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TechTalk
SERVING THE MIT COMMUNITY

PHOTO / **DONNA COVENEY**

Keynote speaker Donna Brazile addresses the crowd in Walker Memorial on Thursday, Feb. 9.

MIT honors King legacy

Donna Brazile keynotes breakfast

Sarah H. Wright
News Office

The land of social and economic justice envisioned by Martin Luther King Jr. was brought to life in words and music during the 32nd annual breakfast celebration to honor the slain civil rights leader's legacy, held on Thursday, Feb. 9, in Morss Hall, Walker Memorial.

Titled "Dr. King's Unfinished Agenda: A Call for Economic and Social Justice in the 21st Century," the event featured keynote speaker Donna Brazile, political consultant and chair of the Voting Rights Institute; MIT President Susan Hockfield; student speakers; and performances by the MIT Gospel Choir.

This year, the gathering honored King, who was assassinated in 1968, and his wife, Coretta Scott King, who died on Jan. 30. Mrs. King was the MLK breakfast keynote speaker in 1994.

Hockfield and Brazile commented on Mrs. King's role in furthering her husband's dream of a just society and described steps to realize that dream.

Hockfield encouraged the 350 attendees to recall Mrs. King, whose example "compels us to consider the achievements of a movement that seems ever more remarkable with the passage of time," she said.

"Just as Coretta Scott King carried on her husband's

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Inventors Hall of Fame to induct 2 professors

Anne Trafton
News Office

Two MIT professors have been named to the National Inventors Hall of Fame, the hall announced on Wednesday, Feb. 8.

Institute Professor Robert Langer, the Kenneth J. Germeshausen Professor of Chemical and Biomedical Engineering, and Ali Javan, professor emeritus of physics, will be inducted into the Hall of Fame on May 6.

Langer was selected for his work developing sustained-release drug delivery systems, and Javan was honored for inventing the helium-neon laser.

Langer, who holds more than 500 patents, discovered a way to control the delivery of large-molecule drugs by using biodegradable polymers to engineer synthetic materials that allow for precisely timed chemical release. Langer's groundbreaking discovery allowed for cancer treatment with large molecules that could not previously be used therapeutically because the body's enzymes attacked and destroyed them when they were given orally or injected.

"Cited as one of history's most prolific inventors in medicine, Robert Langer has revolutionized biomedical technology through the development of controlled drug delivery," reads the Hall of Fame citation.

Langer's innovative products include a chemotherapy wafer for the treatment of brain cancer, a device that cuts the pain associated with needles and IVs, and transdermal patches for delivery of drugs such as nicotine and birth control hormones. He is also a pioneer in tissue engineering, and last year he developed plastics that can change shape in response to light.

His research has spawned more than

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PHOTO / **DONNA COVENEY**

Seniors David Walfisch, left, and Kieran Culligan recently tested out a skate design that features a slider on a pivoting blade. Their advisor Kim Blair, director of the MIT Center for Sports Innovation, is at center.

Cool research centers on Olympic skates

Sasha Brown
News Office

A pair of MIT students spent the year leading up to the 2006 Winter Olympics testing a new ice skate design that may help Olympic speed skaters break world records someday.

Seniors Kieran Culligan and David Walfisch, both majoring in aeronautics and astronautics, have spent the past year testing the Fulcrum Clapskate for Okolo Sports Technologies, a company in Boxford.

In an Experimental Projects Lab effort, the two worked closely with their adviser, Kim Blair, the founding director of the MIT Center for Sports Innovation, which strives to use science and technology to improve sport performance.

The Fulcrum Clapskate is designed to mimic the motion a human foot makes when walking.

It has several pivot points and a versatile positioning system that can be tailored to a skater's skill level or preference, according to Okolo's web site. The original Clapskate has just one pivot point, which allows the heel to lift up off the blade.

The Fulcrum Clapskate pivots, but it also slides back at the toe, allowing the foot to stroke ball to toe. The result is a more "natural stroke," Culligan said.

When the original Clapskate came into wide use in 1996, world records improved 5 percent to 10 percent, said Culligan, who said he hopes the Fulcrum

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NEWS

FLYING HIGH

Doctoral candidate Carl Dietrich earns the $30,000 Lemelson-MIT Student Prize for such inventions as a personal aircraft.

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PEOPLE

NEW AT MEDIA LAB

Entrepreneur and technology executive Frank Moss is named director of the Media Lab.

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INSTITUTE'S BEST

Two members of the MIT Police are among 19 individuals and teams chosen to receive MIT Excellence Awards.

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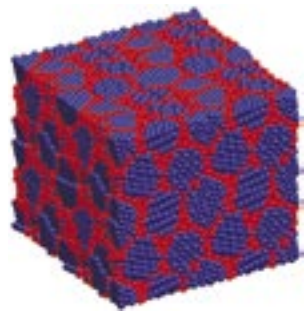

HOLD THE CHROME

MIT research offers a safer alternative to toxic chrome-plating.

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Moss appointed Media Lab director

MIT today announced the appointment of Frank Moss as director of the Media Lab, effective Feb. 1.

A seasoned entrepreneur and technology executive, Moss has spent the last 25 years building a diverse set of companies that are on the leading edge of technology — from startups to large public companies, from high tech to biotech.

"I am delighted that Frank Moss has accepted our invitation to serve as the next director of the Media Lab," said MIT President Susan Hockfield. "He brings a deep intellect, great creativity and an outstanding record of leadership in research and industrial settings to his new role. Moreover, his interests in the computer and life sciences and in technological enhancement of human capability align beautifully with the lab's vision, and with MIT's distinctive cross-disciplinary collaborations, which embrace not only science and engineering but also humanities and the arts."

As director of the lab, which includes the academic program in media arts and sciences, Moss will oversee the lab's growth and expansion as it pursues new directions in research, strengthens its ties with sponsors and enhances its academic programs.

"Frank Moss's high energy and contagious enthusiasm, combined with his impressive experience in bringing innovative technology to market, are a perfect fit for the lab's mission over the coming decade," said Adèle Santos, who oversees the Media Lab as dean of MIT's School of Architecture and Planning.

Frank Moss

With Moss's appointment, Media Lab co-founder Nicholas Negroponte will step down as chairman to concentrate on One Laptop per Child (OLPC), an independent nonprofit organization he launched in January 2005 to develop a very low-cost laptop to help solve the problems of education, especially in developing nations. Negroponte will work with Moss on Media Lab sponsor outreach and strategy. Walter Bender, a founding member of the Media Lab who has served as lab director for the past five years, will take a two-year leave of absence from MIT to serve as OLPC's president for software and content development.

Established in 1985, the MIT Media Lab invented many of the technologies that fueled the digital revolution of the late 1980s and early 1990s. Throughout the following decade, the lab helped bring the digital world into everyday life. Now beginning its third decade, it is poised to focus on technologies that will improve the quality of life by augmenting human capabilities and enabling computers to relate to people on more "human" terms.

"At a time in human history when technology has the potential to profoundly affect people and society, I can't think of a more exciting place to be," Moss said.

Moss brings to the Media Lab a deep understanding of how businesses evaluate and commercialize technology, as well as how they bring innovative technology products to market and manage complex technical organizations. He served as CEO and chairman of Tivoli Systems Inc., a pioneer in the distributed systems management field, which merged with IBM in 1996. He

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Excellence Awards go to MIT's finest

Anne Trafton
News Office

Two of MIT's finest, members of the MIT Police, will be among the 19 individuals and teams honored with MIT Excellence Awards on March 1.

Sgt. Cheryl Vossmer, an 18-year veteran of the police department, will be honored in the Creating Connections category. Officer David O'Connor, the Stata Center's community police officer, is being recognized in the Innovative Solutions category.

The annual Excellence Awards, part of MIT's Rewards and Recognition program, acknowledge innovation, leadership, collaboration, dedication, outreach, inclusiveness, service and results. The program is designed to recognize individuals and teams for their exceptional contributions to their office, department or school – or to the Institute as a whole.

Vossmer, who is in charge of the police department's community policing program, is probably the most well-known member of the department, said John DiFava, director of security and campus police services.

"She's a legend on campus. Everyone knows Cheryl," DiFava said.

Vossmer was nominated by three graduate students, who praised her dedication, availability and efforts to reach out to students with such programs as safety-awareness lectures, self-defense training and theft prevention initiatives.

Ali Motamedi, a graduate student in electrical engineering and computer science, said he met Vossmer during his first week at MIT. Vossmer, evidently sensing that Motamedi was feeling stressed, approached him and struck up a conversation.

"Needless to say that after our conversation, which ended up in many jokes and laughter, I felt considerably happier, more comfortable and at ease dealing with my issues," Motamedi wrote in his nomination letter.

"Cheryl has always been a particularly sensitive and dedicated ambassador of the (MIT) Police," wrote Sylvain Bruni, a graduate student in aeronautics and astronautics, who also nominated Vossmer. "Cheryl is, to me, the face of the police on campus,

PHOTO / **DONNA COVENEY**

Officer David O'Connor and Sgt. Cheryl Vossmer of the MIT Police are among 19 individuals and teams that will be honored March 1 with MIT Excellence Awards.

and has undoubtedly largely contributed to bringing communities together."

Known as "Doc" around the Stata, O'Connor has been at MIT since 2002. He has been permanently assigned to the Stata Center since it opened in 2004.

"He has been able to bring people together and to solve problems before they become problems," DiFava said. "Everyone knows Doc, and they know if they e-mail him or go see him, they're going to get an answer."

Lt. Albert Pierce, who nominated O'Connor, wrote, "Dave has gained the respect and admiration not only of his peers but campuswide to include faculty, staff and students."

DiFava praised Vossmer and O'Connor as officers who are accomplishing the mission he has set for the MIT Police — to serve and reach out to the MIT community.

"My philosophy is that we are here to serve the community and provide an environment where people can do their research and do their studies, without interference from the wrong segments of society," DiFava said.

The Excellence Awards ceremony will be held March 1 in Kresge Auditorium, with opening remarks from President Susan Hockfield and a keynote address from Alice Gast, vice president for research. Refreshments will be served beginning at 11:30 a.m., and the awards presentation will start at noon, followed by a reception at 1 p.m.

For a complete list of the Excellence Awards recipients, visit web.mit.edu/newsoffice/2006/excellence-list.html.

INVENT

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a dozen biotechnology firms and more than 35 products that are either currently on the market or in human testing.

During his career, Langer has received more than 130 scientific awards, including the $500,000 Charles Stark Draper Prize – considered the equivalent of the Nobel Prize for engineers -- and the $500,000 Lemelson-MIT Prize, the nation's largest and most prestigious prize for invention.

Langer joined the MIT faculty in 1977 as a visiting professor in what was then the Department of Nutrition and Food Science. A graduate of Cornell University, he received the Sc.D. from MIT in chemical engineering in 1974. After earning his doctorate, he worked in the laboratory of Dr. Judah Folkman at Children's Hospital.

Robert Langer

Ali Javan

Javan, one of the world's foremost laser physicists, won international acclaim for his invention of the world's first gas laser. He conceived the gas laser principle in 1958, and, while a member of the technical staff at the Bell Telephone Laboratory, he developed and successfully operated the first gas laser (the well-known and widely used helium-neon laser) in 1960.

"Having made pioneering contributions to applied laser technology, Ali Javan's most significant invention is the helium-neon laser, the most useful, practical and profitable type of laser in use today," reads the citation from the Hall of Fame.

His invention — the first laser to operate continuously and the first laser to operate on the principle of converting electrical energy to a laser light output — attracted international attention almost overnight. It is now used in a variety of applications, including holography and UPC code checkout scanners.

As a student, Javan spent a year at university in Tehran, where he was born, before coming to the United States. He entered Columbia University in 1948 and received his Ph.D. in physics in 1954. He remained at Columbia as an instructor until 1958, when he joined the technical staff of Bell Telephone Laboratories in Murray Hill, N.J.

Javan came to MIT as an associate professor of physics in 1961 and was appointed professor in 1964. Many of the early breakthroughs in scientific uses of lasers took place at his MIT laser laboratory.

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Three committees work toward diversity

Sarah H. Wright
News Office

In welcoming participants to the annual Martin Luther King Jr. breakfast, President Susan Hockfield reaffirmed MIT's commitment to pursuing King's agenda within its own community. She emphasized the goals of inclusiveness and diversity for students, faculty and staff, and pointed out three initiatives recently launched by Provost L. Rafael Reif.

Reif, who was named provost last August, has established separate committees to assess the recruitment and retention of minority faculty and has charged a panel with reviewing the MLK Visiting Professors and Scholars Program after a decade of operation.

In January, Reif announced the three diversity initiatives in letters to the faculty and staff.

Reif charged the new Minority Faculty Recruitment Committee with "identifying, supporting and assessing efforts to increase the pool of minority candidates for faculty positions at MIT, with developing new approaches, and serving as a resource for department heads and deans throughout the Institute."

This should include, he noted, identifying the most successful approaches in place at MIT and at peer institutions.

The members of the Minority Faculty Recruitment Committee are co-chairs Paula T. Hammond, associate professor of chemical engineering; Akintunde Ibitayo (Tayo) Akinwande, professor of electrical engineering and computer science; and Nancy Kanwisher, professor of brain and cognitive sciences.

In the same letter, Reif charged the Committee on the Retention of Minority Faculty with developing a "deeper understanding of the experience of minority faculty at the Institute and with devising ways to assist and support their career development."

The group will work in close collaboration with the schools and departments to assess best practices inside and outside MIT and consider potential changes to current policy and practice that might strengthen retention.

The members of the Committee on the Retention of Minority Faculty are Wesley Harris (chair), professor and department head, aeronautics and astronautics; Leigh Royden, professor of earth, atmospheric and planetary sciences; and Merritt Roe Smith, the Cutten Professor of the History of Technology.

Each committee is to report annually to the provost.

Writing of the 10-year-old MLK Visiting Professor and Scholars Program, Reif said, "It behooves us to evaluate [this program] in light of the Institute's renewed commitment to promote diversity in our academic ranks."

Reif charged the MLK review panel with evaluating the selection process; weighing how such a program may be used for faculty recruitment purposes; and considering modifications or expansion of the MLK program as a way to improve the pipeline for faculty candidates.

The MLK review panel members are Rafael L. Bras (chair), the Edward A. Abdun-Nur Professor of Civil and Environmental Engineering; Stephen C. Graves, the Abraham Siegel Professor of Management; Sabine Iatridou, professor of linguistics; Ceasar L. McDowell, professor of the practice of community development; Dale F. Morgan, professor of geophysics; and Christine Ortiz, associate professor of materials science and engineering.

KING

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involvement in civil rights, so we must review our commitment to Martin Luther King Jr.'s goals, to build a more inclusive, more pluralistic, more just society. His faith catalyzed her involvement; her faith should catalyze ours. We must step up. There is much to do to accomplish King's agenda," she said.

Hockfield cited MIT's own diverse student body and a range of successful outreach programs as proof that "raising the bar is not only possible, but it is essential. MIT proves that fighting the tyranny of low expectations is the surest way to enable students — all students — to excel. And MIT proves that diversity and excellence can and should go hand in hand."

Hockfield also highlighted diversity initiatives recently announced by MIT Provost L. Rafael Reif. These seek to strengthen recruitment and retention of minority faculty. (See story above.)

Brazile, whose national political experience includes managing the 2000 Democratic presidential campaign, recalled Mrs. King as a friend and mentor whose "shoulders were sturdy and who kept the fire for freedom burning. She challenged us to build a coalition of conscience."

A native of New Orleans whose family members were dispersed to eight states and 14 different cities in the aftermath of Hurricane Katrina, Brazile declared, "So much still divides us. From the worst storm of all came a storm of indifference. While nature's storms treat us all equally, the nation does not. Now, more than ever, it's time to consider what it means to be poor in America."

"Katrina showed America there is still poverty in our midst. But we're told, 'we've done enough.' That's not true with a budget of $2.7 trillion that does nothing to ease pain and suffering," said Brazile, who has called Karl Rove personally to protest the budget and President Bush's State of the Union speech, she said.

Brazile urged those at the breakfast to protest policies that do not mitigate the "daily disaster of living in poverty in our great land. Find a way to help lift someone up! Keep the fire of freedom burning! The march has not ended."

Two MIT students — David Lowry, a senior in anthropology, and John Pope, a junior in electrical engineering and computer science — shared their experiences and their visions of America's present and its promise.

PHOTOS / **DONNA COVENEY**

The MIT Gospel Choir performs for the hundreds gathered to honor Martin Luther King Jr. at the annual breakfast held Thursday, Feb. 9, at Walker Memorial.

Lowry focused on how "Native American people have been lost in the national social conversation." Speaking particularly of his own group, the Lumbee of southeastern North Carolina, Lowry said, "We are the ninth largest group of Native Americans in the U.S., yet we are invisible to many historians, government officials and even other groups of Native Americans."

Lowry reminded those present, "In the last days of his life, King was voicing his disappointment in an unjust war in Vietnam that sent poor black, poor white, poor Native American and poor Latino men to die, and which killed many Vietnamese."

He cautioned those who sought to follow King's path: "Don't let us forget in 2006 that injustice and inequality anywhere is a threat to justice and equality everywhere."

Pope recalled King's poor peoples' campaign and noted how the poor in America are kept "out of sight, out of mind."

"At MIT we need to keep our eyes open to the problems of the poor. Martin Luther King worked to bring the face of poverty into plain sight. It's up to us to continue his work — to keep everyone in sight and in mind," said Pope.

MIT senior David Lowry described the plight of the Lumbee people of southeastern North Carolina during the Martin Luther King breakfast on Thursday, Feb. 9.

Ronald Hopkins of MIT's Department of Athletics, Physical Education and Recreation performed for the breakfast crowd Thursday, Feb. 9.

Reif introduced the MLK Visiting Professors — Taft Broome, Engineering Systems Division; Earthea Nance, urban studies and planning; and Dale Joachim, computer science.

Deborah Liverman, assistant director of the MIT Careers Office, introduced recipients of the Dr. Martin Luther King Jr. Leadership Awards — Acia Adams-Heath, fiscal officer in the Microsystems Technology Laboratories; graduate student Oluwamuyiwa Olubuyide; and Charles M. Vest, professor of mechanical engineering and president emeritus.

For fuller text, visit web.mit.edu/newsoffice.

Show takes 'Pulse' of African influences

"Pulse: Waves From the Motherland," a show that celebrates Africa and African-American culture, will be held Saturday, Feb. 18, at 8 p.m. in Kresge Auditorium.

Now in its second year, the show highlights black history and its influence on today's culture through music, poetry and dance. It is a collaborative effort between the Advocates for Awareness, the MIT African Students' Association, the MIT Black Students' Union, the MIT Caribbean Club and the MIT chapter of the National Society of Black Engineers.

Last year, sophomore Alia Whitney-Johnson worked with a planning committee of eight MIT and two Harvard students to organize the first show, which was called, "Pulse: One Beat. One World."

The desire to bring "Pulse" to MIT was born during an African cultural show Whitney-Johnson attended at her former high school in North Carolina, she told the MIT News Office last year. "I was one member of a whole audience who left with a new appreciation for how much of our culture is rooted in Africa," she said. "I saw that studying black history is studying my history."

This year's show is "a demonstration of the extent to which Africa has influenced art of all kinds and, with this influence, molded culture all over the world," said Whitney-Johnson.

The show's acts are divided according to region and will feature a variety of expressive arts designed to foster a sense of unity, she said.

"We hope to leave audience members with a sense of how black history is his/her own history regardless of his/her own ethnic background," Whitney-Johnson said. "We hope the collaboration of many different groups in the show's production will facilitate the development of unexplored relationships and foster a greater sense of unity across the MIT campus."

Researchers think small to find safer alloys

MIT researchers have devised a new method for shrinking the size of crystals to make safer metal alloys. The new materials could replace metal coatings such as chromium, which is dangerous for factory workers to produce.

The method, developed by Associate Professor Christopher Schuh and graduate student Andrew Detor, both of the Department of Materials Science and Engineering, involves making the crystals within an alloy (a combination of two or more metals) smaller and thus harder.

For the chromium replacement, the two made crystals of nickel and tungsten small enough that the resulting alloy is as hard as chromium. The trick is a new twist on electroplating that involves manipulating — on the nanoscale, or billionths of a meter — how the nickel and tungsten atoms are laid down as they are plated onto another metal.

While so-called hard chromium is used to coat industrial parts and decorative items such as automobile bumpers, the coating process uses a form of chromium called hexavalent chromium that has been linked to cancer and other adverse health effects if workers inhale it. A steel ring, for example, is coated using a bath of hexavalent chromium that gives off harmful fumes.

While exhaust hoods are used to take away much of the fumes, the federal government currently is considering tougher safety standards for workers exposed to the baths. That has led industrial companies to look for metals that will not give off the harmful fumes. Schuh says the new alloy is one such safer alternative.

"The ability to control the structure of a metal to nearly the atomic scale is new and enables us to make the alloy very hard," Schuh said.

He compared the method to making a wall out of stones and mortar. Using large stones doesn't require much mortar, but smaller stones require more mortar, which makes for a stronger stone wall.

In the new chromium replacement, each microscopic piece of nickel is surrounded by even tinier bits of tungsten. The researchers control how the tungsten fills in the spaces between the pieces of nickel, thus creating a tighter and stronger crystal structure than metals and alloys with larger crystals.

In addition to producing safer alternative metal coatings, the method also allows for manipulating the structure of metals to improve their resistance to cracking, corrosion and other wear and tear, Schuh said. Schuh already has tested steel coated with chromium and his new alloy, and the alloy has held up better against some types of corrosion.

Schuh said that while replacing chromium as a metal coating is likely to be the initial application of this method, other nanostructure alloys could be used to replace other metal coatings in the future.

Hexavalent chromium, the material Schuh hopes to replace, is used in just about every major heavy industry worldwide. It has been under scrutiny since the early 1970s and was the subject of the movie, "Erin Brockovich." New environmental standards on hexavalent chromium expected soon from the Occupational Safety and Health Administration (OSHA) could be 50 times more stringent than current standards.

More than 25,000 U.S. workers are exposed to hexavalent chromium each year in the chrome-plating process alone, according to OSHA figures. And that's only a fraction of the total number exposed to the carcinogen.

"Other countries also are introducing significant new controls, so this is a problem that is not going to go away," said Schuh. He said he expects industries using hexavalent chromium to undergo major structural changes to meet the new standards, including seeking alternative materials for plating.

Schuh has filed for two patents on the technology. An article on the new method is to appear this summer in the Materials Research Society Proceedings.

Schuh, along with Alan Lund, a former researcher at MIT, also is a co-founder of a company called Xtalic Corp. of Medford, Mass., which will license the intellectual property from MIT. It aims to commercialize the metal-coating technology based on nanostructure alloys.

The U.S. Army Research Office funded the work.

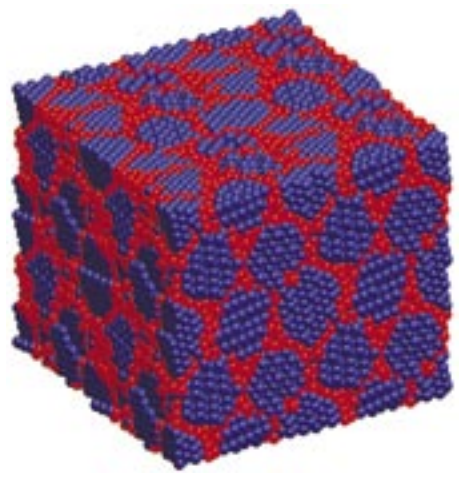

IMAGE COURTESY / **SCHUH LAB**

This conceptual drawing shows the structure of a nickel-tungsten alloy that promises a safer alternative to chromium. The nano-sized crystals (blue) are mostly composed of nickel, and are joined together by regions rich in tungsten (red).

Picower researcher explains how rats think

After running a maze, rats mentally replay their actions — but backward, like a film played in reverse, a researcher at the Picower Institute for Learning and Memory at MIT reported Feb. 12 in the advance online edition of Nature.

In 2001, Matthew A. Wilson, a professor in the Department of Brain and Cognitive Sciences, reported that animals have complex dreams and are able to retain and recall long sequences of events while asleep. Like people, rats go through multiple stages of sleep, from slow-wave sleep to REM sleep.

Slow-wave sleep, also referred to as non-REM sleep, makes up a large fraction of the normal sleep cycle and occurs earlier than REM sleep. REM sleep, which takes its name from the rapid eye movements that occur during this type of sleep, is associated with dreaming.

Wilson found that during slow-wave sleep, animals replayed spatial experiences in the same order they were experienced.

His latest results show that, following a spatial experience such as running laps on a track, the awake animal replays the memory so precisely that its recorded brain activity corresponds exactly to the places it has just been. However, to the researchers' surprise, the episode is replayed in time-reverse order, with the most recent locations first, proceeding sequentially back to the beginning of the task.

This backward instant replay may play a significant role in reinforcing learning, Wilson said. "Understanding this replay is likely to be critical in understanding how animals — and humans — learn from experience. This phenomenon may constitute a general mechanism of learning and memory."

The hippocampus, a seahorse-shaped brain structure in the temporal lobe, has long been known to be involved in spatial navigational learning in rodents, as well as in the ability of rodents, primates and humans to remember events.

Wilson and MIT postdoctoral fellow David J. Foster measured the activity of cells in the rat hippocampus during periods of running and stopping. During each session, each animal ran several laps on familiar and unfamiliar tracks, occasionally stopping for a food reward. After eating, the animal paused to groom its fur, move its whiskers or just stand still before running again. It was during this pause that the reverse replay occurred, and it was most likely to occur when an animal ran an unfamiliar track, supporting the idea that this phenomenon helps the hippocampus reinforce a newly learned task.

While running, the animal's hippocampal cells fired in order, corresponding with the animal's position on the track. When the animal stopped, many of the same cells fired again, but the sequence of cell activation was in reverse order and spanned the entire track. This replay was literally instant — it took less than a second to replay up to 30 seconds of running.

Wilson says that the ability to eavesdrop on both the sleeping and conscious brain could be a valuable tool in treating memory disorders such as amnesia or Alzheimer's disease, or it may prove helpful in finding ways for people to learn and memorize information more effectively.

This work was supported by the National Institutes of Health.

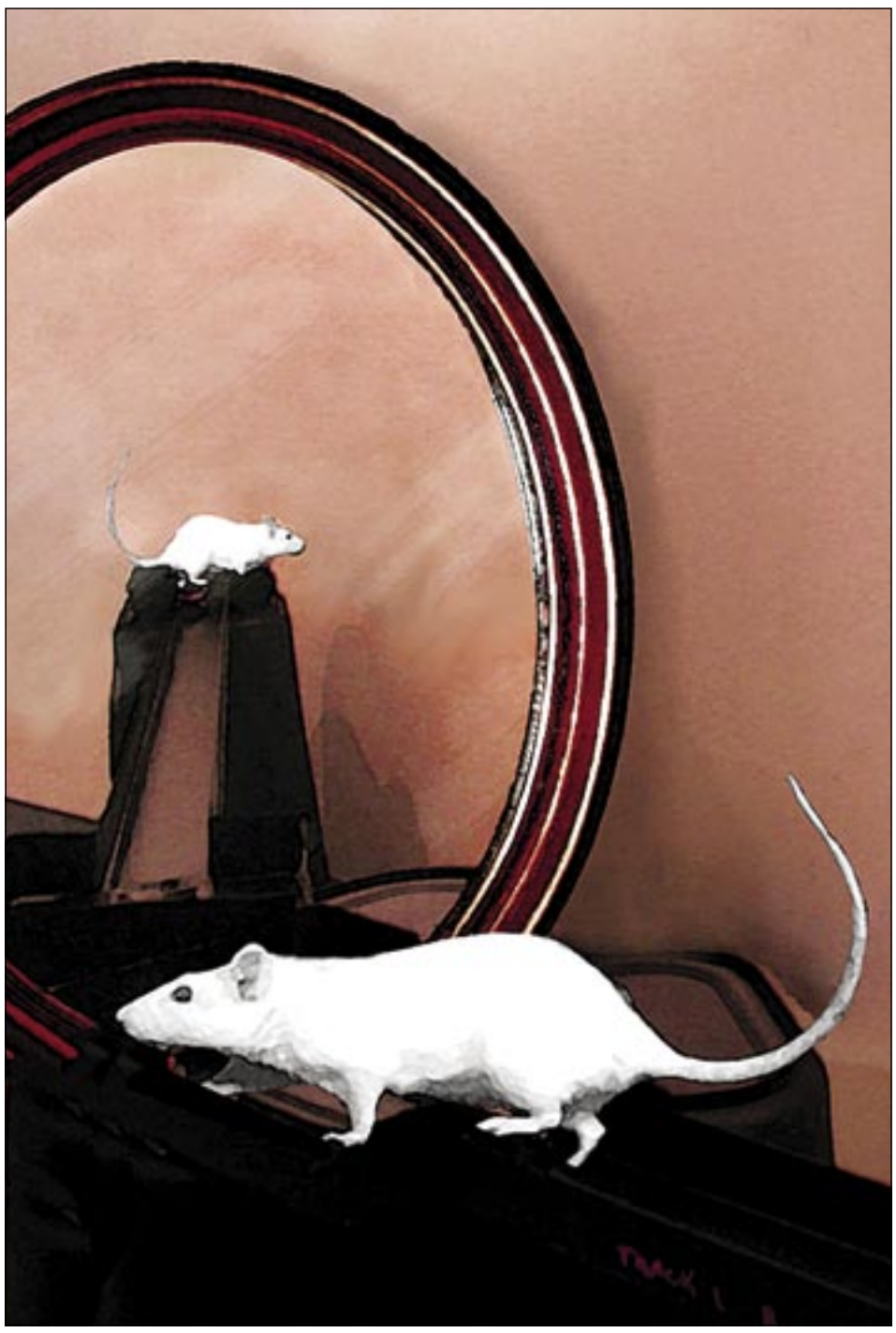

IMAGE / **GUL DOLEN**

Picower Institute research indicates rats mentally replay their most recent actions — in reverse. The study may shed light on mechanisms of learning and memory.

National Academy of Engineering adds 2 from MIT

Two MIT professors are among the 76 new members of the National Academy of Engineering.

Election to the NAE is among the highest professional distinctions an engineer can receive. Academy membership honors those who have made "outstanding contributions to engineering research, practice or education" and who have demonstrated accomplishment in the "pioneering of new and developing fields of technology, making major advancements in traditional fields of engineering, or developing/implementing innovative approaches to engineering education."

The new members are:

Dimitri A. Antoniadis, the Ray and Maria Stata Professor of Electrical Engineering, for "contributions on microelectronics in field-effect devices and for silicon process modeling."

M. Frans Kaashoek, professor of computer science and electrical engineering, for "contributions to computer systems, distributed systems, and content-distribution networks."

SKATES

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Clapskate might have the same effect.

Culligan and Walfisch tested the design with eight skaters, aged 16-60, all of whom had skated competitively.

They used a controlled lab setting for the tests, using a large whiteboard slick with dusting spray as the ice. Culligan explained that studying humans on an actual ice rink would have been more difficult because, "you have a moving subject you have to chase around."

Testers were asked to strap on one skate and push off with their other foot to slide along the roughly 4-foot board. A slow-motion camera recorded the stroke so that Culligan and Walfisch could compare measurements from the original Clapskate and the Fulcrum Clapskate.

"The testers said they could really feel a difference," Culligan said.

Measuring angles and speed from both skates, the researchers decided that the Fulcrum skate was indeed faster than the original.

The design they tested will not be in use at this year's Winter Olympics, which start Feb. 10 in Turin, Italy. But for Walfisch and Culligan, both of whom are avid athletes, the project was about more than speed skating records: "We definitely learned a lot," said Walfisch.

10 education projects earn d'Arbeloff grants

The d'Arbeloff Fund for Excellence in Education has awarded approximately $900,000 in grants to fund 10 proposals for innovation in education at MIT.

Established through a $10 million grant from Brit (S.M. '61) and Alex d'Arbeloff '49, the d'Arbeloff Fund backs projects to enhance and potentially transform the academic and residential experience of MIT's undergraduate students. The dean for undergraduate education chairs the d'Arbeloff Grants Committee.

With the call for preliminary proposals in June 2005, the Task Force on the Undergraduate Educational Commons signaled its desire "to stimulate the development of concrete educational experiments that can serve as models for future subject offerings in three target areas: project-based experiences; the first-year HASS experience; and broadening the science and engineering fundamentals."

The following proposals have been funded for the upcoming academic year:

Finding and Evaluating Information

Professor Donald Sadoway, materials science and engineering; Steve Gass and Angie Locknar, MIT Libraries

This project is designed to introduce first-year students to the scientific research process and provide them with the skills necessary to find, evaluate and use information successfully throughout their educational careers. Staff in the MIT Libraries will be working with Sadoway to develop online modules that Course 3.091 students will be able to refer to throughout the semester.

Explore Space, Sea and Earth

Fundamentals of Engineering Design

Professors Dava Newman, aeronautics and astronautics; Alexander Slocum, mechanical engineering; and Edward Crawley, aeronautics and astronautics

These two pilot subjects will expose first-year students to design, engineering reasoning and problem solving, as well as systems thinking, teamwork and leadership development. The theme of the "Explore" pilot is human exploration — past, present and future. Students in the "Fundamentals" course will learn engineering fundamentals and methods of synthesis via a robotics competition.

Physics of Energy

Professors James Kirtley and Steven Leeb, electrical engineering and computer science; and Professor Leslie Norford, architecture

This fall 2006 class will teach first-year students the basics of energy and power, exposing them to energy conversion and "energy related processes." The seminar will be centered on an overarching term-length project involving the construction of a robot.

Solving Real Problems Using Systems Thinking and Design

Dean Sally Susnowitz, Dr. Sumi Ariely

See **GRANTS** Page 6

Sky's no limit for Lemelson winner

The 28-year-old winner of this year's Lemelson-MIT Student Prize now has an extra $30,000 to help him get his personal flying machine off the ground.

Carl Dietrich, an MIT doctoral candidate in aeronautics and astronautics, received the prestigious award for a portfolio of novel inventions, including a new Personal Air Vehicle; a desktop-sized fusion reactor; and a lower-cost rocket engine.

Carl Dietrich

"Carl joins a long line of independent inventors who are passionate about finding innovative ways to address society's fundamental problems," said Merton Flemings, director of the Lemelson-MIT Program, which sponsors the award. "He is not afraid to tackle the challenges many inventors before him have abandoned. Carl's ability to look at big problems in creative ways and come up with practical solutions makes him just the type of person we look to honor with the $30,000 Lemelson-MIT Student Prize."

Dietrich's most recent invention is a Personal Air Vehicle concept he calls Transition. It is a flying car that relies on the nation's thousands of underutilized public-access airports to provide a practical transportation alternative to travelers whose trips range between 100 and 500 miles.

"If you were taking a trip between 100 and 500 miles right now, chances are you'd probably drive unless you were going between two airport hubs," Dietrich said. "Driving is fine, but it can take you half a day to reach your destination, and you are subject to unpredictable traffic. Commercial airlines are effective for trips over 500 miles, but…they don't really attack the short-hop market very well. Personal Air Vehicles open up a lot of possibilities in freedom to get around. They offer convenience and flexibility to fit the traveler's schedule."

Dietrich's Transition is designed to be driven on any surface road and requires only a sport pilot's license to fly. The SUV-sized vehicle can be stored in most home garages and has folding wings that enable it to operate both on the ground and in the air. It can carry two people with their bags up to 500 miles on a single tank of premium unleaded gasoline.

Dietrich and four MIT colleagues have recently launched a start-up company called Terrafugia to further develop the Transition and eventually bring it to market at a price that is accessible to the traveling and business public.

"With the money from the $30,000 Lemelson-MIT Student Prize, I think we will be able to build a full-scale mock-up of the vehicle to take to the Experimental Aircraft Association's AirVenture convention in Oshkosh [Wis.]," Dietrich said. "Our goal is to make a really solid impression and start taking refundable orders."

His invention portfolio touches other fields, as well.

Dietrich co-founded the MIT Rocket Team and holds a patent for his Centrifugal Direct Injection Engine (CDIE), a low-cost, high-performance rocket propulsion engine. It operates without a turbo-pump pressurization system, which greatly reduces its complexity and cost.

For his doctoral work, Dietrich is researching inertial electrostatic confinement fusion for spacecraft power and propulsion. This research grew out of an efficiency improvement he patented for a desktop-sized Penning Fusion Reactor.

"In my 30 years as a teacher [at MIT], I cannot recall a clearer exponent of the Edison mindset," said Professor Manuel Martinez-Sanchez of aeronautics and astronautics, who recommended Dietrich for the prize. "Carl is routinely cycling back and forth between what is known and what is possible."

The $30,000 Lemelson-MIT Student Prize is awarded annually to an MIT senior or graduate student who has created or improved a product or process, applied a technology in a new way, redesigned a system, or demonstrated remarkable inventiveness in other ways. A distinguished panel of MIT alumni and associates including scientists, technologists, engineers and entrepreneurs chooses the winner.

For more information, visit http://web.mit.edu/invent.

WHITE HOUSE PHOTO / **ERIC DRAPER**

Going for gold! MIT medals in science

President George W. Bush and John Marburger, far right, director of the White House Office of Science and Technology, pose with the recipients of National Medal of Science on Monday, Feb. 13, in the White House. MIT's winners are Phillip A. Sharp, second from left, and Stephen J. Lippard, fourth from left. The others, from left, are: Dennis P. Sullivan, Robert N. Clayton, Kenneth J. Arrow, Norman E. Borlaug, Edwin N. Lightfoot and Thomas E. Starzl.

MIT takes note of National Engineers Week

Sasha Brown
News Office

National Engineers Week will run Feb. 19-25 — Massachusetts' school vacation week — with family events on and off the MIT campus.

Members of the MIT Society of Women Engineers (SWE) will spend much of the week at the Children's Museum in Boston working with young children on fun, hands-on engineering projects.

Monday through Friday SWE will be at the museum from 3 to 5 p.m. On Saturday they will spend the whole day there. "It is going to be great," said Nupur Garg, SWE president.

Since 1951, National Engineers Week has been "dedicated to raising public awareness of engineers' positive contributions to quality of life," according to the National Engineers Week web site.

"Engineers Week promotes recognition among parents, teachers and students of the importance of a technical education and a high level of math, science and technology literacy, and motivates youth to pursue engineering careers in order to provide a diverse and vigorous engineering workforce," according to the web site.

Started by the National Society of Professional Engineers, National Engineers Week is a formal coalition of more than 70 engineering, education and cultural societies, and more than 50 corporations and government agencies.

In celebration of the week, the MIT Museum — in conjunction with the MIT Computer Science and Artificial Intelligence Laboratory (MIT-CSAIL) — will present "Robots: Past, Present and Future," four days of lectures, videos and demonstrations aimed at middle and high school students.

The MIT Museum will also present "Soap Box: Debating Cutting Edge Issues With World-Class Scientists and Engineers," with Professor Donald Sadoway on Tuesday, Feb. 21, at 6 p.m.

Also at the MIT Museum on Sunday, Feb. 26, from 2-4 p.m., is "Family Adventures in Science and Technology (F.A.S.T.): Off the Drawing Board, Out on the Road." The MIT Motorsports group will bring a Formula SAE car to the museum to discuss and demonstrate practical application of mechanical engineering principles.

For more information on National Engineers Week programs, visit www.eweek.org.

NEWS YOU CAN USE

Book sale

MIT Libraries will hold a book sale on Friday, Feb. 24, from 10 a.m. to 3 p.m. in the Bush Room (10-105). Books from a range of disciplines will be on sale, with proceeds to benefit the Libraries' Preservation Fund. The sale is open to the MIT community only. For more information, contact the Gifts Office at x3-5693 or giftslib@mit.edu.

Garage upgrades

Lighting technicians began a two-week project in the Albany and West garages on Monday, Feb. 13. Both facilities are being upgraded with new, energy-efficient lighting. The Parking and Transportation Office urges drivers to use extreme caution in these facilities while this work is going on.

DIGITALK: WHERE IT'S AT

Employee Self Service

The implementation of the new payroll system in July 2006 will provide Institute employees with additional Employee Self Service (ESS) tools. Currently, ESS tools are available for benefits, contact information (including address) and three types of personal information transactions. Eligible employees are encouraged to use ESS to review, update and/or enter emergency contact information, info on ethnic origin and military service (needed for mandatory government reporting) and education information (which may be required for research proposals, surveys etc.).

To log on to ESS, go to web.mit.edu/sapwebss/.

Intel Macs: To buy or not to buy?

In January, Apple released a new iMac that sports Intel's Core Duo processor. An Intel-based laptop, the MacBook Pro, is due out this month. While Apple's switch to the Intel chip is all about speed, the only IS&T-supported applications that run natively on the new Macs are Safari, Mail and Fetch. For now, most other applications — such as Office 2004, Dreamweaver and FileMaker — rely on Rosetta, an Apple technology that translates PowerPC instructions into Intel instructions on the fly. The resulting drag on performance won't impact casual users, but will be a roadblock for those who work extensively with processor-intensive applications such as Photoshop. And a few applications — Virex, SAPgui, and MATLAB — don't run on the Intel Macs at all.

What's a prospective Mac buyer to do? For advice, check the MacPartners blog at usergroups.mit.edu/macpartners/. For MIT pricing on Apple products, see web.mit.edu/ecat/apple/secure/.

MIT's central Windows domain

IS&T provides a centrally managed Windows environment, the win.mit.edu domain, to enable the seamless sharing of resources through its integration with MIT's Kerberos realm, Moira database and standard DNS namespace.

The win.mit.edu domain provides a set of tools for departmental IT administrators, including group management, "containers" to manage groups of machines, and streamlined software installation. Individual users can access their home directories on the server from any machine in the domain. They can also view, copy or restore older versions of files in their home directory, as far back as 64 days.

To learn more about win.mit.edu, including how to join the domain, visit web.mit.edu/ist/topics/windows/server/winmit-edu/.

Webcasts for e-mail migration

IS&T strongly encourages members of the MIT community to migrate to the e-mail application bundled with their operating system. If you're preparing to move from Eudora to Outlook 2003, Outlook Express or Apple Mail, IS&T has developed webcasts to walk you through the procedure. A voiceover provides instructions as your browser displays the appropriate screenshots. You can pause, rewind or skip ahead using buttons at the bottom of the window.

Separate webcasts cover topics ranging from configuring your new e-mail client, to importing Eudora mail, to backing up your address book. To get started, go to web.mit.edu/ist/topics/email/webcasts.html.

Digitalk is compiled by Information Services and Technology.

'Smart Buy' web site launched

The MIT Procurement Department this month launched its Smart Buy Purchasing Initiative web site, which can help members of the MIT community order printing and shipping services.

The Smart Buy Purchasing Initiative was undertaken to help MIT use its bulk purchasing power to save money, according to Diane Shea, procurement director and key sponsor of the Purchasing Initiative. Starting in fall 2004, teams of staff members from across the Institute worked together to research the community's needs and evaluate vendors in order to get MIT the best service at the best prices.

The Purchasing Initiative print team analyzed Institute print buying trends, interviewed staff at MIT and at peer institutions, and evaluated 240 Boston-area printers, many already serving the Institute. The team analyzed and compared operations and evaluated customer service. They also looked at each printer's ability to deliver the highest quality products reliably and economically, says Minerva Tirado of the Publishing Services Bureau, who led the print team.

In the end, the team came up with a list of 11 preferred printers representing a broad array of capabilities. The Smart Buy Purchasing Initiative site provides a profile of each, as well as a toolkit of resources and links for guiding a print project through completion.

Another team of MIT employees spent eight months evaluating express shipping vendors. Among the criteria considered were service and support, expertise, pricing, technological capabilities, reliability and infrastructure. The chosen shippers are DHL and Skycom Courier.

Other frequently purchased products, like catering services, office furniture, copiers and office printers are expected to be available through this program in the coming months.

For more information, visit the Smart Buy Purchasing Initiative web site at web.mit.edu/smartbuy/.

PHOTO / **DONNA COVENEY**

What a hoot!

A barred owl was spotted on campus earlier this month — evidently snoozing the day away.

GRANTS

Continued from Page 5

and Camilla Shannon, MIT Public Service Center; Professors Dan Frey, Chris Magee and David Wallace, engineering systems and mechanical engineering; Professor Paul Lagace, engineering systems and aeronautics and astronautics; Amy Smith, Edgerton Center and mechanical engineering; and Professor Joseph Sussman, engineering systems and civil and environmental engineering

In a collaborative effort, the Department of Mechanical Engineering, the Engineering Systems Division and the MIT Public Service Center will develop a new subject for spring 2007 that will combine instruction in systems thinking and design skills with service-oriented hands-on projects to build appreciation for the broader roles of engineering in society.

Energy, Environment and Society: An Interdisciplinary, Project-Based Program for First-Year Students

Professors Jeffrey Steinfeld, chemistry, and Jefferson Tester, chemical engineering

As part of a linked set of curricular activities on "Energy, Environment and Society" for first-year students, a nine-unit community project-based subject will be offered in spring 2007. In this class, students will explore energy issues and community dynamics at the local level — on the MIT campus and in the cities of Cambridge and Boston.

Freshman Projects in Microscale Engineering for the Life Sciences

Professors Dennis Freeman, electrical engineering and computer science; and Martha Gray, Health, Sciences and Technology, and electrical engineering

This freshman project laboratory, to be piloted this fall, will use hands-on projects to demonstrate how microscale engineering can be applied to life sciences problems.

Cityscope

Professor Diane Davis, architecture and urban studies and planning

This subject, to be offered in spring 2007, is designed to "expose first-year students to the complex system dynamics of cities 'at risk' and to encourage them to use physical design, social policy, engineering, technology or other social and science innovations to assess and solve problems in urban environments." A pre-session trip to New Orleans during the Independent Activities Period (IAP) is included in the plans for this subject.

Creation and Science: Learning from the Past

Professors Diana Henderson, literature; Jeff Ravel, history; and Janet Sonenberg, theater arts

This first-year pilot HASS subject will focus on Western Europe in the 17th century — "when modern scientific and social attitudes were just beginning." This team-taught subject will demonstrate "the variety of approaches to knowledge allowed by the humanities and arts disciplines."

How to Stage a Revolution

Professors Meg Jacobs, Pauline Maier, Peter Perdue, Elizabeth Wood and Jeff Ravel, history

In a subject being developed for fall 2007, first-year students will "explore moments of major social and political transformation throughout the world and over time." Through intense engagement with primary sources, students will develop the analytical skills essential for success in studying history.

The Art of the Probable: Literature and Probability

Professors Alvin Kibel, Noel Jackson, Shankar Raman, literature

This subject for first-year students, to be offered in spring 2007, will explore the relationship of literature with the history of probability. As the authors write in their proposal, "We wish students to think deeply about the broader conditions underlying the science and technology they study."

Faculty set to meet today

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

- Vote on the course number proposal for the Biological Engineering Division
- Open discussion on new initiatives for minority faculty recruiting and retention
- Remarks from President Susan Hockfield
- Topics arising and questions for the president, the provost and the chancellor

MOSS

Continued from Page 2

also co-founded several other companies, including Stellar Computer Inc., a developer of graphic supercomputers; Bowstreet Inc., a pioneer in web services; and Infinity Pharmaceuticals, an early-stage cancer drug discovery company.

At MIT, Moss will hold the Jerome B. Wiesner Chair in Media Technology and has been named professor of the practice, a position reserved for distinguished practitioners.

"I am especially thrilled to be working closely with an incredibly creative and passionate group of scientists, artists, designers and engineers who constitute the faculty and students of the lab," Moss said.

"I see this exceptional community working together over the next decade to overcome some of the world's most pressing societal problems — from providing improved health care to an aging population, to devising inexpensive digital tools for developing economies, to changing the way children learn," he said.

Moss received his bachelor of science degree in aerospace and mechanical sciences from Princeton, and master's and Ph.D. degrees in aeronautics and astronautics from MIT.

OBITUARY

HAROLD F. DOUCETTE

Harold F. Doucette, a retired MIT Lincoln Laboratory employee, died Jan. 13. He was 74.

Doucette was in charge of the lab's chilled water plant from 1975 until his retirement in 1991. He was in the Air Force for 23 years and served in the Korean War.

He is survived by three sons, Bradley H. Doucette of Wetumpka, Ala., Brian T. Doucette of Port Charlotte, Fla., and Allan F. Doucette of Shirley, Mass.; a brother, Walter Doucette of Cape Cod; a sister, Majorie Shivvers of Wareham, Mass.; and four grandchildren.

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

Omega juicer ($200 retail, asking $100); Donvier ice cream maker ($20); Honeywell Enviracaire Portable Air Cleaner (<$165 retail; selling for $75); 40-pc socket wrench set ($30/bst.). 617-548-4482.

HOUSING

Furnished 4-BR house for rent in Arlington, available July 1, 2006 for one year. $3300/month. Convenient to MBTA. Contact 781-316-1525 or jennahn@yahoo.com.

VEHICLES

Mercedes 2000 C-230 black sedan. 54K, well-equipped, leather, moon roof. Exc. condition. Warranty 2007/85K. Asking $15,900. Call 617-258-7372.

Concert slated to memorialize Edward Cohen

Edward Cohen (1940-2002), a classically trained musician inspired by jazz and devoted to new music, was greatly respected and loved as a colleague and teacher at MIT.

When he passed away after teaching for 25 years in MIT's music section, his colleagues decided to honor him by setting up a memorial fund to finance a new series of concerts at MIT, each of which would showcase at least one of Cohen's compositions.

"When Ed died we lost a mainstay of the composition and theory department," said fellow composer Professor Peter Child, one of the organizers.

The first Edward Cohen Memorial Concert, to be held Monday, Feb. 27, at 8 p.m. in Kresge Auditorium, will feature Collage New Music, directed by David Hoose, performing works by Cohen and others who were close to him. Admission is free.

Edward Cohen

The program will include Cohen's "Elegy" (1977) and "Sextet" (1961); "Duomo" (1997) by Marjorie Merryman (Cohen's widow, who is the Drake Professor of Humanities and Fine Arts at Macalester College); and "In Eius Memoriam" (1968) by Seymour Shifrin, who was Cohen's composition teacher at the University of California at Berkeley.

In addition, there will be two short works for piano solo. One is a new work, "Eulogy-E.C.," written for the concert and dedicated to Cohen's memory by Martin Boykan, a close personal friend of Cohen's. Boykan is the Irving Fine Professor of Music at Brandeis University. The other is a transcription of "I Should Care" from a recording by Thelonius Monk. Cohen adored Monk, and this transcription was done by MIT's Kenan Sahin Distinguished Professor of Music Evan Ziporyn as a gift for Cohen shortly before he died.

For a fuller version of this story, visit web.mit.edu/newsoffice/2006/arts-cohen.html.

Portait photographer to visit MIT

"We do not take pictures with our cameras, but with our hearts and minds."
—Arnold Newman

Since the 1940s, Arnold Newman has been among the world's best-known photographers — capturing legendary artists, poets, politicians, actors and scientists on film.

A list of his portraits, which have appeared in such magazines as Life, Fortune and the New Yorker, reads like a who's who: Igor Stravinsky, Leonard Bernstein, George Harrison, Alexander Calder, Pablo Picasso, Edward Hopper, Salvador Dali, Georgia O'Keefe, Berenice Abbott, Isaac Asimov, Eugene O'Neill, Paul Auster, Harry S. Truman, Yitzhak Rabin, Dwight Eisenhower and Marilyn Monroe.

"Arnold Newman: 20th Century Photographs," an exhibition of 40 of his portraits, is on view at the Compton Gallery through March 31. A number of leading scientists are pictured, including a few MIT figures: Vannevar Bush (1890-1974, who organized and led America's science and technology effort during World War II); Walter Rosenblith (1913-2002, pioneer in the use of computers and mathematical models in the study of the brain); and Harold "Doc" Edgerton (1903-1990, the father of electronic flash photography).

Newman also has a personal connection with MIT. His son, Eric, earned three degrees here (S.B. 1971, S.M. 1972 and Ph.D. 1977) and met his wife, Janice (Gepner), also an MIT student, here. Their daughter, Sarah, is currently a senior in earth, atmospheric and planetary sciences.

On Thursday, Feb. 16, Newman will discuss his work at 6 p.m. in Room 10-250. The talk will be followed by a reception.

Born in New York in 1918, Newman became a photographer when he couldn't afford to finish his college education. His first pictures of people were taken on the street, but he was particularly influenced by the work of the Depression-era Farm Security Administration photographers, who posed their subjects in their homes.

Newman's photographic style, referred to as "environmental portraiture," places his subjects in a physical setting related to their area of expertise, setting a context between the individual and his or her area of greatness. As a result, Newman's work provides us with an insight into the heart and being of the individual.

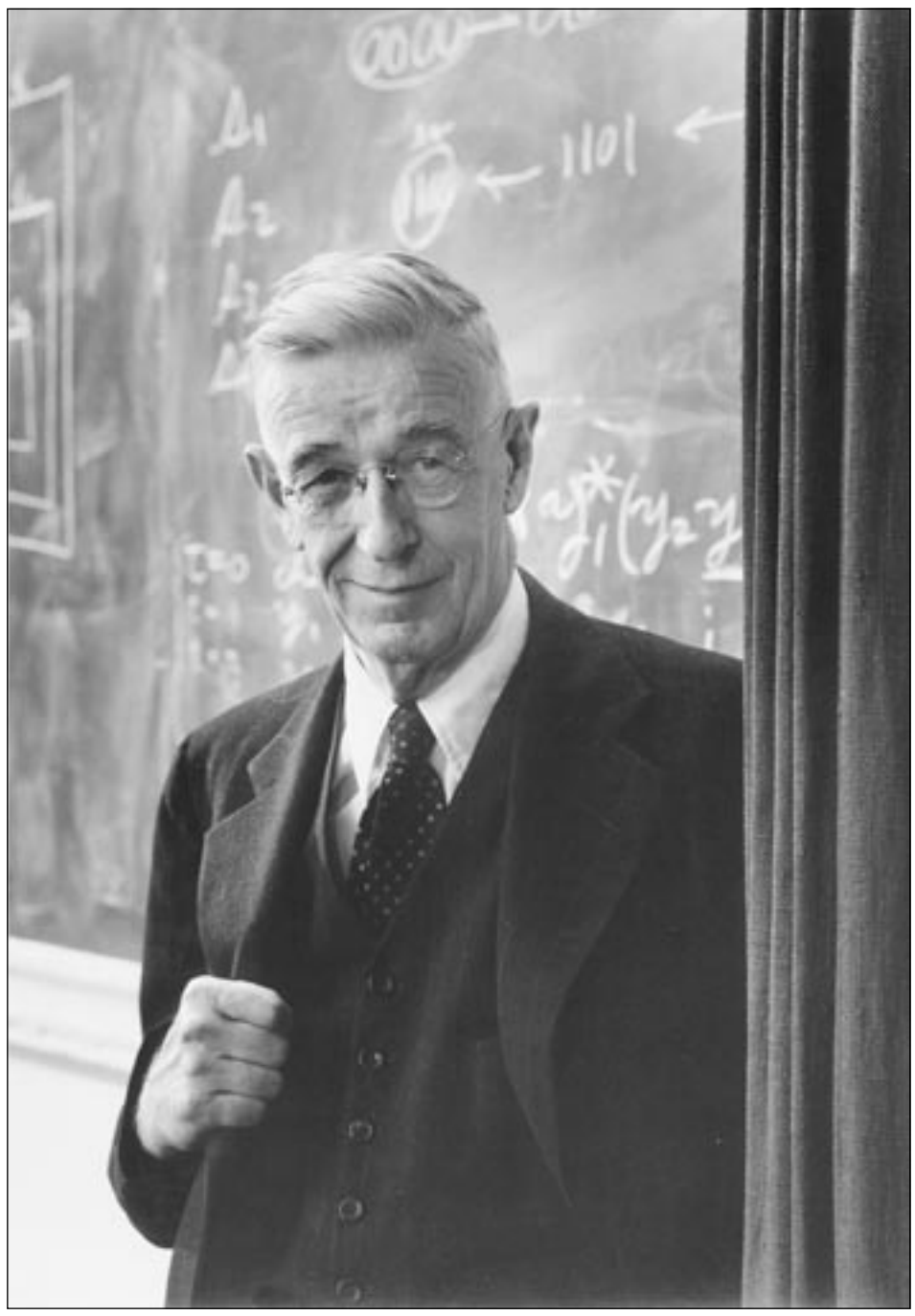

PHOTO / **ARNOLD NEWMAN**

Vannevar Bush, vice president and dean of engineering at MIT from 1932 to 1938, is one of many subjects highlighted in an exhibit of Arnold Newman's photography at the Compton Gallery.

"I'm interested in what motivates individuals, what they do with their lives, their personalities, and how I perceive and interpret them," Newman said in an interview for PDN Legends Online. But, he said, "even if the person is not known (or already forgotten,) the photograph itself should still excite the viewer."

Newman, who continues to work, has won numerous awards and has published 13 books of photographs, including his most recent, "Arnold Newman" (Taschen Publications), which showcases more than 60 years of his work.

For more information, call x3-4444.

Alumna's show asks a theatrical 'Where to?'

Lois Weinblatt
Office of the Arts

When she was 12, Aomawa Shields knew she wanted to be an astronaut. She studied astronomy and set her sights on MIT. Then, during high school, Shields became deeply involved in "anything and everything that had to do with theater," she said.

Shields pursued her MIT degree in earth, atmospheric and planetary sciences, but she also performed with Dramashop and the MIT Community Players; and she sang with the MIT Muses.

Since her graduation in 1997, she has continued to play the part of both scientist and actor. Shields explores both facets of her life in her autobiographical one-woman show, "Where To?" directed by Michael Peebler and David Schweizer. Shields will perform the show in Kresge Rehearsal Room A on Friday, Feb. 24, at 8 p.m.

Although Shields' acting career has been successful (she has appeared on television, on stage and recently in the film "Nine Lives," directed by Rodrigo Garcia), it hasn't been a straight path, she said.

After graduating from MIT, Shields was accepted to the Ph.D. astrophysics program at the University of Wisconsin, only to realize one year later that the relentless pursuit of her childhood dream was no longer fulfilling.

PHOTO COURTESY / **AOMAWA BAKER SHIELDS**

Aomawa Baker Shields, a 1997 MIT graduate, will perform a one-woman show exploring her life as scientist and actor.

"I took a deferment from Wisconsin … to do the UCLA MFA program in acting," she said. "And I never went back."

For six years Shields concentrated solely on performing and didn't do any science. "I heard about discoveries on the news just like everybody else," she said. But in early 2005, Shields felt a pull back to the scientific world.

Now, as Shields continues to perform across the country, she also works on the Observer Support Team at Caltech's Spitzer Science Center.

In "Where To?" Shields weaves together the personal focus of her first one-woman show "Goddess. Divided." and the political themes raised in "Necessary Precautions," an original piece about the aftermath of Sept. 11, 2001.

"I decided that the two shows could be combined and still carry the message of the search for identity and truth and reflect the sociopolitical debates we as a country are currently involved in," she said.

Shields' performances are provocative not only for their subject matter but also for the way in which she engages her audience. Her pieces are interactive — viewers are involved in the show instead of "sitting back and being spectators," she said.

"At the very beginning of the piece they are stunned, shocked and reluctant," she said. "That's the idea."

But while Shields acknowledges that "pushing the boundary between audience and actor" can be uncomfortable initially, the result is a more rewarding experience for the viewer.

"It is my hope that in relating to each other, we can find a meeting point," she said.

Director to discuss 'City of God' at Stata

Brazilian-born film director Katia Lund will discuss "Stories Behind and Beyond Brazil's 'City of God'" on Tuesday, Feb. 21, at 7 p.m. in the Stata Center's Kirsch Auditorium.

Lund co-directed the Oscar-nominated 2002 film "City of God," a fictionalized look at how armed drug gangs came to dominate the poverty-stricken favela (or slum) areas of Rio de Janeiro, Brazil, in the 1970s and '80s.

The film was nominated for four Academy Awards: Best Director, Best Editing, Best Photography and Best Adapted Screenplay, although Lund was not officially an Oscar co-nominee.

Lund has also created music videos for some of Brazil's most popular and outspoken rock and hip-hop groups. She was working on the production of pop singer Michael Jackson's video for "They Don't Care About Us" in 1996 when she first came in contact with the drug bosses that controlled Rio's Dona Marta favela and became fascinated with their lives.

While at MIT from Feb. 21-24, Lund will tour labs and meet with students, faculty and staff.

In conjunction with her visit, the Lecture Series Committee (LSC) will screen two of her films: "Central Station" on Friday, Feb. 17, at 7:30 p.m. and 10:30 p.m. in Room 26-100 and "City of God" on Saturday, Feb. 18, at 7 p.m. and 10 p.m. in Room 26-100 and on Sunday, Feb. 19, at 10 p.m. in Room 10-250. Admission to LSC films costs $3.

MIT EVENT HIGHLIGHTS FEBRUARY 15-19

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

PHOTO / **SUSAN WILSON**

Mo' Mozart

The Biava String Quartet, above, will perform with Professor Marcus Thompson, a violist, on Friday, Feb. 17, at 8 p.m. in Kresge Auditorium. The concert is part of Thompson's celebration of Mozart's 250th birthday and will feature the birthday boy's Viola Quintet in C Minor and works by Joseph Haydn and Henri Dutilleux.

WEDNESDAY February 15

$30,000 Lemelson-MIT Student Prize Press Conference
Press conference to announce the 2006 winner of the $30,000 Lemelson-MIT Student Prize. 10:30–11:30 a.m. Room W20-306. 253-3352.

"Knowing the Enemy: Jihadist Ideology and the War on Terror"
Talk by Mary Habeck of Johns Hopkins University. Noon. Room E38-615. 253-7529.

Teaching and Educational Technology
Talk by Professor Steven R. Lerman. 5:30–9 p.m. Faculty Club. 308-9795.

Hibur: MIT-Technion Link Information Session
Information on cultural exchange program with the Israel Institute of Technology. 7:30 p.m. Room W20-407. 253-2982.

THURSDAY February 16

MIT Chapel Concert
Music for flute and harp. Noon. MIT Chapel. 253-2826.

"Has Anyone Ever Seen a Photograph of Rape?"
Geneviève McMillan-Reba Stewart Lecture on Women in the Developing World presented by Ariella Azoulay of the Camera Obscura School of Art in Tel Aviv. 5:30 p.m. Room 32-141. 253-8844.

Guest Lecture Featuring Photographer Arnold Newman
Presented in conjunction with "Arnold Newman: Twentieth Century Photographs" at the Compton Gallery through March 31. 6 p.m. Room 10-250. 253-4444.

"The Old Law"
Dramashop production of mid-17th century play written by Thomas Middleton and William Rowley. Feb. 16-18. $8, $6 students. 8 p.m. Kresge Little Theater. 253-2908.

FRIDAY February 17

"Finding Form: The Art of Richard Filipowski"
The work of renowned sculptor and MIT faculty member Richard Filipowski. MIT Museum. Noon-5 p.m. $5 adults; $2 students, seniors and children 5-18; free with an MIT ID. 253-4444.

MIT Guest Artist in Residence Concert
Biava String Quartet with Professor Marcus Thompson, viola. 8 p.m. Kresge Auditorium. 253-2826.

"Baile de Pasion" — A Night of Argentine Tango Dancing
Beginner tango class followed by tango dancing. 8–11:30 p.m. Room W20-Lobdell Hall. 939-7218.

SATURDAY February 18

"COLLISION box #2: Cars and Stars"
Andy Zimmermann's multimedia installation, "Cars and Stars," projects digital animation and video onto a three-dimensional sculpture, with accompanying digital sound composition. $5 adults; $2 students; free with MIT ID. Noon-5 p.m. MIT Museum. 253-4444.

Varsity Women's Basketball vs. Smith College
1 p.m. Rockwell Cage. 258-5265.

hiLaRiUm @ Thirsty Ear Pub
Comedy duo, The Walsh Brothers. 8 p.m. Thirsty Ear Pub. 258-9754.

SUNDAY February 19

Chantey Sing
Come sing sea music and chanteys with a room full of maritime enthusiasts, professional and amateur singers. 1-4 p.m. MIT Museum.

International Folk Dancing
8-11 p.m. Kresge Rehearsal Room. 253-FOLK.

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

SAUDIA ARABIA AND THE WORLD

Feb. 16

Prince Turki Al-Faisal, Saudi ambassador to the United States, talks about Saudi Arabia and the global community.

Room E15-070
4 p.m.

"THE VAGINA MONOLOGUES"

Feb. 16

Performance will benefit V-Day, a movement to stop violence against girls and women. Feb. 16-18. $10, $8 students.

Room 10-250
8 p.m.

LIBRARY BOOKSALE

Feb. 24

Books from a range of disciplines on sale, with proceeds to benefit the Libraries' Preservation Fund. Open to MIT community only.

Room 10-105
10 a.m.-3 p.m.

MIT EVENT HIGHLIGHTS FEBRUARY 20-26

MONDAY February 20

Presidents' Day

"Amorous Intent: Looking for Love at MIT"
Curated exhibition exploring the cynical, the sweet, the humorous, the melancholy, the fuzzy, the bitter and any other interpretation on the theme of love at MIT. 24 hours. Ends Feb. 22. Wiesner Student Art Gallery. 253-7019.

Development Dinner Discussion: Health Issues
Dinner discussion of health issues related to development. 6:30–8 p.m. Room 35-520.

Trivia Night
Must be over 21. ID required. Every Monday night. 8-11:30 p.m. Thirsty Ear Pub. 258-9754.

TUESDAY February 21

F.A.S.T. Program: National Engineering/ School Vacation Week
Programs spotlighting the work, training and achievements of MIT engineering professors, researchers and students. 2-4 p.m. MIT Museum. 452-2111.

2006 Student Origami Competition Deadline
Submitted works are judged by a jury and winning entries are exhibited in the Wiesner Gallery. Deadline is 5 p.m. Room E15-205.

Architecture Lecture: "Light is Sweet"
Talk by architect Jae Cha. 6:30 p.m. Room 10-250. 253-7791.

Stories Behind and Beyond Brazil's "City of God"
Presentation by film director Katia Lund, co-director of "City of God." 7 p.m. Room 32-123. 253-2341.

WEDNESDAY February 22

"Democratization and the Politicization of U.S. Military Bases Abroad: Lessons from Spain and the Phillipines"
Talk by Alexander Cooley of Columbia University. Noon. Room E38-615. 253-7529.

"A Sustainable Climate for the Future: Applying Engineering Skills to the Challenge of Climate Change"
Talk by Tom Delay, chief executive of the Carbon Trust. 1-2:30 p.m. Room 8-404. 452-3022

"Israel and Iran — Ideological Foes or Strategic Rivals?"
Lecture sponsored by the Iranian Studies Group at MIT and the GSC Funding Board. 6-7:30 p.m. Room 4-270.

THURSDAY February 23

MIT Chapel Concert
Program of Spanish and Latin American music with works by Albeniz, Rodrigo, Morena-Torroba, Lauro, Barrios and others. Noon. MIT Chapel. 253-2826.

Fourth Annual Juried Student Origami Exhibition
Opening reception. 4-6 p.m. Wiesner Student Art Gallery. 253-7019.

Communications Forum: A Conversation With Robert Pinsky
Talk by Robert Pinsky, former poet laureate. 5-7 p.m. Room E15-070. 253-3521.

African American Living History Museum
Student-created vignettes represent scenes from the lives of African Americans. 5:30 p.m. Sala de Puerto Rico. 253-4720.

FRIDAY February 24

CAVS Giant Art Party
The Center for Advanced Visual Studies party showcases the center's past and present. 8:30-11 p.m. Room N52-390. 452-2484.

"Where To?"
Auto-biographical performance piece written and performed by MIT alumna Aomawa Shields (1997). 8 p.m. Kresge Rehearsal Room A. 253-4720.

SATURDAY February 25

Varsity Men's Volleyball Tri-Match
11 a.m. Rockwell Cage. 258-5265.

ATS New Year's Banquet
Annual Lunar New Year's Banquet celebrating the Year of the Dog. $7 in advance, $10 at the door. 7-11 p.m. McCormick Dining.

SUNDAY February 26

Gallery Talk
Talk by List Visual Arts Center staff in conjunction with "America Starts Here — Kate Ericson and Mel Ziegler 1985-1995." 2 p.m. List Visual Arts Center. 253-4680.

F.A.S.T. Program: MIT Motorsports: "Off the Drawing Board, Out on the Road"
A Family Adventures in Science & Technology presentation. 2-4 p.m. MIT Museum. $5 adults; $2 students, seniors and children 5-18; free with an MIT ID. 253-4444.

PHOTO / **DONNA COVENEY**

The snowstorm of Sunday, Feb. 12, left an impression on campus. This one was found near McDermott Court early Monday morning, Feb. 13.