



Volume 49 – Number 1  
Wednesday – September 1, 2004



## Susan Hockfield elected MIT's 16th president

Arthur Jones  
News Office

Susan Hockfield, a distinguished neuroscientist and provost at Yale University, is the 16th president of MIT, succeeding Charles M. Vest, who has led the 139-year-old Institute since 1990. Hockfield is expected to take office in early December.

The MIT Corporation elected Hockfield during a special meeting on Aug. 26. Corporation Chair Dana G. Mead introduced her to the public at a press conference in the Faculty Club immediately following the election, and to the MIT community at a special community meeting in Room 10-250 that afternoon. Community members flocked to the

meeting, quickly filling the room and overflowing to Lobby 10 to watch the event on MIT Cable TV.

At a reception in Lobby 10 and on Killian Court following the meeting, Hockfield spoke informally with MIT faculty, students (including incoming freshmen), alumni and staff, who welcomed her with the same warmth she had shown them minutes before during the community meeting.

In introducing her, Mead said, "As a strong advocate of the vital role that science, technology and the research university play in the world, and with an exceptional record of achievement in serving faculty and student interests, Dr. Hockfield is clearly the best person to lead MIT in the years ahead. She brings to MIT an outstanding record as teacher, scientist and inspirational leader with a reputation for bringing out the best in all the people with whom she works."

James A. Champy, who chaired the presidential search committee for the MIT Corporation, said, "Dr. Hockfield emerged from a stellar field of candidates as the best person to lead MIT to new fron-

See **PRESIDENT**  
Page 8

PHOTO / DONNA COVENEY

## President-elect displays warmth and crowd-appeal

Elizabeth Thomson  
and Denise Brehm  
News Office

A standing-room-only crowd in Room 10-250 greeted President-elect Susan Hockfield, her husband Tom, and their daughter Elizabeth with a long and thundering standing ovation at a special community meeting on Aug. 26, the day she was elected the 16th president of the Institute.

"Thank you, everyone, for such a warm, warm welcome to this community," said Hockfield, who drew additional applause throughout her remarks, including when she described her picture of MIT's future.

"I can distill this into a very simple picture. I want MIT to be the dream of every child who wants to make the world a better place. And also the dream of every engineer, every scientist, every scholar and every artist who draws inspiration from the idea of working in a hotbed of innovation in service to humanity," Hockfield said.

President Charles M. Vest also received a standing ovation when Hockfield saluted him "for his extraordinary leadership—both here at MIT and on the national scene.

"He has brought forward a great number of key initiatives and has forged important new directions over the 14 years he has served as MIT's president. For his work, for MIT and for the nation, I extend my personal thanks," she said.

Vest welcomed Hockfield by telling her that

There is "no greater privilege or honor that could be given to anyone than to be [named] the president of MIT." He also gave her two items key to the position. First, noting that Room 10-250 is the site for faculty meetings, which she'll soon preside over, Vest handed her a copy of "Roberts' Rules of Order."

"My distinguished predecessor Paul Gray gave me his own personal copy, and today it's my privilege to pass [it] on to you," said Vest, to laughter and applause.

Next, noting that Hockfield—Yale's provost—recognizes the value of resources ("a nice word for money," Vest said), he handed her a decorated coffee can filled with shredded money. Quipped Dana Mead, who also spoke at the meeting, "As chair of the MIT Corporation I hate to see that stuff ground up into dust."

Professor Rafael Bras, chair of the MIT Faculty, also warmly welcomed Hockfield. "It is indeed a very happy and momentous occasion for all of us. With you, once again we get a new president who represents the best in leadership, one who the world will respect."

After the short meeting, the large crowd flowed out into Lobby 10 and onto Killian Court, where Hockfield chatted with small groups of faculty, alumni, staff and students. Laughter and flashbulbs marked the celebratory mood, as people enjoyed the refreshments and waited patiently to be the next to greet the president-elect.

A group of pre-frosh just winding up their seventh week of Interphase courses on campus were among those anxious to meet and greet their

See **COMMUNITY**  
Page 8



PHOTO / DONNA COVENEY

### The Vest years of our lives

The MIT community will gather for an informal celebration of the 14 years with President Charles M. Vest and Rebecca Vest, on Saturday, Sept. 18 from 2 to 4 p.m. in the Stata Center and the Dertouzos Amphitheater. All members of the MIT community are invited to bring families and friends to this afternoon of music, food and festivities to thank the Vests for their service to MIT.

RELATED  
PHOTOS  
Pages 4-5

# Reif named head of EECS department

Sarah H. Wright  
News Office

Professor Rafael Reif, an internationally noted researcher in microelectronics, has been named head of the Department of Electrical Engineering and Computer Science, effective Sept. 1.

"Having seen Rafael's leadership as associate department head of EECS and as a lead advisor in our Tiny Technologies research initiative, I know that he will shape the future of EECS in exciting new ways," said Dean of Engineering Tom Magnanti.

Reif, who served as associate head of the department for the past five years, is a fellow of IEEE and has received the Semiconductor Research Corporation's 2000 Aristotle Award, which acknowledges outstanding teaching and student mentorship in its broadest sense. The School of Engineering recently selected him as the first Fariborz Maseeh Professor of Emerging Technology.

In his teaching and research, Reif has focused on microelectronics, with a recent emphasis on future microelectronics intercon-



Rafael Reif

nect technologies, and on environmentally benign microelectronics fabrication.

He succeeds Professor John Guttag, who stepped down from the post at the end of July after serving as department head since January 1999 and as associate head for the six previous years.

**New associate heads named**

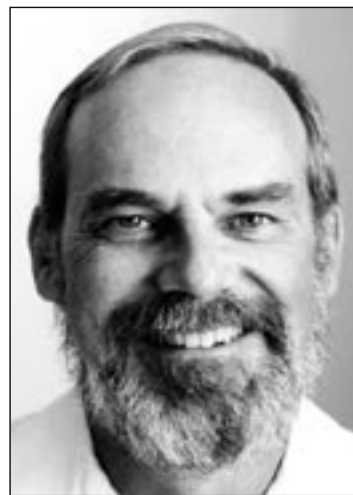
Magnanti and Reif jointly



Duane Boning

announced the appointment of professors Eric Grimson and Duane Boning as the new associate heads of EECS.

"Both Eric and Duane have strong records of accomplishment in teaching and research, and a deep commitment to education, our department and MIT. We are grateful to them for their willingness to accept such a demanding and important responsibility,"



Eric Grimson

Magnanti said.

Grimson served as associate director of the MIT Artificial Intelligence Laboratory from 1998 to 2003, and is currently education officer of EECS. He also heads the Computer Vision Group of MIT's Computer Science and Artificial Intelligence Laboratory. He has received the School of Engineering's Bose Award for excellence in teaching.

Boning has been associate director of the MIT Microsystems Technology Laboratories since 1998. He is also serving as the co-director for undergraduate education for the Cambridge-MIT Institute.

**Praise for past leadership**

In thanking John Guttag for his "extraordinary leadership" for more than 10 years as associate head and department head," Magnanti said: "Heading an enterprise as large and as complex as EECS is indeed a challenge, and many great things have happened in the department during John's tenure. John has been especially effective in faculty hiring and mentoring, in fund-raising and in programming and development of the Stata Center. He steps down as head of the very best electrical engineering and/or computer science department in the world."

Magnanti also thanked Professor Barbara Liskov, who steps down as associate department head on Aug. 31. "The department has benefited tremendously from her leadership and wisdom," Magnanti said.

## Anderson appointed chief facilities officer

William J. Anderson was appointed the chief facilities officer at MIT, effective Aug. 16, announced Executive Vice President John R. Curry.

Anderson will lead a department of about 625 people, including professional and support staff, skilled trades people, and bargaining unit employees. Facilities is responsible for the physical environment of the Cambridge campus, which consists of 11 million square feet of classrooms, labs, offices and residences on 153 acres. The department provides utilities, support services such as custodial and repair and maintenance, and design and construction services.

Anderson succeeds Victoria Sirianni, who stepped down on June 30 after leading the department for more than a decade.

Anderson comes to MIT from Pennsylvania State University where he was the associate vice president for Physical Plant responsible for all aspects of facilities management, including master planning, space planning, design, construction, operations, maintenance, real estate management, and environmental health and safety for Penn State's 24 campuses. He had responsibility for more than 1,100 professional, administrative and skilled employees who support a physical

plant composed of 20,000 acres of land and more than 1,300 buildings with 22 million square feet of space.

"Bill Anderson is one of the most accomplished facilities officers in the country," Curry said. "He will bring to MIT a keen mind, engaging demeanor, and commitment to excellence—not to mention a powerful work ethic—which are the hallmarks of the Institute," Curry said.

A Boston native, Anderson received the B.S. degree in civil engineering in 1969 from Tufts University. From Tufts he went to the Navy's Civil Engineer Corps, where he spent more than 20 years, attaining the rank of captain. He holds two M.S. degrees in civil engineering: one from MIT in geotechnical engineering (1973) and one from the University of California at Berkeley, in construction management. He is a registered professional

engineer.

"I am delighted that we were able to attract Bill back to MIT," said associate provost and search committee chair Claude R. Canizares. "His enormous professional abilities and personal skills were evident to all of us on the search committee, and I really look forward to working with him."



William J. Anderson

## Hastings named new head of Engineering Systems Division

Lois Slavin  
Engineering Systems Division

Daniel Hastings, a professor of aeronautics and astronautics and engineering systems who served as chief scientist to the U.S. Air Force from 1997-99, was named director of the Engineering Systems Division effective July 1.

"Dan brings enormous expertise in both engineering science and engineering systems to this position, including extensive leadership experience in the Air Force," said Thomas Magnanti, dean of engineering. "He has done a marvelous job in several administrative capacities at MIT over the years, especially as ESD co-director. I can't imagine a better successor to ESD's founding director, Professor Daniel Roos."

Hastings commented, "Everyone in the ESD community—faculty, students, alums, partner companies and staff—has an

opportunity to help define and evolve the important field of engineering systems, and we need everyone's contributions. We also look forward to continuing to partner with our colleagues throughout MIT, as well as at other academic institutions and professional organizations."

Hastings has taught courses and seminars in plasma physics, rocket propulsion, advanced space power and propulsion systems, aerospace policy, technology and policy, and space systems engineering. He served as director of MIT's Space Grant Program from 1990-93, as associate head of aeronautics and astronautics from 1993-96, as director of ESD's Technology and Policy Program from 2000-03 and as associate director of ESD from 2001-03. In 2003 he was named co-director of ESD with Daniel Roos, professor of civil and environmental engineering and associate dean for engineering systems.



Daniel Hastings

**HOW TO REACH US**

**News Office**

Telephone: 617-253-2700  
E-mail: [newsoffice@mit.edu](mailto:newsoffice@mit.edu)  
<http://web.mit.edu/newsoffice>

**Office of the Arts**

<http://web.mit.edu/arts>



Printed on recycled paper

**News Office Staff**

Director ..... Arthur Jones  
Assistant Director ..... Donna Coveney  
Assistant Director ..... Elizabeth A. Thomson  
Senior Communications Officer ..... Patti Richards  
Communications Officer ..... Kristen Collins  
Senior Writer ..... Sarah H. Wright  
Writer/Associate Editor of Tech Talk... Denise Brehm  
Operations/Financial Administrator... Myles Crowley  
Web Developer and Editor ..... Lisa Damtoft  
**Computer Support Assistant** ..... **Roger Donaghy**  
Administrative Assistant ..... Mary Anne Hansen  
Administrative Assistant ..... Patricia Foley

**Publisher**  
Arthur Jones

**Interim Editor**  
Denise Brehm

**Photojournalist**  
Donna Coveney

Tech Talk is published by the News Office on Wednesdays during term time except for most Monday holiday weeks. See Production Schedule at <http://web.mit.edu/newsoffice/techtalk-info.html>. The News Office is in Room 11-400, Massachusetts Institute of Technology, 77 Massachusetts Avenue, Cambridge, MA, 02139-4307.

**Postmaster:** Send address changes to Mail Services, Building WW15, Massachusetts Institute of Technology, 77 Massachusetts Avenue, Cambridge, MA 02139-4307.

Subscribers may call 617-252-1550 or send e-mail to [mailsvc@mit.edu](mailto:mailsvc@mit.edu).

TechTalk is distributed free to faculty and staff offices and residence halls. It is also available free in the News Office and the Information Center.

Domestic mail subscriptions are \$25 per year, non-refundable. Checks should be made payable to MIT and mailed to Business Manager, Room 11-400, MIT, 77 Massachusetts Avenue, Cambridge, MA 02139-4307.

Periodical postage paid at Boston, MA. Permission is granted to excerpt or reprint any material originated in Tech Talk.



PHOTO / DONNA COVENEY

Jessica R. Newton, a postdoctoral fellow in Brain and Cognitive Sciences, points at a representation of a section of a mouse's brain that had been "rewired" to receive visual cues in the hearing region of its brain. Looking on are neuroscience professor Mriganka Sur (center), head of the Department of Brain and Cognitive Sciences, and Susumu Tonegawa, director of the Picower Center for Learning and Memory at MIT.

## Brain shows more plasticity than previously believed

Mice "rewired" to receive visual cues in the hearing region of their brains learned to respond to a fear-inducing flashing light as if they had heard it instead of seen it, researchers from MIT's Picower Center for Learning and Memory reported in the Aug. 22 online issue of *Nature Neuroscience*.

This research shows that even the adult brain is far more plastic, or adaptable, than previously believed. If extended to humans, this may mean that in the future, individuals with brain damage from aging, disease or injury may be able to have stimuli from the outside world routed in new ways to major brain structures—even those responsible for emotional responses and learning.

This work also sheds light on how emotional responses are learned, illustrating the ability of widely different external stimuli to elicit a common emotion such as fear. The research is the result of a collaboration between the laboratories of Mriganka Sur, the Sherman Fairchild Professor of Neuroscience and head of the MIT Department of Brain and Cognitive Sciences, and Susumu Tonegawa, director of the Picower Center and professor of biology.

"This paper demonstrates that novel pathways can lead to novel learning. This points to the tremendous plasticity of emotional responses in the brain," Sur said. Sur's laboratory showed in 2000 that when an animal's brain is rewired so that visual input is directed to the auditory cortex, this "hearing"

part of the brain is able to respond to visual stimuli. The latest work goes one step farther. It shows that a brain structure responsible for an emotional response also can accept information from unusual sources and learn from a novel association.

Mice typically acquire a fear response more quickly if a signal tied to danger is a sound rather than a light. In this study, mice learned that a certain sound preceded a mild shock to one foot. After only one repetition, the mice froze in fear when they heard the sound. In contrast, mice that received a shock in connection with a visual cue had to experience many more repetitions before they realized that the light meant that a shock was coming.

Mice that had been "rewired" so that visual information was routed to the hearing part of their brains rather than to the visual part learned rapidly to equate the light with the shock. The visual information was passed on, as if it were a sound, from the auditory part of their thalamus to the amygdala, a structure deep within the brain critical for fear conditioning behavior.

In addition to Sur and Tonegawa, this work was done by postdoctoral fellow Jessica R. Newton, brain and cognitive sciences graduate student Charlene Ellsworth, and research scientist Tsuyoshi Miyakawa in Tonegawa's laboratory. The work is supported by the National Institutes of Health.

## I-Neighbors encourages local bonds

Critics say the Internet increases global communication at the expense of real-world communities, but researchers at MIT have created an online service called I-Neighbors, designed to help neighborhoods strengthen local bonds and social interaction.

I-Neighbors grew out of three years of research by Keith Hampton, assistant professor of sociology in the Department of Urban Studies and Planning. He initiated the work in response to concerns that Americans have experienced a decline in neighborhood and community participation over the past 30 years. The free web site, which can create a homepage and e-mail list for every community in the Unwitted States and Canada, provides community groups with a system to organize local events and share information on local services, and connects neighbors with similar interests. It includes a local directory, shared photo album, neighborhood messaging, opinion polling, and a carpool system.

"Much research has focused on the ability of the Internet to connect people over long distances, but we wanted to focus specifically on how the Internet is used locally," said Hampton. "We are hopeful that I-Neighbors will lead to neighborhoods that are safer, better informed, have a stronger sense of community and are better equipped to deal with local problems."

Hampton and his students studied the residents of four Boston area neighborhoods for two years. Three of the locations—a suburban neighborhood, an apartment building and a gated condominium community—were given the I-Neighbors services designed to facilitate neighborhood social networking. The fourth area, also in the suburbs, was used as a control.

Within a year, the study found measurable increases in the number of local social ties and the sense of community in two of the areas where I-Neighbors web sites and messaging were introduced. The changes included the formation of new neighborhood social ties and higher levels of community participation, both on and off the Internet.

Of the three experimental neighborhoods, the suburban neighborhood used the services the most frequently and experienced the greatest increase in community. Nearly half (46 percent) reported that I-Neighbors increased their "sense of community"; 29 percent reported that it increased neighborhood involvement; and 40 percent reported that it increased their neighborhood's ability to react to important issues or emergencies.

Neighbors also were less likely to rely on visible social characteristics, such as age, the presence of children, and physical proximity when forming new ties. Instead they used I-Neighbors to learn about their neighbors' backgrounds and interests. The average user met nine new neighbors in person and talked to two new neighbors on the telephone.

"The neighborhood e-mail list provided a forum for residents to exchange everything from information on home repairs to opinions about local elections," said Hampton. "Elected officials used the e-mail list to report back to their constituents, and residents used the list to organize face-to-face community meetings with officials, as well as the occasional barbecue and house party."

Hampton characterized the new social ties that formed as "weak," not particularly close, social relationships. "The average person has just over a dozen strong ties, only two to three of which tend to be neighbors. Weak ties are more diverse and help in community organizing. They are exactly what we would hope to find in a safe and productive neighborhood," explained Hampton.

The research was supported by the National Science Foundation, the NEC Corporation Fund for Research in Computers and Communications, the American Sociological Association Fund for the Advancement of the Discipline, L-Soft, and Microsoft Research.

## Sonic dab relieves pain of the jab

Denise Brehm  
News Office

Fear of needles could become a thing of the past. A painkilling device approved Aug. 17 by the FDA could offer relief to children and adults who hate the sharp stab of pain that comes with needles and IVs.

The medical device, called SonoPrep, uses an ultrasonic method created by MIT researchers to make skin temporarily more permeable. A painless 15-second treatment by the new device, followed by an application of lidocaine cream, will anesthetize the skin in five minutes. By itself, lidocaine takes one hour to work.

Because the method is simple and painless, and speeds up the action of lidocaine—a topical anesthetic commonly used in pediatrics and on critically ill adults and children who must endure repeated needle sticks—it could become standard procedure in doctor's offices and hospitals. Another use would be before painful procedures such as angiography, balloon

angioplasty, and the insertion of venous catheters.

"It's wonderful to see the research we did at MIT get to the point where it can help people and relieve pain," said Robert Langer, the Germeshausen Professor of Chemical and Biomedical Engineering, who developed the device along with visiting scientist Joseph Kost and Professor Daniel Blankshtein of the Department of Chemical Engineering, and alumnus Samir Mitragotri (MIT Ph.D. 1996), who is now on the faculty of the University of California at Santa Barbara.

The scientists founded Sontra Medical Corp. of Franklin, Mass., which manufactures the SonoPrep device and will begin marketing it in September, at an expected price of \$2,000 each. Langer is a director and chairman of the scientific advisory board of the company.

The small, battery-powered device applies a low-frequency, ultrasonic energy to the skin for 15 seconds. The sound waves open small cavities in the skin by disorganizing the lipid bi-layer, creating

tiny, reversible channels through which fluids can be extracted and delivered. The skin goes back to its normal state within 24 hours.

"The best thing is that approval of this device opens the door to many new uses such as glucose-sensing or insulin delivery for diabetics," said Langer, who explained that the microscopic openings created in the skin are much too small to see, but large enough for molecules relevant to medicine to pass through.

Ultimately, the SonoPrep device could be coupled with other devices that sense the level of sugar in a diabetic's blood and/or deliver insulin or other medication to the blood. The scientists believe that the same mechanism can be used to deliver routine vaccinations painlessly within the next five years.

Original work at MIT on this technique was funded by the American Diabetes Association, the Juvenile Diabetes Foundation, the United States-Israel Binational Science Foundation and the U.S. Centers for Disease Control.

# MIT welcomes Susan Hockfield

*Susan brings a rare blend of scientific excellence, deep intellect and curiosity, reputation as a highly effective manager, and an appreciation and zest for the promise of science and engineering in the world. She is a decisive leader who is an extraordinarily decent and ethical person, a great listener and respectful community builder.*

**Susan E. Whitehead**  
Vice Chair, Whitehead Institute for Biomedical Research  
Member of the MIT Corporation



Professor Rafael Bras, chair of the faculty, welcomes Susan Hockfield to MIT.

*Susan's unique and innovative perspective on leadership and the role of science in higher education distinguished her as a leading candidate for the role of MIT president. As we enter a time of new and varied challenges, her collaborative leadership style and strong vision for the future of higher education will make her an excellent asset to MIT. I'm excited to welcome her to our family.*

**Dedric A. Carter**  
Class of 1998  
Member of the MIT Corporation

*Professor Hockfield has made significant scientific contributions in her career, and she is highly appreciative of the creative blending of basic and applied research to address some of the most important problems of our time. This and her commitment to the social sciences, humanities and the arts point to her interest in facilitating new intellectual interactions among faculty and students in all five schools of the Institute. She is a superb choice to lead MIT.*

**Jerome I. Friedman**  
Institute Professor  
Chair of the Faculty Advisory Committee

*Rare is it to find such an accomplished scientist whose zeal for research is matched by her passion for enriching the greater community to which she belongs. I am confident that Susan Hockfield will propel the Institute to new intellectual heights while being receptive to student concerns and continuing MIT's tradition as a progressive trailblazer whose actions improve the educational landscape for everyone.*

**Pius A. Uzamere**  
Class of 2004  
Student Advisory Group to the  
Corporation Committee on the Presidency



Noting that a provost recognizes the "value of resources," Charles Vest, the 15th president of MIT, hands the 16th president, Susan Hockfield, a can of shredded money. Dr. Hockfield is currently the provost of Yale.

*Like every other president, Susan Hockfield's most important contributions will be shaped, over the years, by actions, ideas, opportunities and events that cannot be predicted. That is why the search process concentrated on her values, broad understanding and vision for academia, human qualities and past accomplishments. She gets uniformly high marks in all of these dimensions.*

**Charles M. Vest**  
15th President of MIT

# eld with warmth and humor



*Dr. Hockfield emerged from a stellar field of candidates as the best person to lead MIT to new frontiers of innovation and leadership in research and education. She possesses a rare combination of scientific achievement, outstanding managerial talent, and an extremely engaging personal style that will serve MIT's faculty, students and staff very well.*

**James A. Champy**  
Chair of the MIT Corporation  
Committee on the Presidency



Barun Singh, president of the Graduate Student Council (right), and Hector Hernandez, vice president of the GSC, greet Dr. Hockfield at the Aug. 26 reception following the community meeting.



*All of us were very impressed by Professor Hockfield's incisive assessment of the opportunities and challenges facing MIT, her engaging personality, her ability to listen, her openness and candor, and her deep knowledge and love of the academic enterprise.*

**Rafael L. Bras**  
Chair of the Faculty

**Photos by Donna Coveney**



*Susan Hockfield has been an outstanding dean and provost. She has the intelligence, judgment, and interpersonal skills to be a superb president. She has a broad understanding of the future direction of science and technology, and is well prepared to assume the leadership of MIT and to take a leading role in shaping national science policy.*

**Richard C. Levin**  
President of Yale University



The MIT community applauds as President-elect Susan Hockfield takes the podium in Room 10-250 at the community meeting announcing her selection as MIT's 16th president.

# Highlights of MIT summer news

## Algae transform waste into energy

Some algae are especially hungry for the tasty toxins in modern smog. With the help of MIT's cogeneration plant, an entrepreneur hopes to exploit this appetite to transform waste into energy. Isaac Berzin, a former postdoc in chemical engineering, installed bioreactors on the cogen roof to test the algae's efficiency. (Aug. 9)

## MIT brains and brawn light up Athens

MIT mathematician Nate Ackerman offered proof that scientists can combine brain and brawn when he competed in Athens with the top wrestlers in the world. He joined MIT alumni and faculty affiliated with the summer Olympics. (Aug. 13)

## Sergeant's 'stitch in time' streamlines MIT ROTC

The Army ROTC doesn't give a "stitch in time saves nine" award, but that's the spirit of the service medal presented to Staff Sgt. Joseph Howell. (Aug. 5)

## Gift brightens study of dark energy

MIT research in astrophysics and space science was recognized by a \$7.5 million gift from the Kavli Foundation. (Aug. 3)

## Mice cloned from malignant cancer cells

Nature can reset the clock in certain types of cancer and reverse many of the elements responsible for causing malignancy. (Aug. 1)

## Bloggers have impact at DNC

Bloggers' unprecedented participation in the DNC represents a quiet yet astounding change. (July 29)

## Key to boosting brainpower

The finding that a tiny molecular change alters the number of synapse receptors may lead to a brainpower boost in the area where long-term memories are stored. (July 21)

## Dog genome assembled

Researchers released the first draft of the dog genome sequence, which could aid the characterization of dog diseases. (July 20)



## Ecuadorian-style raft launch

Four MIT students found their inner Huckleberry Finns this summer, inspired by a comment in a lecture on how metallurgy was introduced to Mexico 1,300 years ago. In the lecture, Dorothy Hosler, professor of archeology and ancient technology, noted that early efforts at making a raft to travel from Ecuador to Mexico had failed. Taking this nugget of history as a challenge, the students built and launched their own raft on the Charles River. Next summer they'll try to build a raft to sail from Ecuador to Mexico. (Aug. 4)



## Boston students grow with STEM

Some 38 students from Boston public schools spent time on campus this summer as part of STEM, an MIT program designed to reinforce math and science skills. Above, Kamisha Green (left) and Jennifer Jones clap in delight during the final program presentations. (Aug. 12)

## Report proposes voting measures for November

Four relatively simple and inexpensive steps can ensure that voting in this fall's presidential election is accurate and reliable, according to the Caltech/MIT Voting Technology Project. The steps include ballot simplification and equipment testing. (July 19)

## Berners-Lee knighted

Tim Berners-Lee was dubbed a Knight Commander, Order of the British Empire by Queen Elizabeth II. (July 16)

## Home established for Broad Institute

The long-term home of the Eli and Edythe L. Broad Institute is closer to reality following groundbreaking ceremonies. (July 14)

## MIT grad enters Miss America Pageant

Erika Ebbel received her S.B. on June 4, was named Miss Massachusetts on June 26, and will compete for the Miss America crown on Sept. 18. (July 7)

## Should Dad still drive?

New guide helps families decide if it's time for older relatives to turn in their car keys. (June 23)

## Work offers insight into metastasis

Tumors spread by reactivating and commandeering a "sleeper" protein that should have been shut off in early embryo development. (June 24)

## Airlines exaggerate taxes

Airline ticket taxes add about 15 percent to the average domestic airfare, not the 26 percent sometimes claimed by airline executives. (June 18)

## Technology may expand stem cell work

An MIT team developed technology that could jump-start scientists' ability to create specific cell types from human embryonic stem cells, a feat with implications for developing replacement organs. (June 14)

## 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](mailto:ttads@mit.edu) or mail to Classifieds, Rm 11-400. Deadline is noon Wednesday the week before publication.

### FOR SALE

Free—authentic Japanese tatami bed. Single, wooden frame and five-inch straw mattress in perfect shape. Clare Stanley 253-7708.

Commuter Rail Pass Zone 8 purchased at North Station 7/1/04 and never used. Good for 12 rides between Boston and all stations within Zone 8 through 12/04. Half price/bst. Jenn 253-6305.

Beautiful, very comfortable, buttercream color Boston Interiors couch, like new. Paid \$1,100. Selling for \$600. Knabe baby grand piano (5'1" walnut). Beautiful, warm tone, needs tuning. \$7,000. [at112233@yahoo.com](mailto:at112233@yahoo.com).

Creative WebCam NX with software, \$15. Karaoke - The Singing Machine, hardly used in excellent condition with 4 sing-a-long CDs, \$40. Shrek for Gameboy Color, \$5. Cheryl 253-3092 or [cheryl@mit.edu](mailto:cheryl@mit.edu).

Used Futon with wood frame. Rarely used, like new. \$99/bst. 617-969-4260.

Canon EOS-10D USA body, five-months old, mint condition, box, books, accessories, transferable extended warranty, \$1,000. EF 28-135mm IS, warranty, four-months old, \$350. Yakov at 253-1286 or 617-778-4357.

Dining room set: table w/two leaves, (approx. 70 inches long), six chairs, large sideboard and glass-front china cabinet, all matching. Walnut, dark stain. \$400. [knyzio@mit.edu](mailto:knyzio@mit.edu).

Sleep sofa and loveseat, neutral beige color. \$150/bst. Amy Favaloro at [afavalor@mit.edu](mailto:afavalor@mit.edu) or 253-2495.

Guild 12-string acoustic guitar, \$375. Cambridge SoundWorks Ensemble, original model, with tripods, \$350. Paul at 258-6763 or [bethge@mit.edu](mailto:bethge@mit.edu).

### VEHICLES

1990 Volvo 740/GL station wagon, one owner, 147K miles. Recent engine troubles, body good. Sold as is, no warranty expressed or implied. Good for handy person. \$1,000/bst. 253-6263 or 617-876-6027.

### HOUSING

Visiting faculty/post-docs: furnished room w/kit/lndry privileges, linens, all utilities, wireless and cable, walking distance to MIT. New, bright, quiet. International, conservation-oriented, references. \$950 - \$1,000/mo or \$250/week. 617-625-9839.

Furnished rooms for rent: \$700/mo, \$250/week, all utilities, washer/dryer, full kitchen privileges, shared bath. Across from Kendall Cinema, near MBTA, parking extra. J. Blair at 258-2843 or 617-576-5125.

For rent: Large 1 bdrm condo in Somerville available 10/01. Washer, dryer, dishwasher, fireplace, balcony in unit. Parking in garage included. No fee. \$1,200/mo. [depaoli@mit.edu](mailto:depaoli@mit.edu).

Fully furnished 1 bdrm. Sunny, quiet apartment in Cambridge. Walk to MIT, Harvard Sq. For responsible visiting scholar for one year beginning in Sept. \$1,325/mo. Util. included. 617-661-7720 or [agblako@att.net](mailto:agblako@att.net).

House for sale: Weston, south side, 5 BR, 3 BA, 1920's style, sunlit rooms, borders 50 acres conservation land, walk to commuter train, 1.8 mi. from Mass Turnpike entrance. \$1,095,000. 617-510-8022.

### WANTED

MIT CRC seeks female volunteers 20-30 lbs. overweight for 14-week weight loss study. Testing whether consumption of carbohydrate-rich beverage or protein/carbohydrate beverage helps with weight loss. 452-4184 or [janine@mit.edu](mailto:janine@mit.edu).

Part-time child care wanted for eight-month old baby girl. Must have certificate/degree in early childhood dev. and min. five years infant care experience. Mon. and Thurs., 8am-5:30pm, starting Sept. 6. [bowmany@rcn.com](mailto:bowmany@rcn.com).

### COMMUNITY SERVICE JOBS

Positions for students with work-study eligibility.

Tutors needed for middle school and high school students in an after-school drop-in program in Dorchester. Math, science, history, language arts. Training provided. 6-8/hrs/week between 4-9 p.m. \$13/hr. Kambiz Maali at [kmaali@birdstreet.org](mailto:kmaali@birdstreet.org) or 617-282-6110.

Boston chapter of Gay, Lesbian, Straight Education Network seeks interns to help with fund-raising, programming, publicity or membership. Flexible hours, \$10.50/hr. Marcela Alva at 617-536-9669 or [marcela@glsebaston.org](mailto:marcela@glsebaston.org).

## NEWS YOU CAN USE

**Vendor fair planned**

More than 100 of MIT's suppliers of office, computer and lab supplies, equipment, furniture and temporary help will display their products and answer questions at the annual vendor fair, which will be held under the big tent on McDermott Court on Thursday, Sept. 9 from 9 a.m. to 2 p.m. (rain or shine).

MIT employees can learn how to reduce costs while improving the quality of the goods and services they purchase and how to help the Institute in its recycling efforts. Applications will be available for Procurement credit cards, and Procurement personnel will be on hand to answer questions. For more information, call Diane Shea, director of Procurement, at 253-8370.

**MITAC moved**

The MIT Activities Committee has moved from the basement of Walker Memorial to the first floor of the Stata Center at the Information Desk near the Gates Lobby and the giant "3" sign. Beginning Sept. 2, MITAC tickets will be on sale in the Stata Center Tuesday through Friday, 11 a.m. to 4 p.m.

**Update online information**

Employees are encouraged to check their directory information, including e-mail address, by going to the Employee Self Service web site at <http://web.mit.edu/sapwebss>. The deadline for changing information for inclusion in the printed Faculty and Staff Directory is Sept. 15. The directory will be available in early November. The online directory is updated daily.

**Reading room expands hours**

The Institute Archives and Special Collections reading room (14N-118) will expand its hours beginning Tuesday, Sept. 7. New hours will be 10 a.m. to 4 p.m. Monday through Thursday, except during Institute holidays. Staff will continue to be available by e-mail or phone weekdays from 9 a.m. to 5 p.m. The Institute Archives and Special Collections provide information on MIT history and serve as an important resource for the study of the history of science and technology. The Institute Archives and Special Collections also maintains the MIT rare book collections and oversees the Institute's Records Management Program.

**Emergency rides home**

People who commute to their jobs at MIT by train, bus, carpool, vanpool, bike or walking at least three days per week are eligible for a new Emergency Ride Home (ERH) program, a service provided by MIT through its membership in the Charles River Transportation Management Association. ERH ensures that people who use public transportation or other alternatives to driving alone are not stranded at work in cases of personal or family illness or emergencies, or even unscheduled or unplanned overtime. Preregistration for the service is required. To learn more or to register, go to <http://www.masscommute.com>.

**Animal care concerns**

Vice President for Research and Associate Provost Alice Gast and the chairman of the Committee on Animal Care are once again soliciting any information that would aid MIT's effort to maintain the humane care of animals used in research.

The committee was established to ensure that all MIT researchers working with animals comply with federal, state, local and institutional regulations on animal care. To that end, it inspects animals, animal facilities and labs, and reviews all research and teaching exercises which involve animals before experiments are performed.

If you have information about inadequate animal care or any information that would help the committee fulfill its responsibilities, contact the committee at 253-9436 or call Gast at 253-1403. All concerns about animal care will be handled confidentially and will be investigated by the committee.

**Paris for IAP?**

The Foreign Languages and Literatures section is launching its third January Scholars in France program, and is looking for undergraduates to participate in a two-week, all expenses paid trip to Paris during IAP. The (non-credit) French cultural immersion program will focus on French arts, letters and history, and will include attending plays, movies, concerts and operas, viewing exhibits at art and history museums, and meeting French people.

Students will be selected for the Jan. 3 to 17 trip through a competitive application process. They must have completed, or be in the process of completing, one subject above French IV. Declared French majors and minors will be given special consideration. Applications are due by Oct. 8.

# Soldier-scientist in Iraq studies gear aviators carry into combat

Eve Downing

Institute for Soldier Nanotechnologies



Lt. Col. Charles Dean is working on the second phase of a three-part study of the equipment soldiers carry into combat. This research through the Institute for Soldier Nanotechnologies will help the Army lighten soldiers' loads.

A mechanical engineer and lieutenant colonel in the U.S. Army who serves as liaison to MIT's Institute for Soldier Nanotechnologies is conducting the first-ever analysis of the loads soldiers actually carry into combat, using current conflicts in Iraq and Afghanistan as his laboratory.

Lt. Col. Charles Dean (S.M. 1993) is currently leading a seven-member team in collecting data on Army aviators stationed in Iraq and Afghanistan.

Dean's data bears out decades of anecdotal evidence that soldiers carry backbreaking loads, often well over 100 pounds. In addition to hampering mobility, carrying such a burden is physically exhausting, and "comfort" items—like cold-weather clothing or extra food—are often sacrificed.

His research is part of an overall Army effort to modernize the individual soldier through technology; nanotechnology will help lighten the soldier's load through miniaturization and multifunctionality.

This is the second phase of a three-part study. In the first phase, which took place in 2003 in Afghanistan, Dean collected detailed data on nearly 800 paratroopers having 29 different duty positions, weighing them with and without their equipment and noting exactly what equipment they carried. Nearly every soldier carried a fighting load of 60-70 pounds, and most carried more than 100 pounds during an approach march.

Dean's first-phase report concluded the Army must address weight reduction systematically, noting that drastic action would be required to meet its 2010 goal of reducing the approach march load to 50 pounds.

## School of Engineering still nation's best, says U.S. News & World Report

MIT's School of Engineering is the nation's best undergraduate engineering program overall, and seven MIT specialties were individually ranked best in the 2005 newsstand book, *America's Best Colleges*, from U.S. News & World Report.

The engineering specialties that gave MIT its winning sweep are aeronautics and astronautics, chemical, computer, electrical, materials, mechanical, and nuclear engineering. MIT also ranked second in the environmental specialty and fifth in biomedical engineering and civil engineering.

The Sloan School of Management ranks second overall among undergraduate business programs. The Wharton School at the University of Pennsylvania ranked first. Four management specialties within the Sloan School were ranked the nation's best: management information systems, production/operations management,

quantitative analysis, and supply chain management/logistics. The Sloan School ranked fifth in entrepreneurship and in finance.

MIT shared a three-way tie with Stanford and Duke universities as the fifth-ranked national university overall. (MIT ranked fourth last year.) The guidebook places Harvard and Princeton universities at a tie for the top rank, just as in 2003, followed by Yale and the University of Pennsylvania. Caltech dropped from fifth to eighth in the ratings.

The Institute also ranked fifth in the "best value" category, behind Caltech, Princeton, Harvard and Yale.

MIT appeared on two of eight lists of outstanding academic programs believed to improve student success—senior capstone projects that integrate and synthesize what students have learned, and undergraduate research/creative projects.

In campus diversity among undergraduates, where a rating of 1.0 is the highest, MIT's diversity index held at 0.65, the same as UCLA and St. John's University in New York. The highest rating given was 0.72, to Rutgers and the University of Houston.

To rank undergraduate business programs, U.S. News surveyed deans and senior faculty at undergraduate business programs. Criteria for judging schools in other categories include peer assessment, retention, faculty resources, student selectivity and class size.

In related news, MIT was recently named one of "America's 25 Hot Schools" in the 2005 Kaplan/Newsweek guide, "How to Get into College." The guide recognizes each school for a different attribute; MIT was cited for "hottest architecture."

## List Center's artwork helps students turn dormitory rooms into museums

Dorm rooms may lack the comforts of home, but MIT students can choose from a treasure trove of art to enliven their space.

The List Visual Arts Center loans artworks to students for the academic year through a lottery distribution system. An exhibition of the available works will be on view in the List Center from Sept. 3-13. A special reception for graduate students will be held on Thursday, Sept. 9 from 5 to 7 p.m.

The show displays more than 300 framed prints and works on paper by leading modern and contemporary artists such as Berenice Abbott, Louise Bourgeois, Nancy Spero, Olafur Eliasson, Keith Haring, Jasper Johns, Roy Lichtenstein, Joan Miro, Takashi Murakami, Nam June Paik, Cindy Sherman, Andy Warhol and many others. The List Center recently acquired addi-

tional works for the program by artists including Marco Arce, Shazia Sikander, Isaac Julien and Rodney Graham.

Students may choose up to three works they would like to borrow for the academic year; those students selected in the lottery will receive one of their choices.

Students who don't receive art through the lottery have another opportunity to borrow one of these pieces on Saturday, Sept. 18. Artwork that is not claimed by the end of the day on Friday, Sept. 17 is distributed to students on a first-come, first-served basis the next day. Each year, hopeful students wake up early to be at the head of the line outside the gallery doors for a second chance to get some art.

Although only MIT students can borrow art, the exhibition is free and

open to the public so that all community members can look at these innovative works.

The Student Loan Art Program began in 1966 with gifts from Kay Stratton and Jerome Wiesner. In 1977, Vera and Albert List made a gift of 100 prints and in 1988, the Campus Activities Complex began allocating funds toward the purchase of artwork, at which time the List began adding about 10-12 new works per year. This year was a banner year, as many new pieces were added to the collection. New works by Richard Artschwager, Jennifer Bolande, John Currin, Oscar Niemeyer, Fred Wilson and many others will be exhibited in the Student Center (W20, third floor), for one academic year, after which they will be moved into the active collection for borrowing.

# PRESIDENT

Continued from Page 1

tiers of innovation and leadership in research and education. She possesses a rare combination of scientific achievement, outstanding managerial talent, and an extremely engaging personal style that will serve MIT's faculty, students and staff very well."

Among other priorities, Hockfield says she intends to use her new position to encourage collab-

orative work among MIT's outstanding schools, departments, and interdisciplinary laboratories and centers to keep the Institute at the forefront of innovation. She sees MIT's strength in engineering uniquely positioning the Institute to pioneer newly evolving, interdisciplinary areas and to translate them into practice.

Hockfield also hopes to accelerate the national discussion on improving K-12 science and math education. She believes strongly

in the value that international students and scholars bring to the educational and research programs of American universities, and in the importance of American universities' working closely with leading academic centers around the world, she said.

"Around the world, MIT stands as an emblem of discovery and innovation, produced through the scholarship of its outstanding faculty, students and graduates," said Hockfield about her election. "From my first conversations in the search process, the Institute's central themes—the pursuit of truth, integrity and the great meritocracy—have resonated with my own core values. This remarkable community's curiosity, intellectual commitment and passionate determination to solve problems have brought immeasurable benefit to humankind. It is an enormous honor and a very great privilege to have been selected to join this effort as MIT's next president."

In her work as a neuroscientist, Hockfield pioneered the use of monoclonal antibody technology in brain research, leading to her discovery of a protein that regulates changes in neuronal structure as a result of an animal's experience in early life. More recently she discovered a gene and its family of protein products that play a critical role in the spread of cancer in the brain and may represent new therapeutic targets for brain cancer.

## The Yale years

Hockfield, the William Edward Gilbert Professor of Neurobiology, joined the Yale faculty in 1985. She was promoted to full professor in 1994 and appointed dean of the Graduate School of Arts and Sciences in 1998, then provost in 2002, with oversight of the university's 12 schools.

As dean of the graduate school, Hockfield had responsibility for 73 doctoral and masters degree programs that enrolled approximately 2,300 students. In addition, she had oversight for faculty appointments and promotions in all of the science and engineering departments and in several social science departments. She played a key role



PHOTO / DONNA COVENEY

Thomas N. Byrne, Susan Hockfield's husband, and their daughter Elizabeth look on as Dr. Hockfield's presidency is announced.

in recruiting exceptional scholars and teachers and in increasing the number of women faculty.

During her tenure as dean, Hockfield effectively and creatively revitalized the administration of the school and addressed longstanding problems in academic, extracurricular and financial support for graduate students. She worked with student, faculty and alumni groups to build a much stronger sense of community and to improve the integration of the graduate school into the rest of the university. The number of applicants doubled to more than 9,000 during her tenure and, through the establishment of an Office for Diversity and Equal Opportunity, the number of students enrolling from under-represented minority groups increased dramatically.

As provost, Hockfield advanced Yale's major initiatives in science, medicine and engineering, which include a \$500 million investment in new and renovated facilities for the sciences. She encouraged collaborative work throughout the

university, bringing the humanities and the arts into new relationships and encouraging interactions between the humanities and the sciences. She has also worked to enhance administrative services for the entire university.

Hockfield received her bachelor's degree in biology from the University of Rochester in 1973, and earned a Ph.D. in anatomy and neuroscience from Georgetown University School of Medicine in 1979. She carried out post-doctoral research at the University of California, San Francisco. Prior to joining the Yale faculty, she was a senior staff investigator at the Cold Spring Harbor laboratory, a research and educational institution focusing on cancer, neurobiology, plant genetics, genomics and bioinformatics.

Her husband, Thomas N. Byrne, is Clinical Professor of Neurology, Neurosurgery and Internal Medicine at Yale's School of Medicine. They have one daughter.



PHOTO / DONNA COVENEY

Dana Mead, chair of the MIT Corporation (left), introduced Susan Hockfield as MIT's 16th president at a press conference in the Faculty Club on Aug. 26.

# COMMUNITY

Continued from Page 1

incoming president.

"I thought it was interesting from the aspect that it is new leadership so she'll, like, be more interested in hearing new things. She'll be more open to listening to us. She's, like, our class; she's our president; she came here with us," said Jonathan Frazier a freshman from Louisville, Ky.

"I'm just very excited that it's a woman president, because MIT has this image of being all about technology and men. I think she'll do a lot to change that image. Hopefully she'll hire more women faculty to be role models," said Jamira Cotton, a freshman from Longview, Texas.

"She's very nice, too. I talked to her and she said something about us both being freshmen," said Mariela Buchin, a freshman from Half Moon Bay, Calif.

Graduate student, Satwiksai Seshasai, (S.B. 2001, M.Eng.), said, "The community meeting was a great idea to bring the community together, including alumni, and make it clear that this appointment is something that will impact the students as well as the faculty and administration. It's a great start. When I talked to her afterwards, I told her she should loosen up. Well, not in those words, but I told her she should put on some jeans and walk around the dorms and meet some students."

Faculty and staff members also enjoyed the reception, taking advantage of the opportunity to meet their incoming boss.

"She's certainly made an initial impression on me of warmth," said Ayida Mthemba, associate dean for Counseling and Support Services. "It is wonderful to see a woman in this position. The students seem to love her; she's already told them what her e-mail address is. As a counseling dean, I think it's very important to students to know that the senior administration is accessible."

"She seems equally comfortable with students and Cor-

poration members and that's a good sign," said Professor Kip Hodges of earth, atmospheric and planetary sciences. "And I'm delighted she's a scientist. It's valuable to have someone in that office who understands what science is all about. We've been well-served by the past administration, but from what I've read, she really understands the connectivity of these two fields. And coming from Yale as

provost, she must be very familiar with bridging the technical with liberal arts.

"I like that she mentioned MIT taking a role in K-12 education. Science and engineering now play such a central role in society, it just makes sense that a place like MIT should play a more central role in K-12 education," said Hodges.



PHOTO / DONNA COVENEY

Student journalists Tom Sullivan, a junior at Yale, and MIT senior Christine Fry interview Susan Hockfield.