accomplished a lot for a victim of brain injury," said study co-author Gerald E. Schneider, professor of brain and cognitive sciences at MIT. Ellis-Behnke and Schneider worked with colleagues from the MIT Center for Bio-

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# Three awarded Gates Cambridge Scholarships

**Miller**

**Flores**

**Venkatachalam**

Two MIT seniors and an MIT alumna have been chosen from among more than 500 applicants to receive 2006 Gates Cambridge Scholarships.

Founded in 2001, the Gates Cambridge Scholarships have joined three older foundations — the Rhodes, Marshall and Churchill Scholarships — in providing intensely competitive opportunities for the most talented U.S. students to pursue postgraduate study in the English-speaking countries of Europe.

Seniors Adam Miller and Vivek Venkatachalam and alumna Amparo Flores (M.Eng. 1998) will begin postgraduate study at Cambridge University in England next September.

Miller, who is from Evanston, Ill., is a double major in physics and theater. He began a research project last year at MIT's Kavli Institute for Astrophysics and Space Research on extra-galactic quasi-stellar objects in which he used spectroscopic data obtained from the Hubble space telescope.

An actor who frequently appears in MIT theater productions, Miller directs the improvisational theater company Roadkill Buffet and has co-founded similar troupes

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## PEOPLE

**SOUNDS GOOD**

The National Endowment for the Humanities has awarded Professor Ellen T. Harris a grant for her work on Handel.

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**FEEL THE BEAT**

Associate Professor Thomas DeFrantz blends dance and technology in a new work.

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## NEWS

**ART WORKS**

An MIT sophomore has started a program that uses jewelry-making to assist child victims of rape or incest in Sri Lanka.

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**EXPANDING HORIZONS**

MIT Sloan students explore new worlds through the Global Entrepreneurship Laboratory.

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## RESEARCH

**MAD COW INSIGHT**

The normal form of the detrimental protein that causes mad cow disease may actually help the brain create neurons.

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**BRAIN CIRCUITRY**

McGovern Institute researchers explore the early development of visual circuits.

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# A letter from President Susan Hockfield

To members of the MIT community:

Since I wrote you last September, MIT has continued to demonstrate why it holds a position of national and international leadership in both teaching and research. Now that the spring term is in full swing, I would like to comment on some recent developments.

### Our faculty

In early December, Richard R. Schrock, the Frederick G. Keyes Professor of Chemistry at MIT, along with two colleagues, was awarded the 2005 Nobel Prize in chemistry by the Royal Swedish Academy of Sciences. Professor Schrock's work demonstrates MIT's impact along the entire spectrum of knowledge — from curiosity-driven, basic research to industrial applications. His development of catalysts for the chemical reaction known as metathesis has led to faster, less toxic industrial processes for pharmaceuticals and plastic coatings.

Last month, not long after the Nobel Prize ceremony, Stephen J. Lippard, the Arthur Amos Noyes Professor of Chemistry, and Institute Professor Phillip A. Sharp, a Nobel laureate who served as founding director of the McGovern Institute for Brain Research, were among the eight recipients of the National Medal of Science, our country's highest honor for scientific distinction.

Recruiting, mentoring, and retaining faculty of this caliber is central to Professor L. Rafael Reif's work as provost. We have not yet achieved as diverse a faculty as we would like, and the provost recently announced the appointment of three committees to advance this agenda, which will work with the existing Council on Faculty Diversity. A new Committee on Minority Faculty Recruitment will be co-chaired by Professors Paula T. Hammond and Akintunde Ibitayo (Tayo) Akinwande, while Professor Wesley L. Harris will chair a new Committee on the Retention of Minority Faculty. Professor Rafael L. Bras will lead a review of the MLK Visiting Professors and Scholars Program.

Our goal is for MIT to recruit and advance a diverse faculty that continues to comprise the world's best scholars and teachers. This is our fundamental guarantee of continued excellence and leadership.

### Our staff and administration

Last week's ceremony to honor the recipients of this year's MIT Excellence Awards (web.mit.edu/hr/rewards/excellence/) reminded me once again how much we owe to members of the staff and administration, who often work in the shadow of our faculty and students. The award categories themselves remind us of the many ways MIT people excel — from developing innovative solutions to fostering community.

In Washington, we have a new director of federal relations, William Boone Bonvillian, who comes to MIT from a distinguished career as legislative director and chief counsel to Sen. Joseph Lieberman. A widely published expert on science policy and the American innovation system, and an adjunct member of the faculty at Georgetown University, Mr. Bonvillian joins us at a time when federal relations are especially important, with higher education a subject of national discussion, and with a renewed focus on the importance of sound federal investments in research to fuel our nation's innovation economy.

At its quarterly meeting last Friday, the Corporation elected Kirk D. Kolenbrander, currently senior adviser to the president, to serve as its next secretary. He will assume that position at the start of July, when he will also become vice president for Institute affairs, with overall responsibility for MIT's internal communications activities and for coordination of policy issues within the senior administration.

### Undergraduate education

This term, we have welcomed a new dean for undergraduate education, Professor Daniel E. Hastings, former director of the Engineering Systems Division. With the Task Force on the Undergraduate Educational Commons at work on its report, we enter an intensely exciting time in the evolution of our undergraduate program; Professor Hastings brings to his new role deep experience as a teacher at MIT and as a national leader in engineering and science.

The recent decision by the faculty to assign a course number — 20 — to the Biological Engineering Division, whose new undergraduate major was approved a year ago, highlights the emergence of new fields of study at the intersection of existing disciplines. The educational

Susan Hockfield

innovation all across campus makes the work of the Task Force all the more timely. I look forward to its recommendations, which I expect to have as profound an impact on MIT as those of the previous Task Force on Student Life and Learning.

### Our students and access to an MIT education

The excellence of our students is a hallmark of MIT, and it is clear that the Class of 2010 will meet the high standards recent classes have set.

High school students are well aware of our exceptional place within higher education, and applications increased 9 percent over last year, to an all-time high of 11,381. MIT has long believed that diversity and excellence are mutually reinforcing, and this year's early admitted students underscore this perspective. Of those admitted early, 46 percent are valedictorians; 76 percent have served as president, captain, or leader of high school activities; 27 percent are members of historically underrepresented minority groups; and 15 percent are first-generation college students.

On March 3, we reported to the Corporation that our tuition and fees for academic year 2006-07 will increase by 4 percent to $33,600. Typical room rates will increase by 6.7 percent and board rates by 3.5 percent. In total, tuition, fees, room and board will rise 4.3 percent.

For more than four decades, MIT has held to a policy of admitting students without regard to financial need, awarding all MIT grant aid on the basis of need, and meeting the full need of all admitted students. Next year, we expect that 57 percent of our undergraduates will receive need-based scholarships from MIT, averaging $25,500 per student. I believe strongly that our financial aid policies keep MIT open to all students who have the talent and energy to thrive here. They are an important reason why MIT remains a place where the American dream can come true.

Beginning this September, we will further strengthen our commitment to access by matching federal Pell Grants for all eligible students. Even while the cost of higher education has continued to increase, the maximum amount for individual Pell Grants, which are need-based scholarships, has been frozen for four years. The new MIT Pell Matching Grant will double the amount a Pell Grantee receives. This new investment, which represents an additional commitment of approximately $1.5 million per year, will significantly reduce the amount these students will have to borrow.

Adequate need-based student aid, especially in the form of scholarships, is essential if this country is to develop the talents of our young people to the fullest.

### Academic integrity

Last Friday, the provost informed our faculty and the staff at MIT Lincoln Laboratory of progress on our efforts to resolve an allegation of research misconduct brought against two scientists at the Lincoln Laboratory.

As announced at the October faculty meeting, we have pursued two tracks, to understand the impediments in resolving the allegations and to reach a resolution.

On the first track, an ad hoc panel, appointed to examine the process of the investigation and to determine the factors that have complicated and delayed the satisfactory resolution of this particular allegation, will also make recommendations for how the Institute might avoid a recurrence of such complications in the future. This panel will soon complete its work and will report to the provost in the near future.

On the second track, the Department of Defense has now agreed to conduct an investigation into the open questions enumerated in MIT's inquiry into the allegations. The investigation will be conducted by Dr. Brendan Godfrey, director of the Air Force Office of Scientific Research. MIT has advocated, and the department has agreed, that a mutually acceptable individual, who is not an employee of the Department of Defense, act as an advisor and consultant to the investigator, to help assure an appropriately conducted, thorough investigation. We are extremely grateful that Mr. Norman Augustine, a member of the National Academy of Engineering, formerly chairman and CEO of Lockheed Martin Corp., and a past member of the MIT Corporation, has agreed to serve as the advisor. Mr. Augustine, who received the National Medal of Technology in 1997, led the recent National Academies study, "Rising Above the Gathering Storm."

### Our financial outlook

We have now reviewed a preliminary budget for Fiscal Year 2007 with the Academic Council and the Corporation's Executive Committee. While the Institute's finances remain strong — our endowment is the fifth largest among American universities, and it performed well last year — we will need to continue to intensify fund raising and to identify operational improvements so that our salaries and facilities can remain competitive.

Increasing fuel costs have become a significant budgetary concern for MIT, just as they have for anyone who heats a home or buys gas for a car. We project that by the end of the next fiscal year, we will have had to absorb additional utilities costs of $60 million over the course of two years. With these increases, growth in expenses continues to outpace growth in revenues.

We rely heavily on federal investments in research and education. We welcome the recent attention in Washington to issues of education, research and competitiveness, in the president's State of the Union address as well as in proposed congressional legislation. But the domestic discretionary budget, including federal budgets for research and financial aid, will be under severe pressure for the foreseeable future.

This makes private support ever more important for us. Philanthropic support has made possible innovative education and research programs throughout the Institute. A generous gift of endowed funds for undergraduate scholarships announced last October provided the flexibility that permitted us to establish the MIT Pell Matching Grants program. The Broad Institute — a collaboration among MIT, Harvard and its affiliated hospitals and the Whitehead Institute for Biomedical Research — has made rapid progress in its first year, and in November, Eli and Edythe L. Broad announced that they will make a second $100 million commitment to its work.

Strategic investments in fund raising, as well as designing programs that leverage our resources, will help us to continue to advance knowledge, fuel innovation and equip our students to become the global leaders the world needs now.

### A look ahead

While the chill of winter still hangs in the air, the spring semester is unfolding rapidly, and graduation and reunions will arrive before we know it. Our distinguished alumnus Dr. Ben S. Bernanke (Ph.D. 1979), who recently assumed the chairmanship of the Board of Governors of the Federal Reserve System, will deliver this year's Commencement address. His own contributions as scholar, educator and public servant epitomize the ways MIT and its people serve the nation and the world, and I anticipate that his reflections will be a fitting conclusion to another year of accomplishment for the Institute.

*— MIT President Susan Hockfield*


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# Historians recognize Jacobs' book with award

**Sarah H. Wright**
News Office

The Boston bargain-hunter's landmark store, Filene's Basement, plays a starring role in a new book on mass consumption and purchasing power written by Meg Jacobs, an associate professor of history at MIT.

Jacobs' book, "Pocketbook Politics: Economic Citizenship in Twentieth-Century America," shows how the individual shopper's eternal question — "How much does it cost?" — and public anger over the high cost of living have fueled and frustrated administrations from Woodrow Wilson to Franklin Roosevelt to Richard Nixon.

"Pocketbook Politics" has just been awarded the 2006 Ellis Hawley Prize, signaling recognition by the Organization of American Historians as the year's "best book-length study of the political economy, politics or institutions of the U.S."

It opens with the doors of the Basement — then known as "Filene's Folly" — in 1909.

Edward Filene, a maverick businessman, "believed that the way to make money was to increase the public's purchasing power. He knew there were markets out there and that people would buy wool suits in July if the price were right," Jacobs said.

Those off-season wool suits made Filene a rich man. But, Jacobs noted, Filene saw his own wealth in the context of the wealth of the nation. "He believed that purchasing power, coming not only from lower prices, but also from higher wages, was necessary for sustaining capitalism. Each person's ability to consume was linked to the national welfare," she said.

"Pocketbook Politics" shows how such an understanding of national welfare led to support for union organizing, collective bargaining, government price controls and a goal of full employment during the 1930s era of the Great Depression and Roosevelt's New Deal economic recovery programs.

The book details the rise and fall of the Office of Price Administration, which set up rationing and price controls during World War II and printed individual price control lists to be used by housewives to police prices in small shops. These housewives became known as the "kitchen gestapo," and Jacobs includes dramatic images of the era.

The reforms of the New Deal and World War II gave way to the power of big business, leaving intact parts of the New Deal, such as Social Security and the right to organize, but price controls waned, Jacobs said.

Today's goals for American workers may include purchasing power, but through credit rather than wages. In an epilogue, Jacobs contrasts Filene's 19th-century vision of a consumer-citizen, empowered by union wages, with the "cheap labor, anti-union" vision of Sam Walton, founder of Wal-Mart.

Jacobs' current research — titled "Panic at the Pump" — focuses on the energy crisis of the 1970s, an era of the "worst economic dislocation since the 1930s."

Jacobs is co-editor of "The Democratic Experiment: New Directions in American Political History" (Princeton 2003).

## Erratum

A story in the March 8 issue of Tech Talk incorrectly identified Peter B. Lyons as head of the Nuclear Regulatory Commission. Lyons is one of five NRC commissioners and is not the chair. Tech Talk regrets the error.

# Harris gets grant for Handel work

**Sarah H. Wright**
News Office

Ellen T. Harris, the Class of 1949 Professor of Music, has been awarded a $40,000 grant from the National Endowment for the Humanities to broaden her research on "Messiah" composer George Frideric Handel (1685-1759) and develop a new book, "Mr. Handel and His Friends: Music in the Context of 18th-Century London Life."

The book takes up the study of Handel's career when he lived in London (1711-1759), where he composed his famous "Messiah" as well as numerous well-known oratorios and operas.

Harris' 2002 book, "Handel as Orpheus: Voice and Desire in the Chamber Cantatas" (Harvard), explored Handel's use of silence in his cantatas, composed when he lived in Italy and was "very much embedded in the patronage system," Harris said.

"Handel as Orpheus" won the prestigious Otto Kinkeldey Award from the American Musicological Society and the Louis Gottschalk Prize from the American Society for Eighteenth-Century Studies.

Harris described her new work on Handel as getting to know the renowned composer "without his wig."

"We know a lot about Handel within his wig — in his role as composer of big public works, producer of 30 oratorios and 42 operas — but little about how he lived his life. Unlike Mozart, he left few letters or other documents. But a turning point came when he moved to London: He had a home of his own; he made money from composing and, before he died, he wrote a will," Harris said.

**Ellen T. Harris**

Handel's music has inspired Harris for more than 30 years, she said, thanks to its richness, humanity and emotional power. But his will contained surprises that led to a wealth of material about how his music fit into 18th-century English society.

"Handel left money and all his scores to his manager for 40 years, John Christopher Smith. He left money to his librettists and to his extended family in Germany. He left all the performance materials for 'The Messiah' to the Foundling Hospital. You'd expect that.

"But he also bequeathed money to five 'mystery' people, unknowns whom he clearly had cared about. I tracked them all down. It was exhilarating to discover, for example, that Handel's music copyist, known in all his works as "S7" ("S" is for scribe), was his friend James Hunter," Harris said.

The life stories of Handel's friends and neighbors — as revealed through documents Harris dug through at the British Library, National Archives, the House of Lords Library and other dusty storage sites — yielded the details that Harris needed to get "outside the wig" in portraying the composer's character, particularly his capacity for sympathy.

"The 'mystery beneficiaries' in Handel's will had much in common with him and with one another. All were slightly on the edge of English society. Few were Anglicans (Handel was Lutheran). All but one were childless; most were unmarried; and most of them had up-and-down middle-class financial lives typical in England's market economy," Harris said.

Most revealingly, Handel's neighbors were amateur musicians, men and women who played his new works and heard him play at parties, she noted.

"Through his music, he was participating in English society, not just riding above it. His music was not just for kings. It was supported by the aristocracy, yet intended to be played in the home. A circle of music-loving friends and neighbors nourished this very human composer, and he repaid their affection," Harris said.

PHOTO / **L. BARRY HETHERINGTON**

**Avast ye, matey!**

Little pirate Kevin Murphy, 5, prepares a message in a bottle during the Pirates' Ball, held at Morss Hall on Sunday, March 12. Pirate tales, movies and other activities entertained a sell-out crowd at the event, hosted by the MIT Activities Committee.

# Helmreich receives 2006 Levitan Prize

**Sarah H. Wright**
News Office

Stefan Helmreich, associate professor of anthropology, has been awarded the 2006 James A. and Ruth Levitan Prize in the Humanities, announced Philip S. Khoury, the Kenan Sahin Dean of the School of Humanities, Arts and Social Sciences.

Helmreich will complete research for his book, "Alien Ocean: An Anthropology of Marine Microbiology and the Limits of Life." The work will explore how breakthroughs in microbial biology that reveal a new, extreme marine world may "reinstall as well as reinvent broader public sensibilities about the sea as both life-threatening and life-giving, as a space at once strange and sublime."

Helmreich received his Ph.D. in anthropology from Stanford University and joined the MIT faculty as an assistant professor in the anthropology program in 2003.

The $25,000 prize was established through a gift from the late James A. Levitan, a 1945 MIT graduate in chemistry, who was also a member of the MIT Corporation and headed the tax department at the law firm of Skadden, Arps, Slate, Meagher and Flom of New York City. The prize, first awarded in 1990, supports innovative and creative scholarship in the humanities by faculty members in the School of Humanities, Arts and Social Sciences.

# GATES

**Continued from Page 1**

in the Chicago area that focus on themes of racial injustice.

Miller was selected as a Burchard Scholar in the School of Humanities, Arts and Social Sciences in 2004. He plans to purse a Ph.D. degree in astrophysics at Cambridge University's Institute of Astronomy.

Venkatachalam, who is from Berkeley Heights, N.J., is a double major in physics and electrical engineering, with minors in economics and mathematics. He is interested in investigating fractional quantum Hall effect systems as potential vehicles for quantum computing.

As a Gates Scholar, he will pursue two successive programs at Cambridge University, beginning with Part III of the Mathematics Tripos and continuing with research in the Quantum Matter Group at the Cavendish Laboratory. He has been involved already in four different research projects, at Bell Labs and in three different laboratories at MIT, one of which involved spending a month at the Super-Kamiokande Cerenkov detector in western Japan. Venkatachalam was ranked nationally in both the Siemens-Westinghouse and Intel Talent Search science competitions and is a Barry Goldwater Scholarship recipient.

Flores, who is currently employed as a water-quality engineer in Livermore, Calif., received the B.S. degree in environmental engineering science *cum laude* from the University of California at Berkeley in 1996 and the M.Eng. degree in environmental and water-quality engineering from MIT in 1998. She will pursue a Ph.D. in ecological sanitation for urban settings in the Centre for Sustainable Development at Cambridge.

The Gates Cambridge Scholarships were founded with a $210 million grant from the Bill and Melinda Gates Foundation and have become the most international of all the major scholarship program awards. Since the program's inception, 526 students from 72 countries have been awarded scholarships for one to four years of study at Cambridge University. This year, 552 applicants competed for the 40 scholarships awarded to U.S. students.

# Work sheds light on visual circuits

BRAIN

For the human brain, birth is a great divide. Like marble ready for sculpting, the prenatal brain abounds in extraneous neurons and connections waiting for experiences to carve the neural circuits that enable us to perceive, think and learn.

If this sculpting, known as plasticity, goes awry in early development, neurological disorders can result. Even certain late onset conditions like schizophrenia, Huntington's and Lou Gehrig's disease may have origins in poor wiring that occurs very early, at a time that is largely ignored in disease targeted research.

"Until this study, we did not realize how profoundly the process of wiring those circuits differs in early development from later stages," said Martha Constantine-Paton, MIT professor of biology and investigator at the McGovern Institute for Brain Research. Her paper appeared in the Dec. 22 online edition of the Journal of Comparative Neurology, in advance of its Feb. 10 publication.

Her study focused on the visual system in rats, a convenient model for studying plasticity and how new circuits develop because retinal neurons are just one synapse away from the brain. Retinal cells must map to a specific location in a portion of the rat's brain called the superior colliculus.

Most researchers study synapse number and turnover in juvenile and adult animals after eye opening, analogous to birth in humans. At that stage, the brain strengthens selected axon synapses that correctly reach and enervate their target cells.

No one had actually studied these processes in neonate animals prior to eye opening, a period analogous to prenatal humans. But most scientists assumed it worked about the same as after the onset of vision – a faulty assumption, the McGovern researchers found. Instead of strengthening the right connections, the brain simply eliminates the weak synapses connected to the wrong place prior to eye opening.

"It's similar to choosing players for a young Little League versus a professional team," explains first author Matthew Colonnese, a former postdoctoral researcher in Constantine-Paton's lab who is currently conducting research in the lab of Alan Jasanoff, an associate member of the McGovern Institute at MIT. "Most very young players are not very good, so coaches take all comers and then quickly weed the weaker players from first string. But pro coaches recruit proven players, so fewer need weeding out."

This Little League strategy probably happens because before eye opening, the retinal neurons fire spontaneously. But the brain cannot know which connections to strengthen because they have not yet responded to patterns of light. So it simply eliminates grossly misguided and relatively ineffective axons.

At both Little League and pro levels, the "coach" is the NMDA receptor, a protein that responds to the excitatory signal glutamate. Scientists have known that later in life, this receptor acts like the pro coach, mostly strengthening existing axon connections. Few anticipated the very robust role it plays in the Little League, before eye opening, when the receptor exclusively eliminates the weaker players.

Yet that role makes sense, suggests Colonnese. Otherwise, the brain would have too many axons and a chaotic neural circuitry. He predicts that researchers will probably discover many other ways in which the outcome of NMDA receptor function differs in fetuses and children versus teenagers and adults.

This research was supported by the National Institutes of Health.

Continued from **Page 1**

medical Engineering (CBE) and medical schools in Hong Kong and China.

In the experiment on young and adult hamsters with severed neural pathways, the researchers injected the animals' brains with a clear solution containing a self-assembling material made of fragments of proteins, the building blocks of the human body. These protein fragments are called peptides.

Shuguang Zhang, associate director of the CBE and one of the study's co-authors, has been working on self-assembling peptides for a variety of applications since he discovered them by accident in 1991. Zhang found that placing certain peptides in a salt solution causes them to assemble into thin sheets of 99 percent water and 1 percent peptides. These sheets form a mesh or scaffold of tiny interwoven fibers. Neurons are able to grow through the nanofiber mesh, which is similar to that which normally exists in the extracellular space that holds tissues together.

The process does not involve growing new neurons, but creates an environment conducive for existing cells to regrow their long branchlike projections called axons, through which neurons form synaptic connections to communicate with other neurons. These projections were able to bridge the gap created when the neural pathway was cut and restore enough communication among cells to give the animals back useful vision within around six weeks. The researchers were surprised to find that adult brains responded as robustly as the younger animals' brains, which typically are more adaptable.

"Our designed self-assembling peptide nanofiber scaffold created a good environment not only for axons to regenerate through the site of an acute injury but also to knit the brain tissue together," said Zhang. The technique may be useful for helping close cuts in the brain made during surgery to remove tumors.

The researchers were surprised to find that adult brains responded as robustly as the younger animals' brains, which typically are more adaptable.

Doctors treating traumatic brain injury are confronted with a number of obstacles. When brain tissue is injured, the tissue closes itself like a skin wound. When this happens, scar tissue forms around the injury and large gaps appear where there was once continuous gray matter.

When the clear fluid containing the self-assembling peptides is injected into the area of the cut, it flows into gaps and starts to work as soon as it comes into contact with the fluid that bathes the brain. After serving as a matrix for new cell growth, the peptides' nanofibers break down into harmless products that are eventually excreted in urine or used for tissue repair.

The MIT researchers' synthetic biological material is better than currently available biomaterials because it forms a network of nanofibers similar in scale to the brain's own matrix for cell growth; it can be broken down into natural amino acids that may even be beneficial to surrounding tissue; it is free of chemical and biological contaminants that may show up in animal-derived products such as collagen; and it appears to be immunologically inert, avoiding the problem of rejection by surrounding tissue, the authors wrote.

The researchers are testing the self-assembling peptides on spinal cord injuries and hope to launch trials in primates and eventually humans. In addition to Ellis-Behnke, Zhang and Schneider, authors include Yu-Xiang Liang, Kwok-Fai So and David K.C. Tay of the University of Hong Kong Li Ka Shing Faculty of Medicine and State Key Lab of Brain and Cognitive Sciences; and Si-Wei You of the Institute of Neurosciences, Fourth Military Medical University in Xian, China.

This work is funded by the Whitaker Foundation, the Deshpande Center at MIT, the Research Grant Council of Hong Kong and private donations by Peter Kook and the late Mr. and Mrs. Ma Yip Seng.

# Sophomore's project aids Sri Lankan girls' home

**Sasha Brown**
News Office

Thanks to a program started by MIT sophomore Alia Whitney-Johnson, 18 Sri Lankan child-mothers living in a home for victims of rape or incest are coming out of their shells and earning money for their futures through art.

In the summer of 2005, Whitney-Johnson traveled to Sri Lanka on a fellowship through the MIT Public Service Center (PSC) to assist in tsunami-related relief efforts. While there, she volunteered to write a fund-raising letter for Ma-Sevana — a home for 22 girls, ages 10 to 18, who had become mothers through rape or incest.

Whitney-Johnson wanted to do more for the girls than just write a fund-raising letter. "Everything about their experience that had brought them to Ma-Sevana had been about distance: psychological and physical distance from their family and friends, distance from their education … and perhaps the saddest of all, distance from their own childhood," said Whitney-Johnson. She wanted to find a way to get closer.

An avid jewelry-maker, Whitney-Johnson decided to share her personal passion, hosting workshops and teaching the girls, through a translator, to use multicolored beads to make earrings and bracelets. Eventually, there was no need for translation, said Whitney-Johnson, who watched the girls light up as they worked.

Whitney-Johnson realized that the jewelry might serve a function beyond art therapy — both as "a lasting skill for the future, and providing a method of income generation," she said.

Back at MIT for the fall semester, Whitney-Johnson applied for and received a fellowship from the PSC to return to Sri Lanka during the January 2006 Independent Activities Period (IAP).

She named her project Emerge for the qualities — "self-respect, creativity, confidence, a willingness to try something new, independence, collaboration, imagination, organization, hope and autonomy" — she saw developing in the girls.

Whitney-Johnson sought sponsors who were willing to make a $200 per year commitment to the girls. Every three months, sponsors send $50 worth of beads to the girls, who in turn create a portfolio of photographs of their five best pieces.

"The portfolio will enable the sponsor to see how the beads were used, get ideas for future supplies the girl may enjoy, and enable the sponsor to watch as the artist's style develops," said Whitney-Johnson.


PHOTO / **DONNA COVENEY**

Sophomore Alia Whitney-Johnson displays some of the beaded jewelry she is selling to help young rape and incest victims in Sri Lanka. She set this table up at the March 3 MacVicar Day celebration at the Stata Center. Whitney-Johnson, a civil and environmental engineering major, taught the girls to make the jewelry.

Whitney-Johnson applied for an importer's license so she can bring the girls' work into the United States to be sold at crafts fairs and shows. Additionally, the children's work will be sold in stores in Sri Lanka, particularly in stores that cater to tourists.

"All profits will be reinvested in the program itself, donated toward services to run the home, or deposited in the artist's bank account for her withdrawal upon departure of Ma-Sevana at the age of 18," said Whitney-Johnson.

The story of one 16-year-old girl she met over IAP embodies what Whitney-Johnson hopes to accomplish with Emerge.

"She was the face that greeted me behind that chain-linked fence every morning when I arrived," said Whitney-Johnson. The girl was more reserved and isolated than some of the others. "To my amazement, after the first day of my workshops, she was the face that not only greeted me, but greeted me enthusiastically every morning," Whitney-Johnson said.

That transformation is what Whitney-Johnson hopes will happen for all the girls in Emerge.

"The term victim describes someone who is passive," Whitney-Johnson said. "She proved to me that even the most abused can be active and that we all will go to tremendous lengths to pursue something we find beautiful. Together, we both became stronger and were able to build something that wasn't there before: a program that would create and sustain itself through all of our inevitable search for beauty."

For further information or to sponsor a girl or donate money to Emerge, please contact Alia Whitney-Johnson at aliawj@gmail.com.

To make a donation without becoming a sponsor, please make checks payable to Emerge and leave at the MIT Public Service Center.

# ‘Mad cow protein’ found to help make brain cells

**David Cameron**
Whitehead Institute

Few conditions are more detrimental to human brains than the one popularly referred to as mad cow disease. But now there’s reason to suspect that the protein which, when malformed, causes bovine spongiform encephalopathy in cows and Creutzfeldt-Jakob disease in people, might also be necessary for healthy brain function.

Researchers from MIT, the Whitehead Institute for Biomedical Research and Harvard Medical School/Massachusetts General Hospital have discovered that the normal form of this detrimental protein may actually help the brain create neurons, those electricity-conducting cells that make cognition possible.

“It’s been difficult to understand why this prion protein, which when malformed subjects us to this horrible disease, is so abundant in our brains in the first place,” says Whitehead member Susan Lindquist, who is also a professor of biology at MIT. “We’ve known for years what happens when this protein goes wrong. Now we’re starting to see what its normal form does right.”

Along with Jeffrey Macklis of Harvard Medical School and Massachusetts General Hospital, Lindquist is co-senior author on a paper published in February in the Proceedings of the National Academy of Sciences.

For more than 10 years, researchers have known that a protein called PrP causes mad cow disease and its human equivalent, Creutzfeldt-Jakob disease, when it forms incorrectly. PrP is a prion, a class of proteins that has the unusual ability to recruit other proteins to change their shape. (PrP is shorthand for “prion protein.”)

This is significant because a protein’s form determines its function. When a prion changes shape, or “misfolds,” it creates a cascade of neighboring proteins all assuming that particular conformation. In some organisms, such as yeast cells, this process can be harmless or even beneficial. But in mammals, it can lead to the fatal brain lesions that characterize diseases such as Creutzfeldt-Jakob.

Curiously, however, PrP can be found throughout healthy human bodies, particularly in the brain. In fact, it’s found in many mammalian species, and only on the rarest occasions does it misfold and cause disease. Clearly, scientists have reasoned, such a widely conserved protein also must play a beneficial role.

In 1993, scientists created a line of mice in which the gene that codes for PrP was knocked out, preventing the mice from expressing the prion in any tissues. Surprisingly, the mice showed no sign of any ill effect. The only difference between these mice and the control mice was that the animals in which the gene was knocked out were incapable of contracting prion-related neurodegenerative disease when infected. Researchers knew then that PrP was necessary for mad-cow type diseases; any other kind of normal function remained unknown.

Recently, researchers from the labs of Lindquist and Whitehead member and MIT biology Professor Harvey Lodish discovered that PrP helps preserve stem cells in the blood. Because of this, Lindquist teamed up with Macklis to see if there might also be a similar connection

See **MADCOW**
Page 6

# G-Lab students get rewarding experiences around world

**Sasha Brown**
News Office

MIT graduate student Christopher Lowell combined a school-sponsored three-week internship in the mining industry in Rwanda with four weeks of African travel to shape what he called one of the most important experiences of his life.

Lowell went to Rwanda with three other students from the MIT Sloan School of Management as part of the Global Entrepreneurship Laboratory (G-Lab) — a Sloan course that gives students the chance to work with international start-up companies.

For the first three weeks, Lowell and the rest of the team were in Rwanda, working to present a strategic plan to help boost the local mining industry. For Lowell, the work was “a crucial but small part of the total experience in Africa.”

For the remaining four weeks, the group took to the road. “The traveling was the experience that most pulled us out of our element,” Lowell said.

Together, the four attempted to climb Mount Kilimanjaro, the tallest mountain in Africa (only Lowell and one other reached the summit), rafted the Nile, went into the Congo and navigated through cultures that were both foreign and a bit daunting, Lowell said.

This year, G-Lab projects took 160 students to more than 17 countries over the January Independent Activities Period (IAP). The G-Lab course is designed to take students out of their comfort zones and highlight the special challenges faced by start-ups in emerging markets.

Teams of four were matched with companies in October, after which they met with company representatives weekly, either remotely or in a company’s Boston offices.

During IAP, the companies sponsor three-week internships for each team, providing transportation and housing. Many of the Sloan students worked up to 15-hour days, helping them develop strategic plans.


PHOTO COURTESY / **CHRISTOPHER LOWELL**

Graduate student Christopher Lowell, who went to Africa as part of Sloan’s Global Entrepreneurship Laboratory, takes in the sunrise at Gilman’s Peak in Tanzania. He eventually made it to the summit of Mount Kilimanjaro with G-Lab partner Zhiying Jiang.

“It really is a win-win,” said Mike Cerda, a Sloan student who worked with Alfama Inc., a specialty pharmaceutical start-up in Portugal. “Most of us were ready to hit the ground running once we got there.”

During the first semester, he and his team built their contacts and gathered information, both about the market and about the company itself.

Upon arrival, Cerda was immediately struck by some cultural differences. For example, rather than running off to grab something and sit at a desk, Cerda’s Portuguese co-workers sat down and ate lunch together. “It took a little getting used to,” said Cerda. “I caught myself looking at my watch a few times.”

Those kinds of small observations were key to the overall experience, Cerda said. By seeing a culture with new eyes, Cerda and his group were able to evaluate both their own work styles as well as the company’s, he said. “It was very rewarding,” Cerda said.

Sloan student Kerry Bowie worked for Uberaba, an environmental and biotechnology firm in Brazil. Bowie’s group made a tangible impact on Uberaba’s future when they pitched their work before a group of venture capitalists and raised roughly $1 million to fund the company’s expansion. “It was great,” said Bowie. “G-Lab is a really great program and is something that distinguishes the Sloan program.”

Lowell said the work was just part of a total cultural immersion. And, he said, one of the most rewarding aspects of his time in Africa was the friendship he forged with his three G-Lab teammates: Alicia Dermody, Zhiying Jiang and Anne Johnson.

Through the trip, the four worked, lived and traveled together. “We will know that for the rest of our lives, we will drink from each other’s glasses,” said Lowell. “G-Lab was the most valuable thing I did at Sloan.”

# Children benefit from exposure to digital culture, Jenkins says

**Sarah H. Wright**
News Office

Children need to participate fully in digital culture in order to develop the “skills, knowledge, ethical frameworks and self-confidence needed to be full participants in the world around them,” MIT Professor Henry Jenkins told members of the American Association for the Advancement of Science (AAAS) recently.

Jenkins, director of the Comparative Media Studies Program, presented a paper at the AAAS annual meeting, which had the overall title “Grand Challenges, Great Opportunities.” Held Feb. 16-20 in St. Louis, the meeting was attended by more than 6,000 people, including 900 scholars and scientists. Jenkins spoke at a symposium titled “It’s 10 p.m.: Do You Know Where Your Children Are … Online” in the AAAS series, “Kids Online — A New Community.”

Jenkins, the principal investigator for the New Media Literacies project in the Comparative Media Studies Program, presented some of the project’s early research findings.

He focused on 21st-century literacy, which is based on the ability to read and write and includes the digital skills to participate socially and collaboratively in the new media environment.

Jenkins proposed that there is a high 21st-century literacy rate among teens — measured by their skillful use of all things digital, including instant messaging, Myspace, sampling, zines, mashups, Wikipedia, gaming and spoiling — that has far more meaning than “screen time” implies.

“Social connectivity, creativity and learning take place through these various media-related experiences,” said Jenkins, long a proponent of open-mindedness towards new media and of respect for its political and creative potential.

He tirelessly contrasts passive media consumption — the slug on the couch — with the activities of digital culture. The latter is essentially participatory, meaning it has “relatively low barriers to artistic expression and civic engagement, strong support for creating and sharing what you create, and members feel their contributions matter,” he noted.

Rather than focus on the negative effects of media consumption — the dreaded “screen time” — parents and teachers should seek to eliminate the “participation gap” between affluent students’ digital resources at home and those available to less affluent students at school.

“This may be what is most radical about the new literacies — that they enable collaboration and knowledge-sharing with large-scale communities. Right now, our schools are still training autonomous problem-solvers. But as students enter the workplace, they are increasingly being asked to work in teams, drawing on different sets of expertise and collaborating to solve problems,” he said.

Jenkins’ new book, “Convergence Culture: Where Old and New Media Collide,” will be published this summer by New York University Press.

## DIGITALK: WHERE IT'S AT

### Talks on human-computer interaction

The Computer Science and Artificial Intelligence Laboratory (CSAIL) sponsors an ongoing seminar series on human-computer interaction. Two upcoming sessions feature speakers from industry. On March 17, Fritz Knabe from Endeca will talk about ending the tyranny of the search box. On April 7, Pekka Ketola of Nokia will discuss trends in mobile user interfaces.

You can find out more about the series on IS&T's Usability page at web.mit.edu/ist/usability/. To get on the seminar mailing list, visit lists.csail.mit.edu/mailman/listinfo/hci-seminar.

### Naxos music library

If you're a devotee of classical music, the online library from Naxos may be the next best thing to Symphony Hall. Its online library includes the entire Naxos and Marco Polo catalogs. Listeners can also groove to jazz, blues, new age or world/folk music on other licensed labels. The collection, which continues to expand, has more than 8,800 CDs.

Members of the community can access the Naxos Music Library on or off campus. MIT certificates are required. At this time the service is limited to Macintosh and Windows users; there is no support for Linux.

For instructions on accessing the library, visit libraries.mit.edu/music/naxos.html. If you would like to offer feedback on this service, contact Peter Munstedt, the Lewis music librarian, at pmunsted@mit.edu or x3-5636.

### Widen your web site's reach

Most departments, labs and centers at MIT rely on their web sites to get out the word about what they have to offer. To reach the widest online audience, sites need to be accessible to people with disabilities. Web accessibility experts from IS&T's ATIC Lab can test MIT web sites with assistive technologies, such as screen reading, magnification and voice recognition software, and provide feedback on ways to make these web sites more universally accessible. There is no fee for this service. For more information, e-mail atic@mit.edu or call x3-7808. MIT's web accessibility guidelines are at web.mit.edu/atic/www/accessibility/developweb.html.

### Macintosh migration assistant

The Mac OS X Migration Assistant is a tool designed to help in upgrading to a new Macintosh. It guides the way through the process of moving files, folders, applications and settings from an older machine to a new one. The key requirement is that both machines have built-in FireWire, since files and settings are transferred over a FireWire cable. Also, the older machine needs to be running Mac OS X 10.1 or greater.

The Migration Assistant lives in the utilities folder in the applications folder. For details, visit docs.info.apple.com/article.html?artnum=25773.

*Digitalk is compiled by Information Services and Technology.*

## AWARDS & HONORS

**Nancy Hopkins,** Amgen Professor of Biology, has been chosen to receive the American Association for Cancer Research (AACR) Women in Cancer Research Charlotte Friend Memorial Lectureship. The award is intended to honor an outstanding female or male scientist who has made meritorious contributions to the field of cancer research and who has, through leadership or by example, furthered the advancement of women in science. Hopkins will receive the award and deliver a lecture on April 1 at the AACR annual meeting in Washington, D.C.

**John Cassady,** a senior studying biology, has been named one of six 2006 Gilliam fellows by the Howard Hughes Medical Institute. Gilliam fellowships provide support for doctoral studies in biomedical research for disadvantaged students, including minorities underrepresented in the sciences.

**Asu Ozdaglar**, assistant professor of electrical engineering and computer science, recently received an Early Career Development Award from the National Science Foundation's Division of Design, Manufacture and Industrial Innovation. The award, which grants $400,000 for five years, will be used to fund Ozdaglar's research in optimization theory and game-theoretic methods in networking and control.

PHOTO / **KRISTIE SMITH**

**Honor guard on ice**

The MIT Police Department honor guard presents the colors at the Bruins game at the TD Banknorth Garden on Saturday, March 4. It was the first time a college color guard had presented at a Bruins home game. Members are, from left, Mark Kelleher, Bill Smith, Kevin O'Connor, Duane Keegan and Dave Sacco.

# MADCOW

**Continued from Page 5**

between PrP and cells in the brain, where the prion protein is far more abundant.

Andrew Steele, a graduate student from the Lindquist lab, teamed up with Jason Emsley and Hande Ozdinler, postdoctoral researchers in the Macklis lab, to investigate the effects PrP might have on neurogenesis. (Neurogenesis is the process by which the brain creates new neurons in the developing embryonic brain and, to a limited extent, in the adult brain.) To do this they studied embryonic brain tissue from three kinds of mice: those in which the PrP gene was permanently disabled, or knocked out; those in which the gene was over-expressed, producing an unusually large amount of PrP; and normal control mice.

Steele and Emsley isolated neural precursor cells – early-stage cells that give rise to mature neurons and so-called glial support cells. After placing these embryonic precursor cells under culture conditions that enabled them to grow and differentiate, they noticed striking differences. Cells from the knock-out mice remained in the precursor stage for a long time, compared to the control mice. But cells in which PrP was overexpressed began forming mature neurons almost immediately.

"The more PrP you have, the faster you become a neuron. The less you have, the longer you'll stay in a precursor state," says Steele.

This research was funded by the National Institutes of Health/National Institute of Neurological Disorders and Stroke, the Ellison Medical Research Foundation, Paralyzed Veterans of America/Travis Roy Foundation, the Children's Neurobiological Solutions Foundation, the Heart and Stroke Foundation of Canada and the Harvard Center for Neurodegeneration and Repair.

# Faculty slated to meet today

A regular meeting of the faculty will take place Wednesday, March 15, at 3:30 p.m. in Room 32-141. The agenda includes:

- Proposal to restructure the Committee on Graduate School Programs
- MIT's response to the NIH public access policy
- Remarks from President Susan Hockfield
- Topics arising and questions for the president, the provost and the chancellor

# MUSEUM

**Continued from Page 1**

stages of construction.

Their collection was in off-site storage, but the structures — which survived the initial flooding — were destroyed when a giant casino barge broke loose and flattened them.

"We had to downsize our staff from 19 to six," said Gowdy. Thanks to the MLN grant, she said, "We were able to get out of disaster mode for a while and plan for the future."

Gross said she hopes museums that lend collections to the Gulf Coast institutions will be generous when making the arrangements.

*For a complete list of grant recipients, visit http://web.mit.edu/arts.*

# Quarter Century Club to induct new members

The MIT Quarter Century Club induction ceremony and luncheon for new members will be held on Monday, April 3. New membership in the club is offered to faculty and administrative, research, support and service staff who will celebrate their 25th anniversary with the Institute on or before June 30. Those who believe they are eligible for membership but have not yet received an invitation to attend the induction luncheon are asked to call the Quarter Century Club in the Community Services Office at x3-7914.



## CLASSIFIED ADS

**Members of the MIT community may submit one classified ad each issue. Ads can be resubmitted, but not two weeks in a row. Ads should be 30 words maximum; they will be edited. Submit by e-mail to ttads@mit.edu or mail to Classifieds, Rm 11-400. Deadline is noon Wednesday the week before publication.**

### FOR SALE

1996 white Maytag heavy duty washing machine - 2 speed, super capacity, 9 cycles, excellent condition. Washer is located in North Reading, Mass. $175. Contact Cheryl at 617-258-5673 or 978-276-0670 or cheryl@mit.edu.

### HOUSING

Fully-furnished duplex apartment with country taste and charm, latest appliances, Internet and telecom connections in the South of France: www.maison-pradier.com. Minimum 3-month rental. E-mail annals@mit.edu.

Martha's Vineyard, Oak Bluffs - 2BR/1.5BA; wraparound deck, outdoor shower, barbecue, sunny open interior. Near lagoon, tennis & bike trails. $550-1000/week. Nina at ninad@mit.edu or view web site: http://home.comcast.net/~ndomenico/marthasvineyard/index.htm.

Oceanfront summer cabin, Mount Desert Island, ME: 2BD/1BA w/living/kitchen area; picture windows, deck overlooking water; stairway to beach. Mins from Acadia National Park, Bar Harbor. $1,000/week June-Sept. Contact Steve at 253-5757 or chorover@mit.edu.

### MISCELLANEOUS

Tennis instructors needed for NIKE tennis camp. June 19-23, 26-30, July 10-14, Aug 7-11. Pick 1 or all the weeks. For children 6-16. Contact Dave at dhagymas@mit.edu.

Wanted: Danish Modern, Scandinavian, & Eames style Teak or Rosewood furniture from 1950s-1980s. Will give your furniture a good home. Contact Aaron at 617-547-4459 or adschwartz@alum.mit.edu.

### STUDENT EMPLOYMENT

Media and Technology Charter High School (MATCH) is looking for committed, caring & enthusiastic individuals to tutor in our Summer Academy. We are looking for English, math, science & history tutors. Be a part of an organization that is changing lives & reversing underachievement in inner-city teens. Summer Academy will run 5 weeks, July 17-Aug 17. There will also be mandatory training, one full day & one three-hour session, prior to the start of the Academy. Academy is 4 days/week, Monday-Thursday, 7:45 a.m.-1 p.m. Contact Bob Hill 617-232-0300, bob.hill@matchschool.org. $17/hr.

Jr. Achievement of Eastern Mass provides economic & financial literacy programs for grades K-12. For spring semester & possibly into summer, seeking a student for position in Development Dept. Report directly to Development Mgr, responsible for assisting w/ researching possible prospects such as local companies & foundations through the Internet & other in-house tools; updating database; donor recognition & mailings. Also work w/ Marketing Mgr on special events JA hosts during the spring. Prior knowledge not req., just willingness to learn. Training provided, collaborative work env. Contact Jessica Loew 617-368-3566, jloew@ja-easternmass.org. $15/hr.

PHOTO / **ROBERT KIM**

Darius de Haas performs March 20 at MIT.

# Cabaret star brings a little 'Broadway' to Kresge

Obie-Award winning Broadway and cabaret star Darius de Haas will share reflections on his multifaceted career in a free talk, "Broadway and Beyond," on Monday, March 20, at 5 p.m. in Kresge Little Theater.

De Haas's visit was arranged by Associate Professor Thomas DeFrantz; the two are collaborating on a new one-man musical, "The Downright Sexy Adventures of Drew Durango."

De Haas, known for his rich, supple voice, theatrical sophistication and imaginative jazz interpretations, has appeared in such Broadway productions as "Kiss of the Spider Woman" and "Rent." He also did voice work for the animated feature "Anastasia" and has presented solo concerts around the world.

De Haas will present a staged reading of "The Downright Sexy Adventures of Drew Durango," written by DeFrantz (book) and Berklee College of Music Associate Professor Michael Wartofsky (music and lyrics) in Kresge Little Theater. The shows are scheduled for March 24-25 at 8 p.m. and March 26 at 2 p.m.

The show chronicles the affairs of Drew, a 20-something, gay African-American man finding his way through the urban minefield of relationships and sex in New York City, circa 2005. Tickets range from $6-$10.

While on campus, de Haas will also teach a master class to students in DeFrantz's musical theater workshop.

For more information, call x3-6957 or e-mail defrantz@mit.edu.

## NEWS YOU CAN USE

### Travel fellowships

The Kelly-Douglas Fund is offering spring-term essay prizes and travel fellowships. Entries are due Wednesday, April 12.

All undergraduates are eligible for the I. Austin Kelly III essay prize competition, which awards two $800 prizes.

All sophomores and juniors are eligible for the Kelly-Douglas Traveling Fellowship competition, which provides partial support (ranging from $500 to $1,000) for travel expenses during summer 2006.

For more information, contact Professor Lowell Lindgren, director of the Kelly-Douglas Fund, at lindgren@mit.edu, or visit web.mit.edu/mta/www/music/resources/kellyprize.html and web.mit.edu/mta/www/music/resources/kelly-traveling.html.

### Scholarships

The Greater Boston Postal Customer Council (PCC) has a scholarship program that is available to children of MIT employees.

The PCC will award merit-based, $1,500 scholarships to high school seniors who are about to enter their first year of college. The deadline to apply is March 24.

For a copy of the application, contact Marty O'Brien at x3-6728 or mobrien@mit.edu.

### Environmental grants

The MIT Center for Environmental Health Sciences (CEHS) is requesting applications for pilot project funding. The goals of the CEHS Pilot Project Program are to: provide initial support for new investigators to establish research in the area of environmental health; allow for exploration of innovative new directions representing a significant departure from ongoing funded research for established investigators in the environmental health sciences; stimulate investigators from other areas of endeavor to apply their expertise to environmental health research; and to provide an opportunity for investigators to take a multidisciplinary approach to environmental health research through collaboration with others.

Application deadline is Saturday, April 15; funding start date is Thursday, June 1.

For more information on this program and application guidelines please contact Jacqueline Breen at jbreen@mit.edu or x3-6282.

PHOTO COURTESY / **SLIPPAGE**

Thomas DeFrantz, associate professor of music, will perform his piece, "House Music Project," this weekend in Kresge Little Theater.

# Dance goes digital in 'House Music Project'

**Lois Weinblatt**
Office of the Arts

"House Music Project," an interactive, improvisational performance developed by Associate Professor Thomas DeFrantz and opening this weekend at MIT, combines digital technology and African-American dance to explore what DeFrantz calls "the technological shifts that pushed black music into the electronic age."

"Disco, the black music of economic uplift, racial assimilation and 'good times,' gave way to two main strands of electronic music: house and hip-hop," explained DeFrantz, whose research centers on African-American performance. "House" music, which mixed prerecorded pieces together and added the voices of singers, the DJ, and often live organ, opened up new possibilities for black music, he said, but has been passed over in many histories of popular music in the United States.

Unlike hip-hop, which DeFrantz said "voiced the trials of living young and oppressed through break dancing, graffiti, emceeing and DJ-ing," house music "focused on the aesthetics of sonic pleasure through the craft of the DJ."

DeFrantz will be joined by MIT student dancers, including some from Imobilare, MIT's break dancing group.

DeFrantz will wear a "custom-constructed sensor-driven wireless body-pack" that allows him to manipulate audio and video feeds drawn from a music archive. "It takes a while for the audience to understand that the dancer controls the sound and video, but when that realization happens, it's great fun," he said.

For the technological elements of the project, DeFrantz tapped the talents of two former students who studied under him during their undergraduate years at MIT. Eto Otitigbe (S.B. 1999) and James Tolbert (S.B. 2005) were enlisted to work on the project in its early stages and provided input that DeFrantz called "critical to shaping the larger interests of the work."

Otitigbe, now known professionally as Eto Oro, designed a mixed media archive of house music documentation through images, text streams, recorded sounds and prepared video.

Tolbert created a computer engine that generates images and sounds based on the movements of the dancers as they perform within an abstract "house" on stage.

DeFrantz developed the project during Independent Activities Period, when he spent a month at the University of Texas in Dallas working with students and local community members to bring his idea to life.

While emergent technologies are integral to DeFrantz's pieces, he said there are still many challenges associated with using them in performance. "Often technology is its own end, providing spectacle without integral connection to human interaction. My goal in these works is to yoke the technology to narrative storytelling in some way," he said.

"House Music Project" will be performed March 16-18 at 8 p.m. and March 19 at 2 p.m. in Kresge Little Theater. Tickets are $10, $6 for students.

A discussion of "House Music Project" and a free technology demo will be held March 17, at 2 p.m. in Kresge Little Theater.

PHOTO / **THOMAS MAXISCH**

MIT conductors Fred Harris and Dante Anzolini will lead the MIT Wind Ensemble and MIT Symphony Orchestra, respectively, in concerts this weekend.

# Conduct(ors) becoming to MIT

This Friday, March 17, Associate Professor Dante Anzolini will lead the MIT Symphony Orchestra (MITSO) in a March-themed concert.

The evening will feature works by Mozart and Shostakovich (both born in March) and two works originally premiered in the month of March.

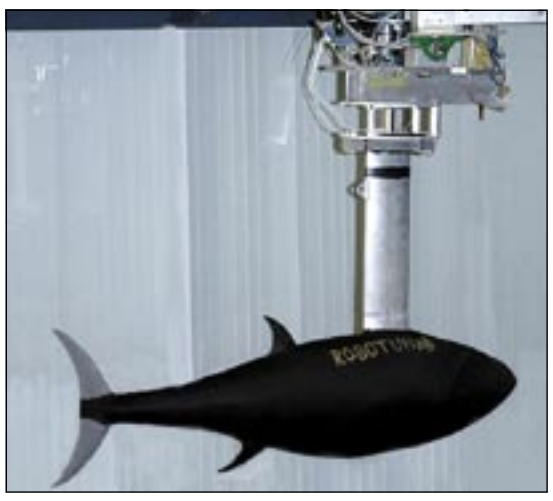
In addition to Mozart's overture to "The Magic Flute," K 620 and Shostakovich's Prelude and Scherzo, Op. 11, MITSO will perform "Darkbloom: Overture to an Imagined Opera" by MIT Institute Professor John Harbison (premiered by the Boston Symphony Orchestra in 2005) and Copland's Symphony No. 3 (premiered by the BSO in 1946).

On Saturday, March 18, Frederick Harris Jr. will conduct the MIT Wind Ensemble in a program of masterworks for wind ensemble, including Johann Strauss' Serenade in E flat, Gustav Holst's Suite in E flat, William Schuman's "George Washington Bridge" and Karel Husa's "Music for Prague 1968." Prior to the ensemble's performance of "Music for Prague 1968," Harris will give a special lecture/demonstration on the work.

Both concerts will be in Kresge Auditorium at 8 p.m. Admission is $5 at the door.

## MIT EVENT HIGHLIGHTS MARCH 15-19

Science/ Technology | Performance | Architecture/ Planning | Humanities
Music | Exhibit | Reading | Special Interest
Business/ Money | Film | Sports | Featured Event



### RoboTuna

Kurt Hasselbalch, curator of the Hart Nautical Collections, will discuss "RoboTuna" and some of the latest research from MIT's Center for Ocean Engineering on March 15 at noon at the MIT Museum.

### WEDNESDAY March 15

**Fourth Annual Juried Student Origami Exhibition**
Exhibition of winners of student competition. Open 24 hours. Wiesner Student Art Gallery (Stratton Student Center 2nd floor). Open 24 hours. 253-7019.

**"Distributed Solar Energy for Developing Countries"**
John Rogers of Soluz, Inc. will discuss his experience with solar installations in developing countries. Room 1-190. 4-5:30 p.m.

**Israeli Dancing**
Every Wednesday. 8-11 p.m. Room W20-407. 253-FOLK.

### THURSDAY March 16

**MIT Chapel Concert**
John Ferguson plays Cage's "One10" and Bach's "Partita in B minor BWV 1002" on the violin. Noon. MIT Chapel. 253-2826.

**"Listening to Depression: An Interdisciplinary Look at a Mental Health Crisis"**
An interdisciplinary look at depression featuring a panel discussion. 5:30 p.m. Room 6-120. 253-0108.

**House Music Project**
Project conceived and performed by Associate Professor Thomas DeFrantz with special guest dance artists. March 16-19. $10, $6 students. 8 p.m. except 2 p.m. on March 19. Kresge Little Theater. 253-4720.

### FRIDAY March 17

**"Deadline: Playwrights in Performance Script Submission"**
Professor Alan Brody directs a series of one-act plays selected through review. 5 p.m. Room 10-280. 253-4892.

**No Longer "New" — Public Art of the '80s and '90s in Retrospect**
Panel discussion with MIT Associate Professor Wendy Jacob and artists Mel Chin and Miwon Kwon. 6:30 p.m. Bartos Theater. 253-4680.

**MIT Symphony Orchestra**
Mozart's overture to "The Magic Flute"; Shostakovich's "Prelude and Scherzo, Op. 11"; Harbison's "Darkbloom: Overture to an Imagined Opera"; Copland's Symphony No. 3. $5. 8 p.m. Kresge Auditorium. 253-2826.

### SATURDAY March 18

**Gallery Talk**
Talk by Bill Arning, curator of the List Visual Arts Center, in conjunction with "America Starts Here — Kate Ericson and Mel Ziegler 1985-1995." 2 p.m. List Visual Arts Center. 253-4680.

**MIT Juggle Mania II Performance**
Performance by the MIT Juggling Club members and professional performers. 6:30–8 p.m. Room 54-100.

**MIT Wind Ensemble**
Strauss' Serenade in E flat; Holst's Suite in E flat; Schuman's "George Washington Bridge"; Husa's "Music for Prague 1968." $5. 8 p.m. Kresge Auditorium. 253-2826.

### SUNDAY March 19

**Hibur: MIT-Technion Link's Lecture Series**
Talk by Uri Shamir of the Technion-Israel Institute of Technology. 10-11:30 a.m. Room 9-057. 253-2982.

**Chantey Sing**
Local chantey singers perform a variety of historic songs that celebrate the sea and the hard work that went into exploring it. 1-4 p.m. MIT Museum.

**House Music Project**
Project conceived and performed by Associate Professor Thomas DeFrantz, with special guest dance artists. $10; $6 students. 2 p.m. 253-4720.

### TUNE IN

John C. Foster, associate director of MIT's Haystack Observatory, will appear on the Discovery Channel series "Perfect Disaster" at 10 p.m. Tonight's episode will feature solar storms, a type of destructive storm that could cause a global blackout.

**Go Online! For complete events listings, see the MIT Events Calendar at: http://events.mit.edu.**
**Go Online! Office of the Arts website at: http://web.mit.edu/arts/office.**

## EDITOR'S CHOICE

TRANSPORTATION FAIR — *Mar.15*
Fair for employees and students who wish to explore their commuting and transportation options at MIT.
**Lobby 10**
**11 a.m.-1 p.m.**

"KING LEAR" — *Mar.16*
MIT Shakespeare Ensemble production.
**La Sala de Puerto Rico**
**8 p.m.**

BICYCLING SKILLS WORKSHOP — *Mar.23*
Presented by MassBike and sponsored by the Commuting Task Group of the Working Group on Support Staff issues.
**Room 3-270**
**Noon**

## MIT EVENT HIGHLIGHTS MARCH 20-26

### MONDAY March 20

**"Broadway and Beyond: A Conversation with Darius de Haas"**
Broadway and cabaret star Darius de Haas will discuss his career and the upcoming readings of the original one-man musical, "The Downright Sexy Adventures of Drew Durango." 5 p.m. Kresge Little Theater. 253-6957.

**Essay Writing Workshop**
This interactive workshop will discuss the elements of a successful medical or law school essay and will provide tips and strategies to get you started writing. 5:30-6:30 p.m. Room 12-102. 253-4733.

**Development Dinner Discussion: ICT Issues**
Dinner discussion of information and communication technology issues related to development, with three guests involved in ICT-related development work. 6:30–8 p.m. Room 35-520.

### TUESDAY March 21

**"New Challenges to Old Wage & Hour Law: Managerial Misclassification, or Who Really Does Managerial Work"**
Institute for Work and Employment Research Seminar Series talk by David Lewin of UCLA. 1–2:30 p.m. Room E52-598.

**"Light Is Sweet"**
Architecture lecture with architect Jae Cha. 6:30 p.m. Room 10-250. 253-7791.

**"L'esquive"**
Film directed by Abdellatif Kechiche (2004). 7 p.m. Room 56-114. 253-4771.

### WEDNESDAY March 22

**"Operation Anaconda: Lessons Learned"**
Talk by Sean Naylor of Army Times. Noon-1:30 p.m. Room E38-615. 253-7529.

**Gallery Talk**
Talk by Jane Farver, director of the List Visual Arts Center, in conjunction with "America Starts Here — Kate Ericson and Mel Ziegler 1985-1995." Noon. List Visual Arts Center. 253-4680.

**"Contemplation and Education"**
Talk by Father Thomas Keating, a Trappist monk and founder of the Centering Prayer Movement. 7-8:30 p.m. Room 10-250.

### THURSDAY March 23

**MIT Chapel Concert**
Ensemble Trident: Maria Georgakarakou, soprano; Panayotis Terzakis, bass and percussion; Richard Maloney, medieval and renaissance lutes, oud and percussion. Noon. MIT Chapel. 253-2826.

**Killian Lecture**
Institute Professor Isadore Singer, winner of the 2005-2006 James R. Killian, Jr. Faculty Achievement Award, will speak on "Some Geometry of the Past Half Century and Its Historical Background." 4:30 p.m. Stata Center, Kirsch Auditorium.

**Karaoke Night at the Thirsty Ear**
Must be 21+. Proper ID required. 8 p.m. The Thirsty Ear Pub. 258-9754

### FRIDAY March 24

**"Arnold Newman: 20th-Century Photographs"**
Arnold Newman is perhaps the best-known photographer of the world's legendary artists, poets, politicians, actors and scientists. 9:30 a.m.-5 p.m. Room 10-150. 253-4444.

**Reading of "The Downright Sexy Adventures of Drew Durango"**
Book by Associate Professor Thomas DeFrantz; music and lyrics by Michael Wartofsky, associate professor at Berklee College of Music. March 24-26. $10, $6 MIT students. 8 p.m. except 2 p.m. on March 26. Kresge Little Theater. 253-4720.

**Norooz Celebration**
Persian New Year celebration. $10. 8 p.m. W20. Lobdell.

### SATURDAY March 25

**Varsity Sailing**
MIT hosts the race for the Marchiando Trophy. 9:30 a.m. Charles River. 258-5265.

**International Championship of Collegiate A Cappella — New England Semifinals**
Featuring: University of New Hampshire Alabaster Blue, MIT Chorallaries, BU InAChord, The Harvard LowKeys, University of Hartford L'Shir, Mt. Holyoke College The M&Cs and BU Treblemakers. 7:30–10 p.m. $12; $7 students. Kresge Auditorium.

### SUNDAY March 26

**Gallery Talk**
Talk by List Visual Arts Center staff in conjunction with "America Starts Here — Kate Ericson and Mel Ziegler 1985-1995." List Visual Arts Center. 253-4680.

**F.A.S.T. Program: "The Science of Theater"**
A Family Adventures in Science & Technology presentation. 2-4 p.m. Room E32-141. 452-2111.