Volume 51 – Number 28
Wednesday, May 23, 2007

TechTalk

SERVING THE MIT COMMUNITY

PHOTO / **DAN BERSAK**

David Sanchez, left, keeps his eyes on the road as Mario Bollini points to dangers ahead on the 2.007 contest table. Sanchez came in second.

PHOTO / **DAN BERSAK**

First-place winner Stephanie Sidelko practiced driving her robot four hours a day.

2.007^2 victory = $\int$(practice^{10}, 'zoomage'$^{\infty}$)

Sidelko's elegant, relentless machine was a grand slam in 37th robo-fest

Stephanie Schorow
News Office Correspondent

In a raucous battle of the 'bots that exuded energy squared, sophomore Stephanie Sidelko took top honors May 9 in MIT's annual Design 2.007 contest when she and her machine outwitted, outlasted and outmaneuvered the tough competition.

Sidelko, only the third woman to win the contest since 1985, shrieked with delight in a huddle of supporters moments after she—with intense, deadly concentration—sent her trim, elegant machine dancing around sophomore David Sanchez's sturdy contraption and blocked him to win the match.

"I just wanted a robot that moved," a calmer, yet flushed Sidelko said modestly a few minutes later, although she noted her triumph came from getting her model done early so she could practice driving it "four hours a day" in the lab.

The win climaxed two days of mano-on-metal action for 2.007^2 (a visual pun on 2.007 in 2007), the "final exam" for Design and Manufacturing I, taught by MIT faculty and staff under the direction of Alexander H. Slocum, professor of mechanical engineering and MacVicar Faculty Fellow. The annual contest, staged before a rapt audience of students, faculty, parents and robot-lovers in the Johnson Athletic Center, is run by the ever-effusive Slocum, whose color commentary was matched by his Hawaiian shirt, oversized tie and yellow suspenders.

First held in 1970, the contest teaches students how to apply engineering concepts to a real-life hurdle. Early in the semester, students receive a kit; they then have to

See **ROBO-FEST**
Page 4

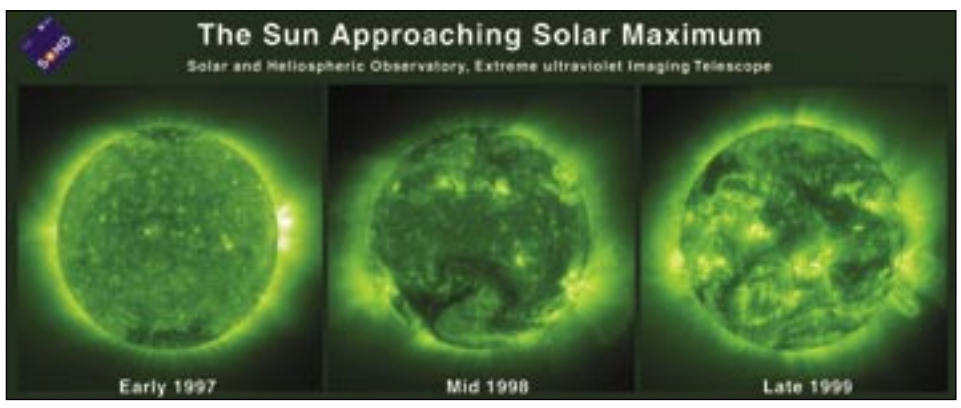


IMAGE COURTESY / **ESA AND NASA**

These are false-color images of ultraviolet light emitted by the solar atmosphere taken with SOHO's Extreme-ultraviolet Imaging Telescope.

Team discovers 'throttle' for solar wind

Helium may act as a "throttle" for the solar wind, setting its minimum speed, according to new results from an MIT-led team using NASA's Wind spacecraft.

The solar wind is a diffuse stream of electrically conducting gas (plasma) constantly blowing from the sun. "This result gives us another clue about how the solar wind is accelerated, which may help us better understand space weather," said Justin Kasper, a research scientist at MIT's Kavli Institute for Astrophysics and Space Research and lead author of a paper on this research that appeared in the Astrophysical Journal May 1.

When turbulent solar wind hits Earth's magnetic field, it can cause magnetic

See **SOLAR**
Page 5

Handheld device spots damage in concrete bridges, piers

Aging structures can be inspected immediately, onsite

Denise Brehm
Civil and Environmental Engineering

Engineers at MIT have developed a new technique for detecting damage in concrete bridges and piers that could increase the safety of aging infrastructure by allowing easier, more frequent, onsite inspections that don't interfere with traffic or service.

The technique involves use of a handheld radar device that can "see" through the fiberglass-polymer wrapping often used to strengthen aging concrete columns to detect damage behind the wrapping not visible to the naked eye. Such damage can occur on the concrete itself, or to areas where layers of the wrapping have come loose from one another or even debonded from the concrete.

The new noninvasive technique can be used onsite from a distance of more than 10 meters (30 feet) and requires no dismantling or obstruction of the infrastructure. It provides immediate, onsite feedback.

Called FAR-NDT (far-field airborne radar nondestructive testing), the technique could prove especially advantageous for bridges that span rivers or highways, which can prove inaccessible for other inspection techniques. The MIT researchers first reported the technique in the proceedings of the International Conference on Structural Faults and Repair held in Edinburgh, Scotland, last year.

"The use of radar for detecting hidden defects and deterioration behind covered surfaces offers great potential for wide-range use in assessing the safety of bridges and buildings that have been retrofitted with composite materials," said

See **BRIDGES**
Page 6

NEWS

SPEAKING OF BENEFITS
Tricia Fay outlines changes, new options in health care.
Page 2

HOW GREEN WAS MY TALLY?
A symposium ties sustainability to the bottom line.
Page 7

RESEARCH

MALARIA: UNDER THE HOOD
An MIT-led team sharpens view inside the 'engine' of the deadly disease.
Page 3

ROADS DIVERGE IN LIVER GROWTH
Regulation of liver cell development differs in mice and humans.
Page 5

ARTS

MIT AUTHOR, CURATORS HONORED
Diaz, Osorio-Buck and Sutton are winners.
Page 7

SCHNITZER WINNERS EXHIBIT
Prizes, shows recognize student accomplishments in the arts.
Page 8

MIT reports key pathway in brain plasticity

Cathryn DeLude
News Office Correspondent

Scientists are keenly studying how neurons form synapses—the physical and chemical connections between neurons—and the "pruning" of neural circuits during development, not least because synaptic abnormalities may partially underlie many developmental and neurodegenerative diseases.

Several key molecules are involved in normal synaptic formation, but their interactions are not well understood. Now MIT neuroscientists have taken an important step toward solving this challenging jigsaw puzzle. They have pieced together a direct linear pathway connecting three molecules involved in synaptic formation, as reported in the May 21 advance online publication of Nature Neuroscience.

"We haven't solved the whole puzzle yet," cautions Martha Constantine-Paton, a developmental neuroscientist in the McGovern Institute for Brain Research at MIT, professor in the Department of Biology and senior author of the paper. "But we do now have a broader view of what happens in synaptic plasticity (adaptability). More importantly, we have an exciting model of this new pathway's role in development and learning. We hope this study might advance the study of normal, healthy brain development in people so that we may be able to prevent or treat many devastating developmental neurological disorders."

Constantine-Paton and her co-author, Akira Yoshii, a pediatric neurologist and research scientist in her lab, use the rodent visual pathway as an accessible model for studying how the signaling properties of synapses change during development and how those changes relate to structural changes in the brain and developmental milestones in behavior.

Specifically, they focus on a major developmental event—eye opening, which in rodents happens after birth and is followed by rapid increases in synapse strength and visual circuit refinement that follow the onset of visual stimulation. Previously, the authors had discovered a possible mechanism for that increase in synaptic strength. Namely, a protein called PSD-95 rushes to the synapses within hours of eye opening. PSD-95 is a scaffold that anchors, among other things, two classes of receptors for the neurotransmitter glutamate, which triggers the cell's electrical activity during development and learning. Curiously, PSD-95 also held the receptor for BDNF (TrkB), an important factor that is necessary for synaptic strengthening during development and learning.

In the current work, the researchers set out to explore the relationship between BDNF and PSD-95. In so doing, they defined an entirely new pathway that may explain an intriguing phenomenon in development.

In short, stimulating visual neurons initiates a positive feedback loop, starting with one class of glutamate receptors known as NMDA receptors, which activate BDNF. BDNF triggers a signaling pathway involving another well-studied duo, PI3 kinase/AKT. That pathway causes more PSD-95, and with it more receptors for BDNF, to accumulate at the synapse within one hour of stimulation. As a result, the synapse becomes more responsive to BDNF, which sends more PSD-95 to the synapse.

Surprisingly, stimulating just a few synapses with BDNF sends more PSD-95 to excitatory synapses throughout the entire neuron within the hour. This newly described pan-neuron effect of local synaptic stimulation is similar to "synaptic tagging," which is a mechanism originally proposed to explain how a few very active synapses can prime larger regions of a neuron for long-term synaptic strengthening in response to subsequent stimulation.

"A mechanism like the BDNF/PSD-95 pathway could account for numerous observations at the cellular level in animal models, or during behavioral development in young children," explains Yoshii. "Namely, the development of particular neurological connections or skills does not occur gradually over time. Instead such changes tend to occur suddenly, appearing in short intervals after robust stimulation. It is as if there is a single important trigger and then a functional circuit rapidly comes online."

This work was funded by the National Eye Institute of the National Institutes of Health.

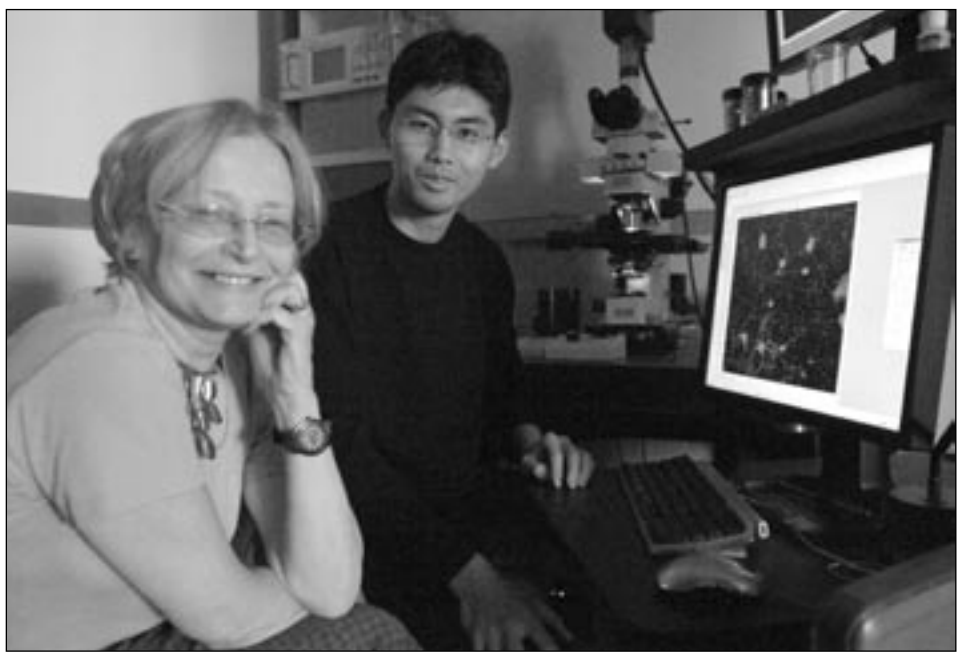


PHOTO / **DONNA COVENEY**

Professor Martha Constantine-Paton of biology and McGovern Institute research scientist Akira Yoshii (who is also a pediatrician) have discovered a new pathway involved in the development of brain cells.

Benefits director outlines new options

Deborah Halber
News Office Correspondent

In 2004, a medical task force was charged with examining the cost and quality of medical services and health insurance coverage provided by MIT to its students, employees, retirees and postdocs. In November 2005, the task force concluded that the existing MIT model for providing health care and health insurance has performed well historically, that the MIT community is generally highly satisfied with it and that it can continue to serve MIT well in the future. A working group led by Sherwin Greenblatt, then executive vice president and treasurer, reviewed the task force's 41 recommendations and issued a progress report last month. The members of the working group were Tricia Fay, director of benefits; Dr. William Kettyle, director of MIT Medical; Jim Morgan, controller; and Israel Ruiz, director of finance.

Here, Fay responds to questions from around the Institute regarding benefits.

Q: Is there a possibility that retirees can be covered under a dental plan?

A: We are exploring offering a dental plan to retirees in 2008 and have received preliminary information from Delta Dental. While it is simple to develop and design a plan, the real question is making sure that the plan is affordable and can be administered efficiently.

PHOTO / **DONNA COVENEY**

Tricia Fay

Q: Can orthodontia be covered for active employees?

A: We are looking into the possibility of a dental plan choice that will include orthodontia benefits in 2008.

Q: Health care premiums have been getting steadily more expensive. Is there relief in sight?

A: Health care costs continue to increase, which impacts both the Institute and the individuals who purchase their health insurance through the Institute. In 2007 we changed our pricing and cost-sharing strategy so that contributions are now based on the overall value of the plans versus the underlying claims experience. MIT increased its overall commitment to health care from 61 to 63 percent. We continue to seek opportunities to reduce the increase in health care costs, such as adding more wellness pro-

See **BENEFITS** Page 6

DIGITALK: WHERE IT'S AT

Spam screening change

Effective Monday, May 21, IS&T will no longer deliver e-mail originating from outside the Institute with a spam score of 25 or above unless the addressor is in an individual's "allow" list. E-mail messages scored at 25 or above tend to target mailing lists rather than specific addresses, and they are often advertisements for stocks, pharmaceutical offerings and the like.

MIT receives more than one million messages a day from outside the Institute: 45 percent are scored at 25 or higher. The scoring change will significantly reduce the volume of e-mail stored in spamscreen folders before purging. In addition to improving management of spam-flagged messages, the scoring change will permit better use of MIT's disk, quota and backup/recovery resources.

IS&T encourages community members to check their spamscreen folders for addressors to add to their allow lists. To review and adjust your spam screen settings, go to the Personalized Settings page at nic.mit.edu/cgi-bin/spamscreen. To learn more about IS&T's spam-screening service, visit web.mit.edu/ist/services/email/nospam.

Certificate renewal

MIT's personal web certificates will soon require renewal. Certificates obtained in the past year are set to expire on July 31.

Renewal of personal web certificates is not automatic. To ensure continued access to MIT's secure Web applications, such as Benefits, SAPweb and WebSIS, plan to renew in the coming weeks. Starting June 4, you can obtain your new personal certificate online at ca.mit.edu.

Note that if you use certificates on multiple machines, you will need to get a new certificate for each machine. For more information, see web.mit.edu/ist/help/cert. If you need assistance, e-mail computing-help@mit.edu or call the Help Desk at x3-1101.

Working green at MIT

The MIT community has a new resource for going green. Launched on Earth Day, the Working Green web site offers tips on everything from ordering recycling bins for your office to reusing packaging materials and buying less-toxic supplies for your lab. The site also provides links to community resources and examples of best practices for reusing and conserving.

MIT's Working Group Recycling Committee (WGR) developed the web site. WGR members include support and administrative staff, representatives from MIT's Environmental Programs Office and Department of Facilities, and members of other campus advocacy groups. Nearly 100 WGR recycling ambassadors actively encourage recycling in their departments, labs and centers.

To lean toward green or become involved in recycling at MIT, visit web.mit.edu/workinggreen.

IT Partners Conference

IT Partners, an Institute-wide group for people who provide computer and technology support, will hold its annual full-day conference on campus on May 31. Michail Bletsas from the "One Laptop Per Child" project will give the keynote speech. There will also be concurrent sessions throughout the day on a variety of topics, including "green technology" energy-saving efforts at MIT, voice over IP, instant messaging

See **DIGITALK** Page 6

HOW TO REACH US

News Office
Telephone: 617-253-2700
E-mail: newsoffice@mit.edu
http://web.mit.edu/newsoffice

Office of the Arts
http://web.mit.edu/arts

Printed on recycled paper

Editor
Sarah H. Wright

Photojournalist
Donna Coveney

Production
Carol Demers

News Office Staff

Executive Director ..... Pamela Dumas Serfes
Interim News Manager ..... Sarah H. Wright
Senior Communications Officer ..... Patti Richards
Senior Science and Engineering Editor ..... Elizabeth Thomson
Assistant Director/Photojournalist ..... Donna Coveney
Web Developer/Editor ..... Lisa Damtoft
Operations/Financial Administrator ..... Myles Crowley
Administrative Assistant II ..... Mary Anne Hansen
Administrative Assistant II ..... Patti Foley
Editorial/Production Assistant ..... Anne Trafton
Communications Assistant ..... Heather Manning

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 Ave., Cambridge, MA 02139-4307.

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

Subscribers may call 617-252-1550 or send e-mail to mailsvc@mit.edu.

Tech Talk 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, nonrefundable. Checks should be made payable to MIT and mailed to Business Manager, Room 11-400, MIT, 77 Massachusetts Ave., Cambridge, MA 02139-4307.

Periodical postage paid at Boston, MA.

MIT-led team ID's mechanics of a hallmark malaria protein

Anne Trafton
News Office

During the first 24 hours of invasion by the malaria-inducing parasite Plasmodium falciparum, red blood cells start to lose their ability to deform and squeeze through tiny blood vessels—one of the hallmarks of the deadly disease that infects nearly 400 million people each year. Now, an international team of researchers led by an MIT professor has demonstrated just why that happens.

By knocking out the gene for a parasite protein called RESA (ring-infected erythrocyte surface antigen), the researchers found that the protein, transferred from the parasite to the cell's interior molecular network, causes red blood cells to become less deformable.

"This is the first time a particular protein has been shown to have such a large effect on red blood cell deformability," said Subra Suresh, Ford Professor of Engineering and senior author of a paper on the work appearing in the online edition of the Proceedings of the National Academy of Sciences this week.

The work, a collaboration between researchers at MIT, the Institut Pasteur in Paris, France and the National University of Singapore, could ultimately lead to the development of treatments that target the parasite protein.

Suresh, who holds appointments in materials science and engineering, biological engineering, mechanical engineering and the Harvard-MIT Division of Health Sciences and Technology, has been studying the mechanics of red blood cells and the effects of malaria on those cells for several years.

When the malaria parasite, Plasmodium falciparum, infects red blood cells, the blood cells lose their ability to deform and eventually clump together and get stuck in tiny blood vessels, or capillaries.

The RESA protein has long been suspected to be involved in the early stages of that process. The parasite produces RESA during the first stage of malaria (known as the ring stage) and then transports it to the cell surface.

In this experiment, the researchers cloned the parasite and then knocked out the gene that produces RESA and measured the red blood cells' deformability with "optical tweezers," which use lasers to stretch cell membranes.

They found that in red blood cells infected by parasites without RESA, deformability remained normal during the first 24 hours of infection. In other parasites where RESA was turned back on after being knocked out, deformability was affected just as it was by (wild type) parasites in which RESA was never knocked out.

"That the deformability changed several-fold was a big surprise," said Suresh.

Because malaria patients usually experience high fever episodes, the researchers also performed their experiments at fever temperatures (about 41 degrees Celsius), as well as normal body temperature (37 degrees Celsius). They found that RESA has a much greater impact on deformability at fever temperatures.

The research team believes that when RESA travels to the cell membrane, it binds to the cell's cytoskeleton—a scaffolding of proteins that lies just inside the cell membrane. In a paper published earlier this year, Suresh and colleagues demonstrated that healthy red blood cells' ability to deform depends on the structure of this network (see web.mit.edu/newsoffice/2007/blood.html).

When the bonds in the protein network are broken, holes open up in the cytoskeleton, allowing the cell to become more fluidic and squeeze through narrow passages. But when RESA binds to the network, it likely interferes with the proteins' ability to break and form

See **MALARIA**
Page 6

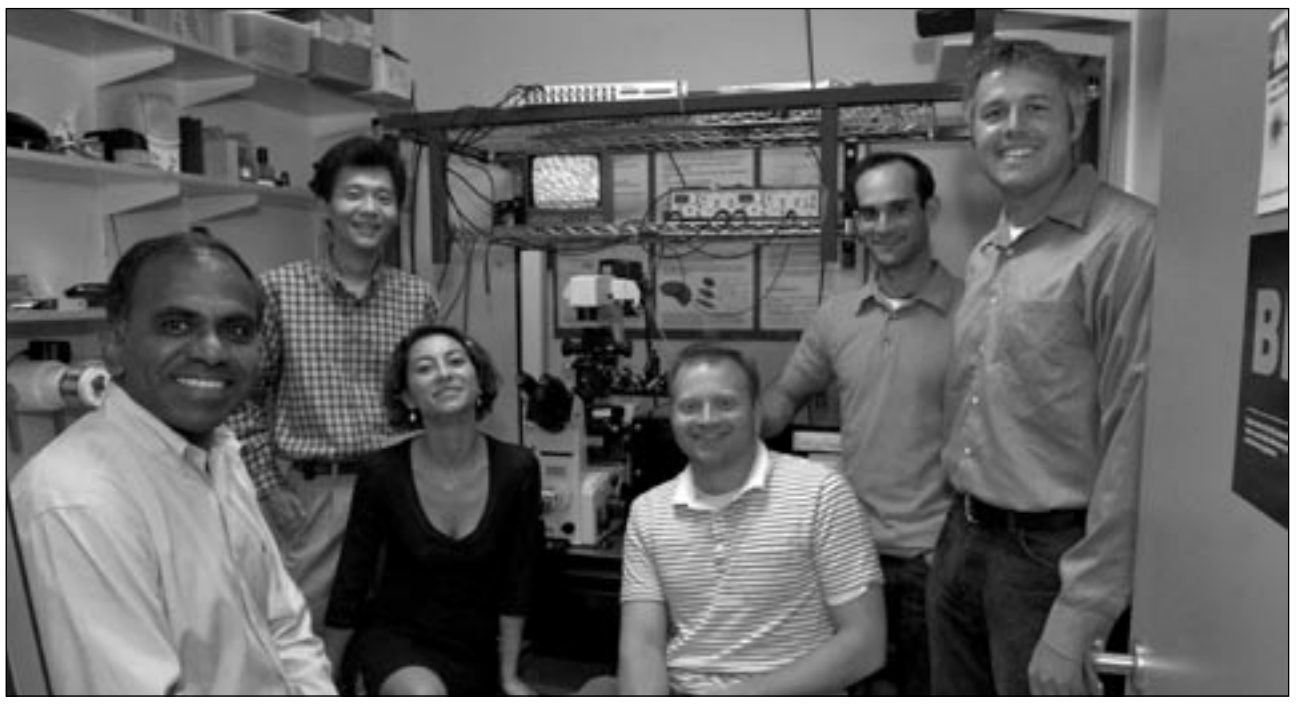


PHOTO / **DONNA COVENEY**

Professor Subra Suresh, left, research scientist Ming Dao, standing, postdoc Monica Diez-Silva, seated, graduate student David Quinn, seated, graduate student John Mills, and Professor Matthew Lang gather in lab at MIT. The team is studying the mechanics of malaria infection.

Faculty learns Dower is Killian winner, MIT will divest from Sudan, at May meeting

Deborah Halber
News Office Correspondent

John Dower, Ford International Professor of History, is MIT's James R. Killian Jr. Faculty Achievement Award winner for 2007-2008.

Dower's selection was announced at the May 16 faculty meeting by Killian selection committee chair Ann W. Spirn, professor of urban studies and planning.

"This is truly a surprise," Dower said. "It's a pleasure and an honor to be part of MIT. I came in 1991 after being at a number of other institutions, and I see something here I haven't seen elsewhere—bringing cutting-edge things in new technology into the humanities."

Although Dower described himself as "one of the last people at MIT who doesn't use e-mail," he has broken new ground through his scholarly use of web-based visual materials and other expressions of popular culture in reexamining Japanese and U.S.-Asian history.

His numerous publications include "War Without Mercy: Race and Power in the Pacific War," which was honored with several prizes; "Empire and Aftermath," a study of the life and times of the diplomat and later prime minister Yoshida Shigeru; and "Japan in War and Peace: Selected Essays." He also was the executive producer of a documentary film, "Hellfire—A Journey from Hiroshima," which was nominated in 1988 for an Academy Award.

Dower's most recent book, "Embracing Defeat: Japan in the Wake of World War II," won numerous honors, including the Pulitzer Prize for general nonfiction, the National Book Award in nonfiction, Bancroft Prize in American History, John K. Fairbank Prize in East Asian History, Los Angeles Times Book Prize in history, Mark Lynton History Prize and L.L. Winship/PEN New England Prize.

MIT President Susan Hockfield said that the MIT Corporation's Executive Committee announced May 15 it has decided to review "the securities portfolios over which it may exercise direct investment discretion and will divest as appropriate for those portfolios to exclude securities that would violate MIT's investment principles," from corporations involved with the Sudanese government.

The Advisory Committee on Shareholder Responsibility passed its recommendations to the Executive Commit-

See **MEETING**
Page 6

Ocean engineering highlights novel ship design

Jordan Lewis
Center for Ocean Engineering

A small ship for near-shore counterterrorism operations was one of 17 projects presented by MIT graduate students at a recent Center for Ocean Engineering symposium attended by industry professionals, including Rear Adm. Kevin McCoy of the U.S. Navy.

The world of naval architecture has been enriched by skilled graduates of MIT ever since the Institute started its graduate program in naval construction and engineering in 1901 at the Navy's request.

The 2007 Ship Design and Technology Symposium highlighted the research of current students in the naval construction and engineering program, which is open to active-duty officers in the Navy, Coast Guard and international navies in addition to nonmilitary students.

Many of the MIT students are designing for the Navy's future. Projects included converting a retired amphibious landing ship into a hospital ship, replacing a steam engine in an amphibious transport with a modernized propulsion system and designing a high-speed vessel for all branches of the U.S. military.

The reality of current conflicts also guides the work of these ship designers.

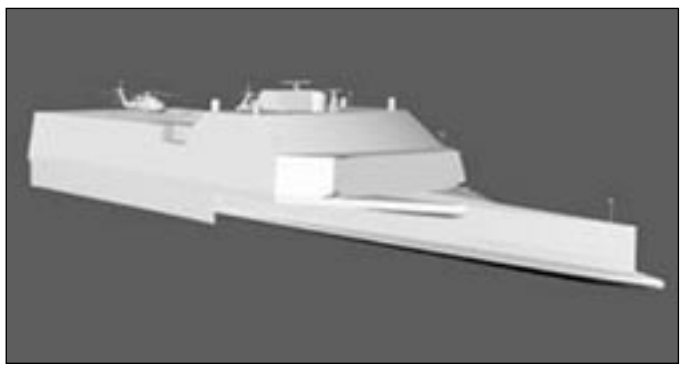
For example, counterterrorism military operations have an urgent need for vessels that can operate near shore. One potential MIT solution, the Riverine Combat Craft, has a shallow draft and top speed of 35 knots. This contemporary design is ideal for navigating a gnarly coast line and for safe passage in variable river deltas. It is the product of extensive research, modeling and computations.

The complex designs for each of these projects include analyses on structure and seakeeping, or predicting how the ship will perform at various speeds with variable wave conditions, plus time and cost estimates for completion.

MIT faculty including mechanical engineering department head Rohan Abeyaratne and Center for Ocean Engineering director Michael Triantafyllou, also addressed the audience during the daylong event.

For more information about the naval architecture program go to oe.mit.edu/content/view/42/104/.

GRAPHICS COURTESY / **CENTER FOR OCEAN ENGINEERING**



MIT graduate students presented 17 ocean engineering projects at a recent Center for Ocean Engineering symposium. Above, 'Riverine Combat Craft' created by Navy Lt. Clint Lawler, Navy Lt. Greg Mitchell and Navy Lt. Il Suh. Left, 'Joint High Speed Vessel' created by Navy Lt. Cmdr. Patrick Bennett, Navy Lt. William Fuller, Navy Lt. Cmdr. Dave Kuhn and Navy Lt. Cmdr. Joe Torrez.

PHOTO / **DAN BERSAK**

Lawrence Maligaya readies his machine before plunging onto the 2.007 table. Maligaya took fourth place in the annual contest.

PHOTO / **DAN BERSAK**

Contestants enjoy the view from the bridge. They are, from foreground to back, Sarah Cooper-Davis, Mario Bollini and second-place winner David Sanchez.

PHOTO / **DAN BERSAK**

Third-place winner Nathaniel Sharpe prepares his machine.

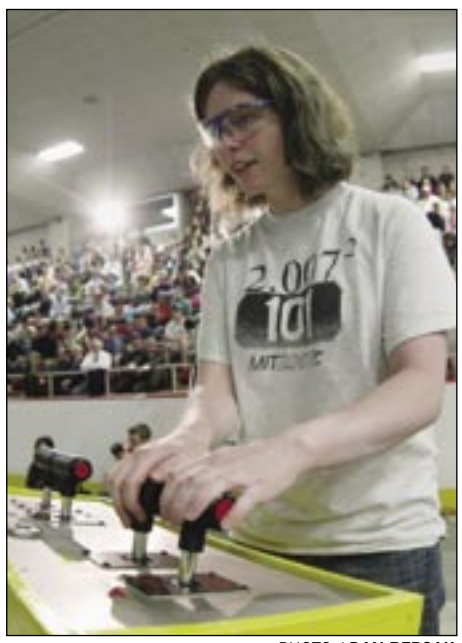


PHOTO / **DAN BERSAK**

Katherine Rorschach zeroes in on her machine driving strategy.

PHOTO / **DAN BERSAK**

A pair of battling robots squares off in a moment Professor Alexander Slocum described as 'good mechanical design and Boston parking habits.'

ROBO-FEST

Continued from Page 1

design a model and then a final working machine in time for the contest. Many of them have never built anything before.

This year, the challenge was to move and manipulate hockey pucks and street hockey balls on a specially designed table. Depositing balls in bins at one side of the table or sweeping pucks off the side would score points; plus if the machines could raise a clock-hand-like pointer to numbers 1 to 4, they could "square" the number of points scored. Students had only 45 seconds to score points and/or block an opponent from scoring. Thus they had to have both an "offensive and defensive strategy," said Richard Fenner, director of undergraduate teaching labs, who praised the 2007 robots as "fantastic." Indeed, "I'm always amazed at how complicated some of these machines are," said Neil Pappalardo (S.B. 1964), life member of the MIT Corporation and founder of Meditech. The 2.007 machines are built in the Pappalardo Lab at MIT.

2.007 is a contest where everyone wins—even those whose machines fall over, get stuck or simply don't function. Everyone learns something. "This is really great—to apply all the concepts you learn in other classes," explained sophomore Michael Kerekes.

Students got into the spirit by naming their machines ("By Demons Be Driven," for example), decorating them with stamps or stencils, or by dressing up. Sophomore Brian Demers wore a cape hoping to channel "superhero powers." Alas, his machine got stuck on the edge of table. "You can never practice driving too much," he acknowledged.

Slocum provided cheers—"Total zoomage!" "Now comes the puckage!" "Slash!"—and sound effects. Even when a machine toppled over, it was greeted with "That was very interesting." The highest praise was: "Good industrial design, good mechanical design and Boston parking habits."

Every student had a different strategy for winning. Sophomore Gavin Cotter was pleased with his "ball drop" mechanism, which he deployed before his opponent could block him. Some created swinging arms to move the pointer, which, when they were blocked in, were used to beat against opponents in frustration. "My robot is extremely simple," said sophomore Paul Blascovich. "Sometimes simple works."

Like a geeky Bill Belichick, sophomore Jeremy Franklin studied the webcast of the first rounds to deduce his opponents' strategies. "The way to win is to score points in all categories," Franklin said. Thus he designed a device that deployed off his main machine, Agony II, to raise the pointer; he managed to get 1,520 points in one round. "Jeremy, that was SWEET," called out a fellow student as she walked by. The night's high scorer was sophomore Dan Klenk with 2,016 points.

As the field narrowed, the crowd got louder, roaring when Sidelko's machine was pushed by sophomore Nathaniel Sharpe's machine ("They're hugging," Slocum announced), but Sidelko still won in the last rounds. Sharpe later took third place by besting sophomore Lawrence Maligaya's "Guillotine," while Sanchez placed second in the face of Sidelko's juggernaut preparation.

The crowd cheered the action as if Dice-K was pitching and groaned as if David Ortiz was striking out. "This is, indeed, MIT sports," Pappalardo said.

PHOTO / **DAN BERSAK**

David Sanchez, right, takes a long view of the field as his machine corners his opponent. Professor Alexander Slocum, in Panama hat, presides.

Mice and men make livers differently

Work should guide researchers in using mice as models for human biology

Anne Trafton
News Office

Scientists often study mice as a model for human biology and disease, because their basic biological processes are assumed to be essentially the same as those of humans.

But now, a team of MIT researchers has uncovered a surprising difference. In a study of gene regulation in mouse and human liver cells, they found that master regulatory proteins function in very different ways in mice and humans.

"Evolution has discovered several different ways to make a liver from the same building blocks," said Ernest Fraenkel, MIT assistant professor of biological engineering and leader of the research team. "Comparing these different ways of regulating genes may unlock some of nature's most closely guarded secrets."

The work, which was published in the May 21 online edition of Nature Genetics, could help identify patterns in the extremely complicated control mechanisms involved in gene expression.

"You can think of it as two different dialects of the same language. By exploring the human and mouse versions, we hope to find an underlying grammar," said Fraenkel.

Every cell in the human (or mouse) body has the same collection of genes, but the genome of each cell is carefully regulated so that only certain genes are expressed. Regulatory proteins known as transcription factors control this expression by binding to specific locations within the genome and turning nearby genes on or off.

The researchers and their colleagues had previously worked out many aspects of gene regulation in the human liver, which is one reason the researchers chose to study the liver. In the current study they compared 4,000 human genes with nearly identical counterparts, known as homologous genes, from mouse liver cells.

Given the similarity between the two species' DNA sequences, the researchers expected that transcription factors would bind to the same sites in most pairs of homologous genes. To their surprise, they found that most of the binding sites—between 41 percent and 89 percent, depending on the transcription factor—were in different locations in humans and mice.

"The number of genes with the identical regulation in both species was very, very small," Fraenkel said.

Before they began, the researchers expected to see some differences in gene regulation between mice and humans, because the human liver has evolved to process cooked food, said Fraenkel. However, the magnitude of change was much higher than they anticipated.

Fraenkel speculated that the changes accumulated without having much of an effect on gene expression. Unless the location of binding sites affects gene expression, it is not under any natural selection pressure.

All of that meaningless variation makes it harder to identify the small number of genes where binding site migrations do have an evolutionary impact, because they are being drowned out by all the insignificant changes, Fraenkel said. In future studies, the research team plans to investigate why some genes' binding sites are conserved over time while others shift.

"We want to understand what's special about those genes," Fraenkel said.

Fraenkel said the results should provide guidance for researchers who study mice to better understand human biology. "To get the most out of mice for biomedical research we need to fully map out the regulation in both organisms," he said.

Lead authors on the paper are Duncan Odom, a former postdoctoral associate at the Whitehead Institute for Biomedical Research now at Cancer Research UK, and Robin Dowell, a postdoctoral fellow in MIT's Computer Science and Artificial Intelligence Laboratory.

Other authors are Elizabeth Jacobsen and Caitlin Conboy, technical assistants at the Whitehead Institute; William Gordon, a technical assistant in the Department of Biological Engineering; Timothy Danford, Kenzie MacIsaac and Alexander Rolfe, graduate students in electrical engineering and computer science; and David Gifford, professor of electrical engineering and computer science.

The research was funded by the National Institutes of Health, Cancer Research UK and the Whitaker Foundation.

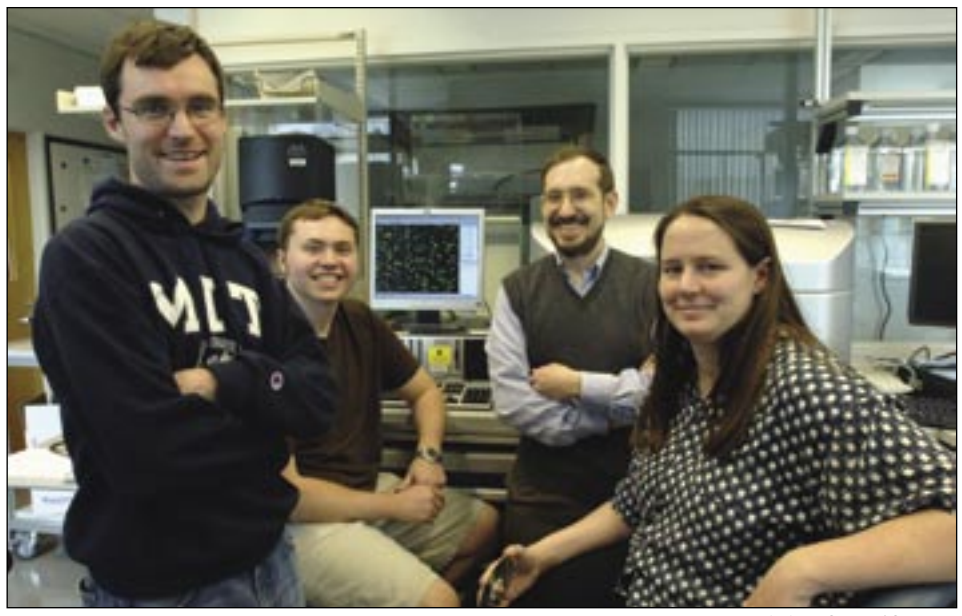


PHOTO / **DONNA COVENEY**

Kenzie MacIsaac G (left), research technician William Gordon, Professor Ernest Fraenkel and postdoc Robin Dowell survey data on screen in center. They have found that mice and humans use different gene regulation mechanisms to develop a liver.

Aero-astro team dethrones Oklahoma State

A team of MIT students in aeronautics and astronautics has taken first place in the American Institute for Aeronautics and Astronautics' annual Design/Build/Fly competition, ending Oklahoma State's three-year reign.

The competition, held the weekend of April 20 in Tucson, Ariz., is the culmination of a yearlong development cycle in which student teams design, build and test-fly radio-controlled aircraft to comply with rules released at the beginning of the school year.

Robert Liebeck, professor of the practice in aeronautics and astronautics, said he was "struck by the elegance" of MIT's concept.

"Given the design specification and the scoring criteria, the MIT team created an airplane concept that was indeed distinct from all the others—distinct in its simplicity, distinct in its functionality and distinct in that it was able to win all but one of the scoring flights. This is an outstanding accomplishment," he said.

In Liebeck's words, the contest rules for 2007 required the aircraft to carry "two different payloads and perform two ground missions, which involved readying the aircraft for flight as quickly as possible and swapping the two payloads. Scoring favored small, light aircraft, and MIT capitalized with a two-foot span biplane weighing less than two pounds. The next lightest aircraft weighed five pounds."

The MIT team's victory "raised the bar," Liebeck noted. "As an airplane designer guy, I feel a bit humble."

The team of eight aero-astro students are George Kiwada G, Nii Armar G, Carl Engel '07, Adam Woodworth '07, Brandon Suarez '09, Ryan Castonia '09, David Sanchez '09 and Fuzhou Hu '09. Professor David Miller of aeronautics and astronautics advised the team with the help of Professor Mark Drela, lecturer Col. Pete Young and research specialist Paul Bauer.

SOLAR

Continued from Page 1

storms that overload power lines and radiation storms that disrupt spacecraft.

The new research could also lead to a deeper understanding of plasma physics, which is of interest because stars are made of plasma and plasma is used in advanced devices like plasma TVs and experimental fusion reactors.

The sun's atmosphere, or corona, can be seen from Earth during the peak of a total solar eclipse, when it appears as a shimmering halo around the moon. At the beginning of the space age, scientists discovered that the corona is being blown into space as the solar wind, so we are actually embedded in the atmosphere of the sun. Later observations revealed the solar wind blows at a minimum speed of about 260 kilometers per second (161 miles per second). No one knows why this particular speed is in effect.

Hydrogen, the most common element in the universe, makes up most of the sun and the solar wind. Helium is the second most abundant element, but it is much rarer in the solar wind than it is elsewhere in the universe. The team discovered that

> *This result gives us another clue…which may help us better understand space weather.*
>
> **Justin Kasper**
> Kavli Institute for Astrophysics and Space Research

the abundance of helium increased as the solar wind speed increased, from near zero around the minimum speed to more than four helium atoms for every 100 hydrogen atoms at speeds greater than about 500 kilometers per second (310 miles per second).

Because helium nearly vanishes from the solar wind at its minimum speed, the researchers believe helium might somehow set the minimum speed. Helium is not accelerated efficiently by any process thought to be propelling the solar wind. Instead, it has to be dragged along by the hydrogen: Solar wind hydrogen atoms exert a small electric field that drags the helium out along with it, according to the team.

When helium hitches a ride with hydrogen, it slows down the hydrogen atoms. "At the minimum speed—the speed where the solar wind is no longer able to drag out helium—the solar wind itself can't escape either," said Dr. Keith Ogilvie of NASA's Goddard Space Flight Center, Wind Project Scientist and a co-author on the paper.

"It's still not clear exactly how the helium sets the minimum speed at its particular value of around 260 kilometers per second, or why more helium is found as the solar wind speed increases, but it's a clue that we are missing something fundamental about what makes the solar wind blow," said Kasper.

It's also unknown what gets the solar wind blowing again once it falls below its minimum speed, but there are hints the process may be related to violent eruptions of plasma from the sun called coronal mass ejections, or CMEs. CMEs have five to 10 times the amount of helium seen in the solar wind, according to the team. As the solar wind stagnates, helium builds up until the plasma is explosively released as a CME in this scenario. Earthbound CMEs also cause disruptions in satellites, power systems and radio communication, including the Global Positioning System.

The team used the solar wind experiment (SWE) instrument on board the Wind spacecraft to sample the solar wind. The SWE instrument uses an electric field to measure the speed, density and temperature of hydrogen and helium in the solar wind. The results were compiled from about 2.5 million measurements by the instrument over more than 10 years. "The SWE instrument has been extremely stable over all this time, so we know the changes we see in the solar wind are real and not just from changes in the instrument," said Ogilvie.

Additional authors of the Astrophysical Journal paper are Michael L. Stevens, a graduate student in MIT's Department of Physics; Alan J. Lazarus, a senior research scientist in physics; and John T. Steinberg of Los Alamos National Laboratory.

This work was funded by NASA and the National Science Foundation.

PHOTO / **DONNA COVENEY**

Research scientists Justin Kasper and Alan Lazarus examine a Faraday Cup, similar to an instrument they used to find that helium acts as the throttle for the solar wind, setting its minimum speed.

MALARIA

Continued from Page 3

bonds with each other, decreasing deformability, according to Suresh. In an unrelated parallel study, researchers at the New York Blood Center and their collaborators have recently identified specific sites in the red cell cytoskeleton to which RESA binds.

In future studies, the researchers plan to study the effects of proteins produced by the malaria parasite during later stages of infection. They also plan to look at whether the RESA protein plays any role in why another strain of the malaria parasite, Plasmodium vivax, is less lethal than P. falciparum.

The collaboration between MIT and the Institut Pasteur began with a serendipitous encounter: In a crowded cafeteria at the École des Mines in Paris, where Suresh was visiting a few years ago, he met a colleague from Institut Pasteur. She introduced him to the researchers studying malaria at Pasteur, who included microbiologist Monica Diez-Silva, now an MIT and GEM4 postdoctoral fellow and a lead author of the PNAS paper.

Shortly after this meeting, Suresh started a formal collaboration known as GEM4 (Global Enterprise for MicroMechanics and Molecular Medicine), which brings together researchers from MIT, Institut Pasteur, the National University of Singapore and other universities around the world. This year, GEM4 will hold its second summer school, where scientists learn about one another's work and form research partnerships. This GEM4 activity is supported by a number of institutions, including the National Science Foundation.

Multidisciplinary, multinational research at the intersections of engineering, life sciences and medicine, with major implications for public health, is "exactly what GEM4 was designed to facilitate and accomplish," Suresh said.

Lead authors of the PNAS paper are Diez-Silva and John P. Mills, both postdoctoral associates in materials science and engineering. Other MIT authors are David J. Quinn, graduate student in mechanical engineering; Ming Dao, research scientist in materials science and engineering; and Matthew Lang, assistant professor of biological engineering and mechanical engineering. Authors from Institut Pasteur are Genevieve Milon, Peter H. David, Odile Mercereau-Puijalon and Serge Bonnefoy. Authors from the National University of Singapore are Kevin S.W. Tan and Chwee Teck Lim.

The research was funded by an inter-university grant received by GEM4, a Pasteur Institut research grant, Agence Nationale de Recherche sur le Sida, the National University of Singapore and the Computational Systems Biology Program of the Singapore-MIT Alliance.

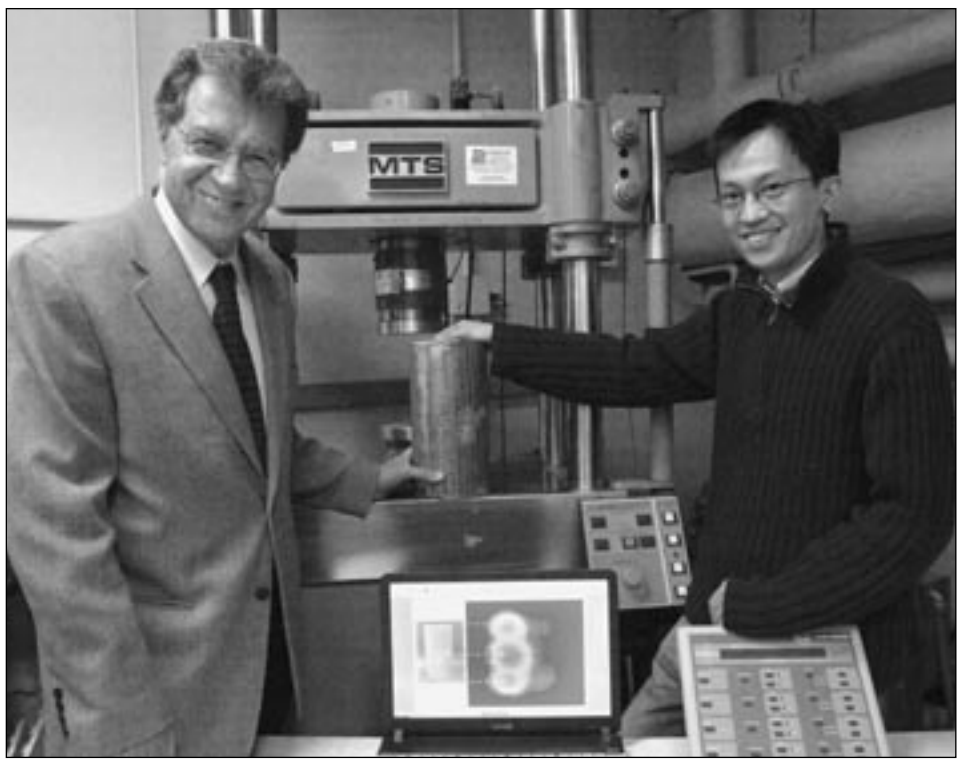


PHOTO / **DONNA COVENEY**

Professor Oral Buyukozturk of civil and environmental engineering, left, and student Tzu-Yang Yu pose in the lab with a concrete sample and one of the devices they used to detect flaws in it.

BRIDGES

Continued from Page 1

Professor Oral Buyukozturk of the Department of Civil and Environmental Engineering (CEE), who developed the technique with CEE graduate student Tzu-Yang Yu and Dennis Blejer of MIT Lincoln Laboratory, where prototype radar measurements were made.

Fiberglass-polymer jacketing—shiny, textured fabric in black or ivory often seen wrapped around concrete columns—is widely used to upgrade existing concrete structures so they can carry a greater load or sustain additional earthquake impact. The wrap is also commonly used to retrofit structures that are damaged or deteriorating from weather or other wear.

Techniques presently available for inspecting these fiberglass-polymer jacketing systems require the inspector to come in direct or close contact with the structure. Some actually require removal of a physical sample, which itself could create a safety issue. The advantage of the new technique is that it allows a rapid inspection from a distance and provides computerized visualization of the internal damages.

"This technique would allow the engineers to perform reliable, in-situ inspection for visualizing and characterizing hidden damages from distances without having to endanger the structure by taking specimens from it, and at the same time, without disturbing the traffic or service," said Yu, whose Ph.D. thesis will focus on this research. "The project is an excellent example of bridging fundamental science and engineering applications."

The researchers have demonstrated the validity and potential of the new technique through experiments and computer simulations by sending and receiving radar signals using a "horn" antenna to inspect bridge piers from distances of more than 10 meters. In their experiments, a horn antenna transmits a radar signal to a fiber-wrapped concrete specimen, which reflects the signal back to the antenna. The collected data are then converted by an imaging algorithm into a visualization of the interior of the specimen, including any damage.

The researchers say that the concept has been validated by their initial experimental results using an existing prototype radar system and by computer simulations. Future development of appropriate portable radar equipment for onsite use is necessary before the system can be placed in widespread use by industry.

The work is funded by the National Science Foundation.

MITFCU directors and officers elected

At its 67th Annual Business Meeting, the MIT Federal Credit Union announced the results of the 2007 board of directors' election. The directors elected for three-year terms are Gina M. D'Allesandro, Robert M. Dankese and Edward (Ted) J. Hartnett III.

The MIT Federal Credit Union board of directors has elected the 2007 officers as follows:

Gina M. D'Allesandro, chair; Angela R. Mickunas, vice chair; Maura Lavalle, secretary; and Robert M. Dankese, treasurer.

MEETING

Continued from Page 3

tee in early April. "MIT certainly shares the concerns of many around the world and around the country of the unspeakable horrors going on in the Sudan," she said.

In other business, Hockfield told the faculty that MIT received a record-breaking 12,433 applications for the Class of 2011. "This is a 10 percent increase over last year," Hockfield said. "We admitted only 12.3 percent of students who applied, compared to 13.3 last year." The yield—the number of students who choose to attend MIT after being admitted—broke another record at 69 percent, 2 percent higher than last year. The incoming class will be around 46 percent women and close to 20 percent underrepresented minorities, she said.

In a continuation of an update on MIT's international programs that began during the April faculty meeting, Philip S. Khoury, associate provost and Ford International Professor of History; Thomas L. Magnanti, dean of the School of Engineering; and Fred Moavenzadeh, director of the Technology and Development Program, spoke about MIT's expanding relationship with Singapore and Abu Dhabi.

The Singapore-MIT Alliance for Research and Technology would expand the existing relationship to include a non-degree-granting, broader research engagement that would include collaborations with universities, industrial organizations and research institutes in Singapore and the rest of Asia.

A new $35 million project will help Abu Dhabi develop a new university, create new opportunities for research and development and expand the country's capacity in alternative forms of energy. MIT will assist and advise the new Masdar Institute in five areas, including high-tech entrepreneurship, strategic coupling of research findings and emerging technological needs and designing a green campus. Between 10 and 15 MIT faculty members and 25 to 35 graduate students will be involved with the Abu Dhabi institute each year, Moavenzadeh said.

At the meeting, faculty moving to the rank of professor emeritus were recognized. They are:

School of Architecture and Planning—Professor John P. de Monchaux

School of Engineering—Professor Robert A. Brown, Professor Mildred Dresselhaus, Professor Woodie C. Flowers, Professor Paul E. Gray, Professor Jerome H. Milgram, Professor Ain Ants Sonin, Professor Kenneth N. Stevens

School of Humanities, Arts, and Social Sciences—Professor Joshua Cohen

Sloan School of Management—Professor Thomas J. Allen, Professor D. Eleanor Westney

School of Science—Professor Daniel Kemp, Professor Jeffrey I. Steinfeld

Harvard-MIT Division of Health Sciences and Technology—Professor Robert S. Lees.

DIGITALK

Continued from Page 2

and tracks focused on the Microsoft Windows and Macintosh platforms. If you are not already a member of IT Partners and would like to attend the conference, visit the IT Partners web page at web.mit.edu/itpartners or e-mail itpartners-administrator@mit.edu.

Digital spring cleaning

When you sell or recycle a computer, cell phone or PDA, you may be leaving a digital trail that allows the new owner to trace information back to you. To protect your privacy and keep digital data from falling into the wrong hands, make sure you erase files permanently. For tips on preparing your computer or mobile device for reuse or disposal, go to web.mit.edu/ist/topics/security/media_sanitizing1.html.

Digitalk is compiled by Information Services and Technology.

BENEFITS

Continued from Page 2

grams and disease management services to our plans.

Q: I only cover myself and one other person, but MIT does not offer a two-person health insurance option, thereby forcing me to purchase family coverage. Has MIT considered changing the health care options so that I would not have to purchase family coverage?

A: We intend to implement four-tier pricing in plan year 2008 that would offer four options: 1) individual, 2) family, 3) individual plus spouse (or spousal equivalent) and 4) employee plus one or more children (but no spouse). Under the new four-tier pricing program, many employees who are currently paying for family coverage will be able to reduce their costs by buying employee plus spouse or employee plus children coverage.

Q: I travel a lot and I wanted to find out what emergency assistance services MIT has for its faculty and staff when they travel on business outside of the country. Where can I find this information?

A: MIT has recently contracted with a company called International SOS to provide faculty and staff with emergency medical and security evacuation services when they are outside of this country on MIT business. More detailed information about this new program can be found on the Insurance Office web site at controllers.mit.edu/site/insurance/.

Q: What happens if I am disabled and cannot work for six months or more?

A: Part of the Institute's benefits package includes coverage for long-term disabilities lasting longer than six months. Under this program you will receive 60 percent of your base annual salary for the length of your disability or until you reach age 65.

Q: I am a faculty member who is planning to take a sabbatical next year. What health insurance options will I have?

A: Your health insurance options will not change. If you are planning to travel while on your sabbatical you should make sure that you enroll in one of our plans that extends coverage outside of the local area. The MIT Flexible Health Plan offers coverage for the treatment of illness while outside the plan but would not cover routine medical care such as physicals and preventive services. The Blue Cross PPO and POS plans offer complete flexibility under what is called the "Blue Care" program. The Blue Care program allows enrollees in these plans to use any Blue Cross provider in the United States and internationally and receive in-network coverage. Coverage is also provided for non-network providers. However, you will need to pay a larger share of the cost for the non-network providers.

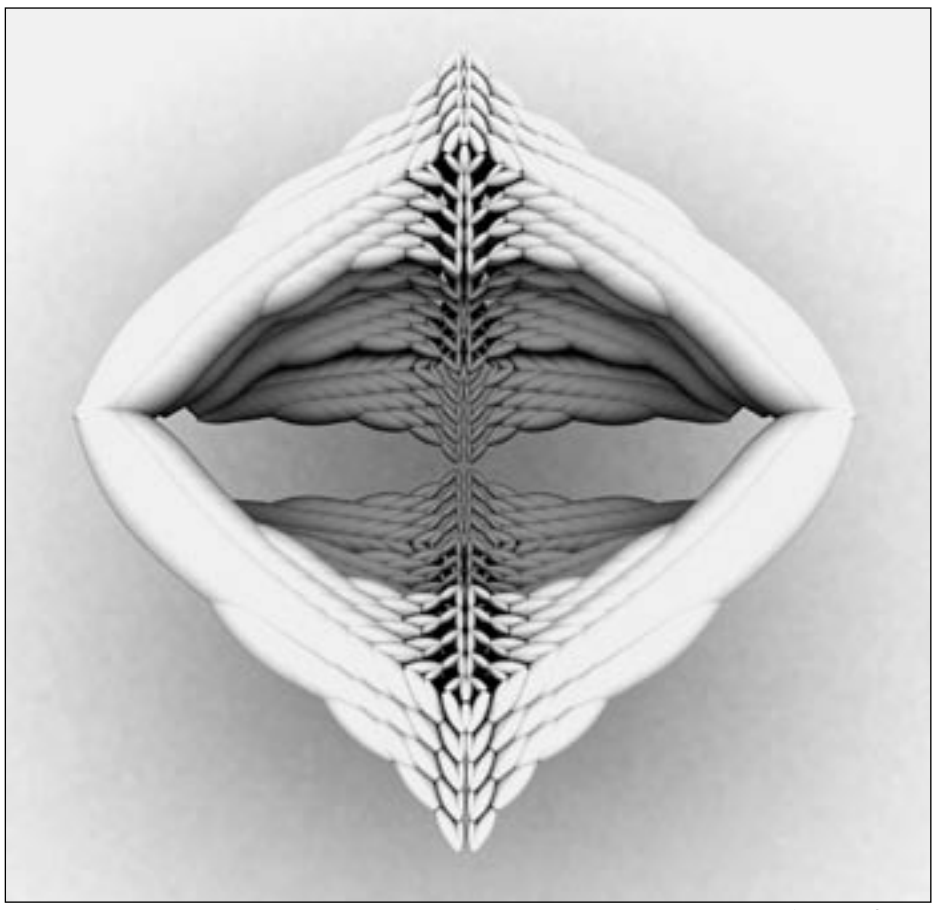


IMAGE / **NERI OXMAN**

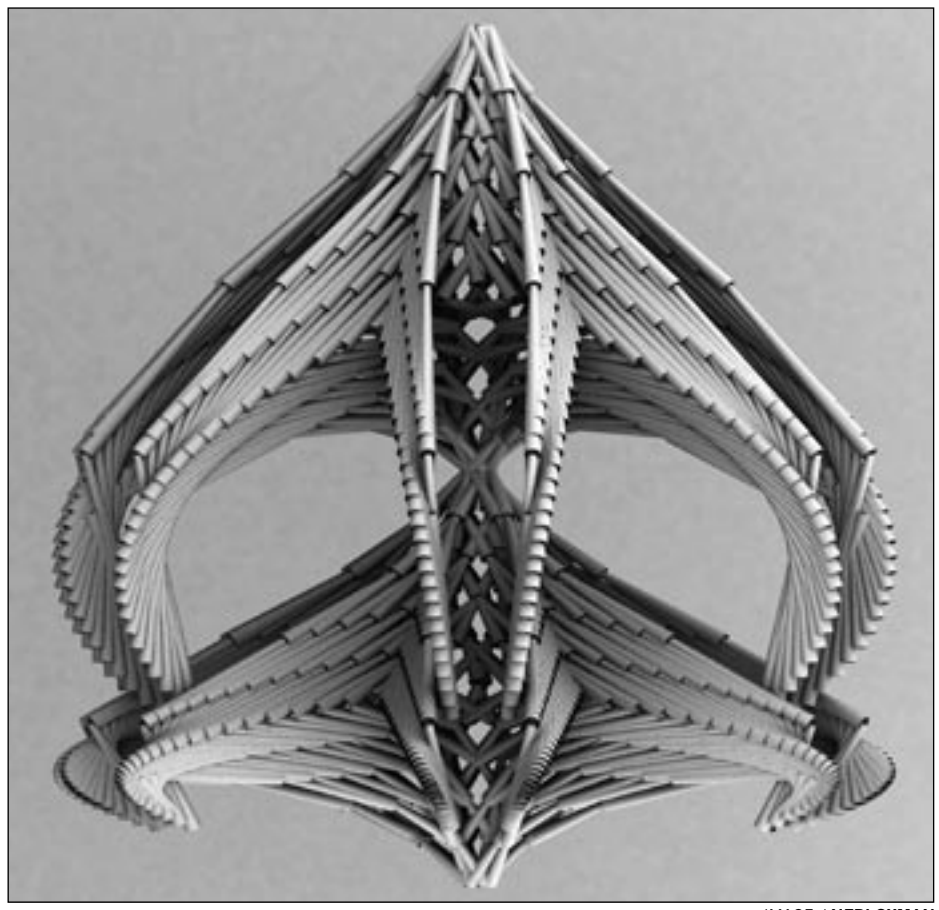


IMAGE / **NERI OXMAN**

Cutting edge artwork

Neri Oxman, whose 'Rapid Craft: Machine Art Recoded,' shown above, promotes the use of custom-made digital tools to support intuitive and artistic explorations into physical material constructions. Oxman received one of two second-place Schnitzer Arts prizes. Oxman's interdisciplinary research is based in architecture, engineering, computation, biology and ecology. It seeks to unite the concepts of craft, which she says 'embodies the skill set and techniques of selecting and processing material,' and rapid prototyping technologies. This approach offers technologies and knowledge to those who have not mastered what she calls the art of craft. 'Today, rapid prototyping technologies offer this knowledge to the people. But there's obviously more to the notion of a rapid craft than hitting the "on" button. Therein lays the art,' Oxman said. The annual Institute Awards Issue appears in Tech Talk on June 6. For more on the Schnitzer winners, see page 8.

Center for Real Estate symposium portrays role of sustainability in new business opportunities

Teresa Hill
Laboratory for Energy and the Environment

"Green" development is not only good for the environment, it's increasingly good business. That is the message that guests heard repeatedly at a symposium on sustainable real estate sponsored by the MIT Center for Real Estate (MIT/CRE) Alumni Association.

Held at the MIT Faculty Club on May 11, the symposium attracted a large crowd of real-estate industry professionals, finance professionals and MIT/CRE students who heard prominent business leaders—including Mark Buckley, vice president of environmental affairs at Staples; Tedd Saunders, president of EcoLogical Solutions and co-owner and executive vice president of Saunders Hotel Group; and Robert Ansin, president/CEO of MassInnovation—affirm that the growing demand for environmentally sustainable building represents an opportunity for businesses to benefit, often richly.

"Real estate is the largest energy consumer in the United States, bigger than transportation or industry," said David Geltner, director of the MIT/CRE, as he kicked off the program. "More than half the people living in cities by the year 2050 will be occupying new space. The real estate industry has a huge responsibility to design and construct more energy-efficient buildings. By the same token, the urgent need creates tremendous opportunities."

MIT alumnus Marc Rosenbaum, founder of Energysmiths and keynote speaker for the symposium, echoed Geltner's point. "We're probably approaching the point where half of the world's carbon dioxide emissions are linked to buildings," he said. Yet he was quick to affirm that interest in green building has been growing. His company, founded nearly 30 years ago, is prospering by developing buildings that are not only resource-efficient, but also comfortable, durable and adaptable for the future.

"In January, 27 percent of the U.S. trade deficit was for petroleum imports," Rosenbaum said. "Building green keeps jobs and money in the United States." Rosenbaum's portfolio of projects, many of which he showcased during his presentation, includes private homes, new and renovated academic buildings and old industrial space renovated for residential use. Underscoring the fact that sustainable construction not only can be but should be compatible with consumer comfort, the buildings are more than simply energy-efficient. They are "buildings people love," he said.

It was a message reaffirmed by Buckley, Saunders and Ansin, each of whom described how his company had adopted sustainability as a key operational component, and all of whom said doing so had been a successful business decision. The symposium also featured a "You Can Do It" roundtable, moderated by Professor Sarah Slaughter of the MIT Sloan School of Management. Participants John Dalzell of the Boston Redevelopment Authority, Jim Christo of Mass Technology Collaborative and Kim McLaughlin of Bank of America told participants how their respective organizations can help businesses, real estate investors and developers benefit by building, renovating and operating with sustainability in mind.

The symposium is only the latest reflection of the MIT/CRE's commitment to and leadership in encouraging a culture of social responsibility within the global real estate industry. "The growing interest in sustainability reflects the increasing concern about the impact on our environment, the rising cost of energy and the mounting evidence of the holistic benefits of building green," said Geltner. "The structures built by the real estate industry comprise over a third of the world's tangible wealth and are responsible for over a third of the world's energy consumption and CO^2 emissions. For the industry to maintain its responsible leadership in the global community, it must encourage a culture of sustainability and innovation that meets the challenges of an increasingly interconnected world."

In addition to the symposium, the center regularly visits the issue of sustainability in all of its courses and fieldwork. New educational offerings that pointedly explore the challenges and opportunities inherent in "green" development are also being developed. For more information about the sustainability symposium, visit the MIT Center for Real Estate web site at web.mit.edu/cre.

McNally's images bring history eye-level

PHOTO / **MARY PAT McNALLY**

Mary Pat McNally offers images of ancient history through a modern lens. Her exhibit opens Friday, June 1.

When photographer Mary Pat McNally first ventured to Italy in 1999, she was impressed by the marks of modern culture on the historic cities and eternal landscapes. Sometimes it was graffiti on an ancient wall; sometimes, a motor boat waiting in a Venetian canal.

"It intrigued me the way life goes on in Italy amid the splendor of the past," said McNally, graphics assistant at the MIT Plasma Science and Fusion Center. "You will see people going about their daily lives in the shadows of great cathedrals, and hanging out their laundry between buildings that date back to the Middle Ages or earlier."

"Treading on History: Photographs of Contemporary Italy," an exhibition of photographs from McNally's many trips, will be on view at the Rotch Library from Friday, June 1 through Friday, June 29. A reception will be held on Thursday, June 7, from 5 to 6:30 p.m. The library's summer hours are Monday through Thursday, 9 a.m. to 7 p.m., and Fridays from 9 a.m. to 6 p.m.

AWARDS AND HONORS

Two current and one former MIT staffers are among the 10 Boston winners of Artadia Awards, selected by three nationally prominent curators. The winners were selected through studio visits this month.

Junot Diaz

John Osorio-Buck, curatorial assistant at List Visual Arts Center, is one of seven $1,500 prize winners. Osorio-Buck encourages his audience to think outside the norms towards positive change. He employs the complex concept of "utopia" as the foil in his work. He has developed pirate radio stations, mobile urban shelters, rafts and temporary structures to engage a broad audience and encourage dialogue about sustainable living and societal inequities.

Andi Sutton, program coordinator for the Graduate Consortium of Women's Studies, is a member of an artist collective that won one of three $15,000 Artadia Awards. The National Bitter Melon Council (NBMC) is an artist collective that creates interactive public events that incorporate performance art and community development/activist practices. The NBMC was conceived in 2004 and stages events that use the foreignness of bitter melon and the concept of the flavor of "bitter" (which is also an emotion) to investigate situations that through bitterness create and promote an alternative basis for community and engagement.

Hiroko Kikuchi, former List Visual Arts Center education and outreach coordinator, is also a member of the NBMC and an award recipient.

Junot Diaz, associate professor in the Program in Writing and Humanistic Studies, has been awarded a Rome Fellowship in Literature from the American Academy of Arts and Letters. The fellowship provides a one-year residence at the American Academy in Rome. The award was presented May 16 in New York.

Schnitzer Prize winners exhibit artwork

Lynn Heinemann
Office of the Arts

Does ice cream taste better when eaten from a spoon made from a cast of your own tongue?

Hope Ginsburg, winner of the top prize in the 2007 Harold and Arlene Schnitzer Prize in the Visual Arts, believes it does.

The graduate student in the Visual Arts Program won the $3,500 award for her "SPONGE" projects, which, she says, create a method of teaching and artistic research based on immersion, absorption and making connections. Her Campus Preview Weekend "SPONGE" workshop involved designing an ice cream flavor, learning how to make ice cream, making a cast of the participants' tongues, and crafting a spoon from their tongue molds with which to eat the ice cream.

"The project has given me a new way to explore methods of giving form to conceptual practice," Ginsburg wrote in her award application. "And it allows for an ongoing investigation of the way learning, teaching, performing and making constitute an artistic practice."

An exhibition of artwork from all the winners of this year's Schnitzer Prize will open at the Wiesner Student Art Gallery with a reception on Friday, May 25, from 5 to 7 p.m.

About 30 artists competed for the prizes, which reward excellence in a body of work.

Two second prizes of $2,000 were awarded to architecture graduate students Katherine James, whose conceptual art, she says, "proposes a costuming of the everyday performance," and Neri Oxman, whose work is shown on page 7.

With a dance-choreography and architecture background, James' work focuses on interests of the body, its habits, movements and dynamic sectional relationship to its surrounding structures. These interests have led to the design of clothing, textiles, accessories, furniture and spaces.

"In the 'everyday,' our bodies are equally performative and prescribed," said James, noting that one "cycles through the habits of life, performing the choreographies of domestic tasks, work habits, play, fitness training, transport."

James proposes a "costuming of the everyday performance, both to draw attention to its performativity, and to question and tweak the value systems at work in its choreography."

An honorable mention award of $1,000 went to Stephanie Hsu, a graduate student in architecture from Tulsa, Okla., for her photographs of Shanghai, China, which document the Lilong neighborhoods that were built in the late 19th and early 20th centuries. "I seek to capture places in transition, especially ones in decay or destruction," wrote Hsu.

The Schnitzer Prize was established in 1996 by the Student Art Association through an endowment from Harold and Arlene Schnitzer of Portland, Ore. Schnitzer, a real estate investor, graduated from MIT in 1944 with a degree in metallurgy.

The Wiesner Student Art Gallery is located on the second floor of the Stratton Student Center and is open 24 hours a day.

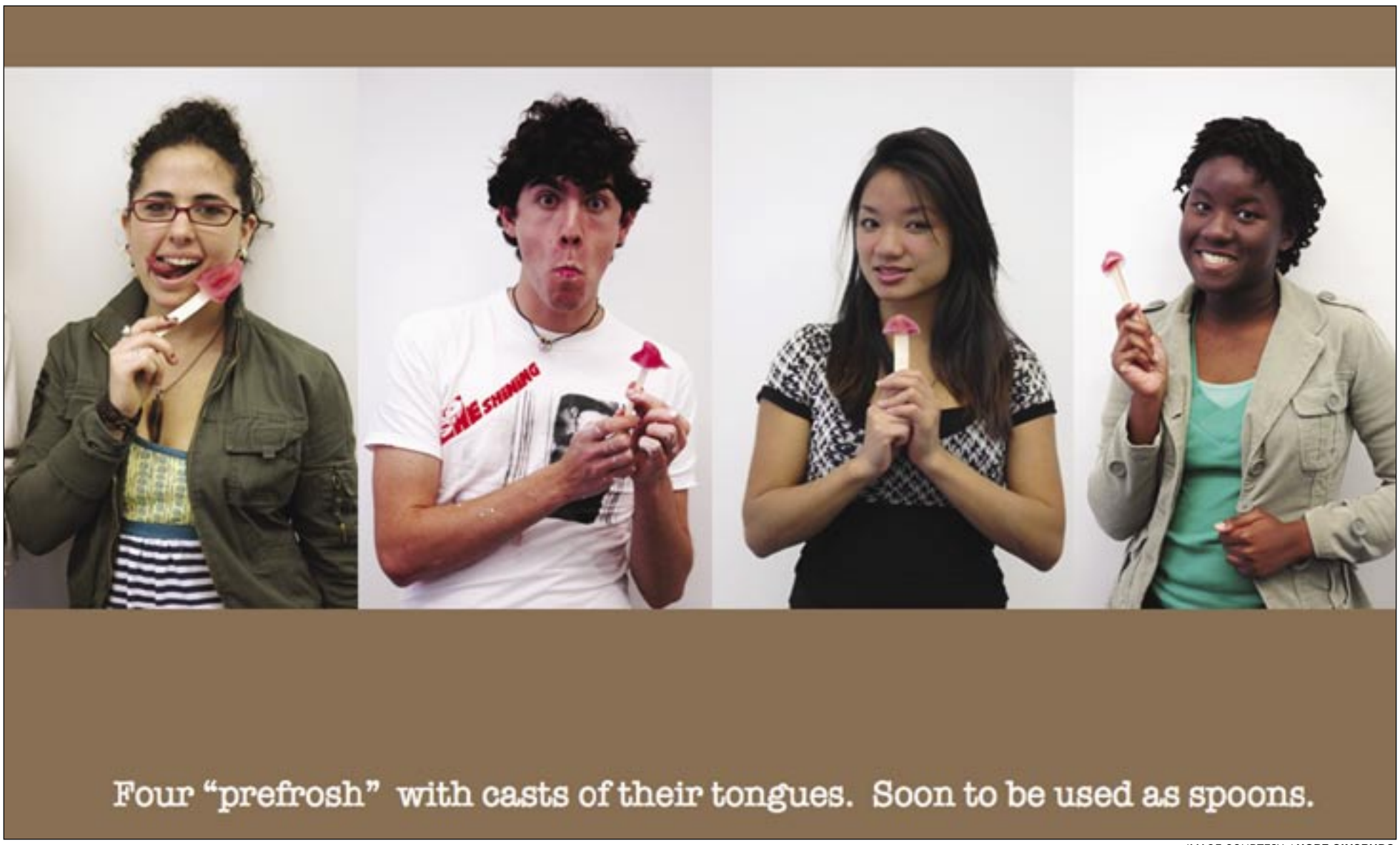


IMAGE COURTESY / **HOPE GINSBURG**

Participants in Hope Ginsburg's 2007 Campus Preview Weekend 'SPONGE' workshop designed an ice cream flavor, learned how to make ice cream, then ate it using spoons made from casts of their own tongues.

PHOTO / **CHERYL VOSSMER**

Guarding the wall

Campus Police Honor Guard members, left to right, officers Brian Sousa, Bill Smith, Duane Keegan and David Smith, presented the colors before the Red Sox game at Fenway Park on May 14. The Red Sox beat the Detroit Tigers 7-1, in the first game of a four-game series. As of Monday, May 21, the Red Sox had won 14 of their last 19 games and were in first place in the American League East division.

PHOTO / **MIT DINING**

Student team 'Wiffles' its way to Fenway

Five members of the Kappa Sigma fraternity got the chance of a lifetime when they took to the field at Fenway Park for the 'Wiffle Your Way to Fenway' championship held May 8. Above, from left, are Jeff Hoff '07, Jonathan Schechter '08, Naveen Krishnan '07, Shawn Sullivan G and Larry Colagiovanni G. They won the MIT qualifying tournament and a bid to play at Fenway Park. 'Wiffle Your Way to Fenway' is an annual tournament hosted by the Red Sox and sponsored by Coca-Cola New England. The on-campus tournament is run by MIT Campus Dining each spring. Teams have to win a qualifying tournament to get to Fenway but play for fun once at the park. All of the money collected from qualifying tournament entry fees is donated to the Pan Mass Challenge. This year the event raised almost $1,000.