



Volume 49 – Number 9  
Wednesday – November 10, 2004

## Gershenfeld, Selker on 'Sci American 50'

Denise Brehm  
News Office

Two MIT faculty members—Neil Gershenfeld and Ted Selker—have been named to the “Scientific American 50,” the magazine’s annual list of leaders in science and technology that will appear in its December issue on newsstands Nov. 23. The magazine also named Gershenfeld the Communications Research Leader of the Year.

Gershenfeld, director of MIT’s Center for Bits and Atoms (CBA), was selected as the Communications Research Leader of the Year for “designing a communications protocol for connecting the hardware in a ‘smart’ household.” The award was for an unexpected spinoff from CBA research that resulted in the development of an Internet architecture for things, called “Internet 0.” Internet 0 extends the original “internetworking” ideas behind the Internet down to individual devices.

“Internet 0 enables interdevice internetworking and end-to-end modulation,” said Gershenfeld. “It is emerging as an alternative to the myriad ways people are currently connecting things to computers—like RFID



Neil Gershenfeld

tags, Bluetooth peripherals, X10 appliances, bar codes, etc.—making them all part of the Internet. It natively uses the Internet protocols, the signals are the same for all devices (a bit like Morse Code), it operates without relying on central servers, and the hardware can cost less than a dollar.”

At a recent meeting at MIT, many of the original Internet architects and their current counterparts discussed the close parallel between the way the Internet originally connected heterogeneous networks and the way Internet 0 now is con-

necting heterogeneous devices. Internet 0 grew out of earlier testbed installations Gershenfeld did at the Museum of Modern Art in New York City, the White House/Smithsonian Millennium events in Washington, D.C., and the “Media House” in Barcelona. Internet 0 was developed by Gershenfeld, his graduate student Raffi Krikorian and Danny Cohen, now at Sun Microsystems, who helped create the Internet’s IP protocol.

### Selker honored for Voting Technology Project

Selker, a professor in the Media Lab and the MIT director of the Caltech/MIT Voting Technology Project, was honored jointly with his counterpart at Caltech, Professor Michael Alvarez, for “recommending sweeping changes to overhaul U.S. voting systems.” Selker and Alvarez were selected as Policy Leaders in the computing category of the Scientific American 50.

The Caltech/MIT Voting Technology Project was established in late 2000 in the aftermath of the U.S. Presidential election with the goal of preventing the recurrence of the prob-

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## MIT will play key role in creating national energy lab

Elizabeth Thomson  
News Office

MIT will play a major role in the creation of the nation’s premier laboratory for nuclear energy research, development, demonstration and education.

Secretary of Energy Spencer Abraham announced today that the Battelle Energy Alliance, LLC has won the contract to establish the Idaho National Laboratory (INL). The Battelle team includes a national consortium of some eight universities led by MIT, BWX Technologies, Inc., Washington Group International, the Electric Power Research Institute, and leading Fortune 500 companies involved in Battelle’s industrial R&D network. The team was selected over three other bidders.

The INL will combine the research and development components of the Idaho National Engineering and Environmental Laboratory and Argonne

National Laboratory West. It will begin operating under its new name and contract on Feb. 1, 2005. The term of the contract is 10 years; it has an estimated value of \$4.8 billion.

MIT’s Department of Nuclear Engineering and Nuclear Reactor Laboratory are home to many of the researchers involved in the INL contract.

Professor Ian Hutchinson, head of the Department of Nuclear Engineering, said, “We are delighted at the prospect of helping to lead in the renaissance of nuclear energy in the U.S., focused in the Idaho National Laboratory.”

“Nuclear is the most environmentally benign energy source we have, and its contribution to our energy mix must increase if we are to address the need for energy independence and the threat of climate change. As the nation’s premier technical university, and the acknowledged leading nuclear engi-

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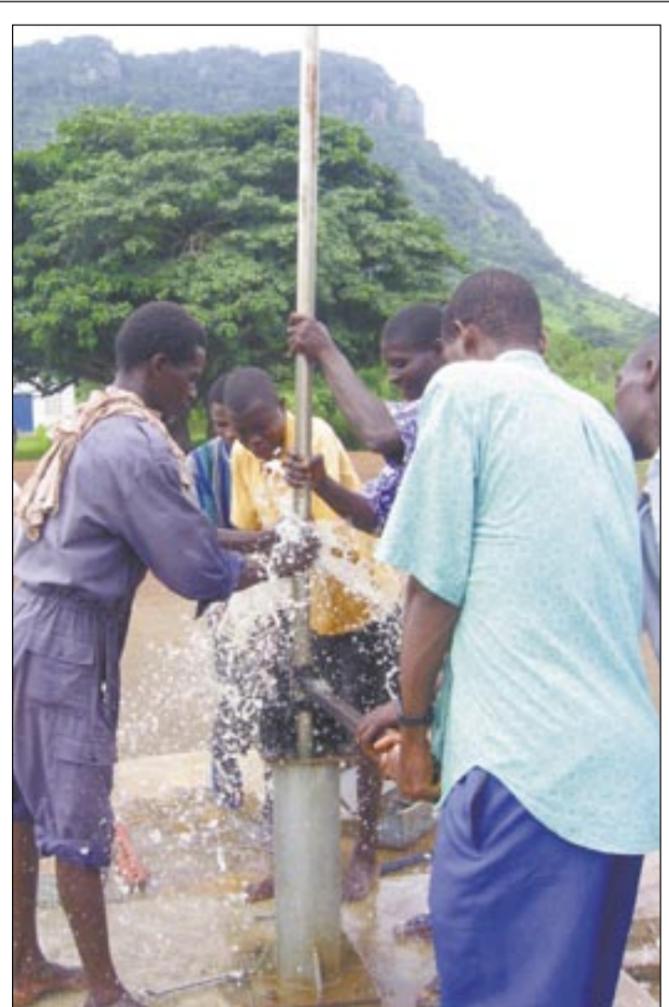


PHOTO / TIM HEIDEL

Water scarcity is a major problem in Ghana. Men in a village in the Adaklu Mountain region demonstrate bore holes, the hand-dug wells that villagers use to get drinking water.

## Engineering students turn sights to rural Africa

Sasha Brown  
News Office

Seven engineering students from schools on three continents converged in Ghana last summer to help identify some of the persistent problems plaguing rural areas in the West African country and bring the problems to the attention of engineers who can find solutions.

MIT senior Tim Heidel, an electrical engineering major, came up with the idea while studying at Cambridge University in England on exchange during the 2003-2004 school year. Many of his peers at Cambridge participated in student-organized expeditions aimed at serving broader purposes than sight-seeing. For the many students who went on these learning adventures, the experience changed their lives. Heidel noticed that while expeditions were often academic in nature, few had been done in the field of engineering.

“I decided I wanted to go to Africa,” said Heidel, who knew that engineering work would be particularly vital for rural communities, many of which were suffering from water scarcity and bad roads.

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### NEWS

#### STUDENT LITERARY JOURNAL

“e.merging,” a new online journal of student work, focuses on trans-cultural identity and explores the question, “Where is home?”

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#### A DANGEROUS WOMAN

A physicist and his wife penned the first biography of Martha Wright, an early women’s rights activist.

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#### ALLIANCE FOR PROGRESS

The Ford-MIT Alliance links researchers from the organizations who work on sustainable energy, computer-aided design and voice recognition for cars.

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#### TECHNOLOGY FOR TEACHING

The Educational Technology Fair offered faculty and students a review of projects in use in MIT classrooms.

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### ARTS

#### THE FINE ART OF FOLDING

Renowned origami master Robert Lang visits MIT for a four-day residency that includes workshops and demonstrations.

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#### BALI HO!

MIT’s Gamelan Galak Tika will present concerts on campus, in Carnegie Hall and in Bali.

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# Online student literary journal launched

Sarah H. Wright  
News Office

A new web-based student literary journal "e.merging: Voices on the New Diasporas," launched this week at <http://web.mit.edu/emerging>.

Undergraduate students and faculty advisors with a mutual interest in exploring transcultural identity collaborated on "e.merging" beginning in spring, 2004. The online journal will be published once each semester.

Isabelle de Courtivron, professor of foreign languages and literatures and director of the Center for Bilingual/Bicultural Studies, described the faculty experience that set the literary project in motion.

"In our writing and literature classes, we noticed that students were increasingly producing memorable short texts

on issues related to their plural identities. We wanted to create a journal that would capture the wealth and diversity of these students' voices," de Courtivron said.

The first issue of "e.merging" includes short stories, poetry and creative non-fiction; artwork will appear in future editions. For students and faculty members on the "e.merging" staff, the launch date of the new journal represents hard work and hope for community recognition.

Sam Hwang, a senior in management and an "e.merging" student editor, said, "I think it's equally important for people with diasporic experiences to share their stories as well as people without these experiences to learn by listening to, and reading, these stories."

Faculty advisors shared the students' enthusiasm for "e.merging." Rebecca Faery, director of First Year Writing, said, "A lot of really excellent writing is done by

students at MIT, and it is always a pleasure to find ways to let people know about and enjoy that writing. 'e.merging' fills a particularly important niche."

Another "e.merging" faculty advisor, Emma Teng Chung, who holds the Class of '56 Career Development chair and is associate professor in foreign languages and literatures, said, "I am delighted by the creation of a student journal giving voice to the varied perspectives of a new generation on issues of bilingual, bicultural and transnational identities."

Kaya Shah, a junior in earth, atmospheric and planetary sciences and an "e.merging" editor, described the early stages and subsequent pride she felt in the student literary project. "We initially had some trouble organizing the group and putting the entire website together," said Shah. "Now that we are about to launch, I am very proud of the group and I am

amazed at all we have accomplished. Now that we have our framework together, it will be much easier to publish in the future," Shah said.

The advisors and editors of "e.merging" invite current students and recent graduates to contribute. Contributions to the next issue are welcome through Feb. 1, 2005.

"Many of our students define themselves as transnational, translational and transcultural. The question of where home is remains an active and dynamic catalyst for reflection and creativity," de Courtivron said.

Ellen Liang, a junior in mathematics and a member of the "e.merging" editorial board, echoed de Courtivron's invitation. "This MIT student writing will show that there are writers among us, and I believe it can really inspire the words out of any techie," Liang said.



PHOTO / DONNA COVENEY

Flutist Alison Hearn and guitarist Martin Hunter perform at the "Beyond the Vote" rally organized by the MIT Free Radicals on the Student Center steps Nov. 5.

## Kerry supporters try to rally

Sasha Brown  
News Office

Rallying themselves was a tall order for the dejected supporters of John Kerry who braved high winds to speak at a gathering in front of the Student Center three days after the election.

"We are hoping for a little rejuvenation," said Anne Pollock, a graduate student in the Program in Science, Technology and Society and co-founder of the two-week old campus group, the MIT Free Radicals, which organized the Nov. 5 event.

The "Beyond the Vote" rally was scheduled two weeks before the election, but both Pollock and Free Radicals co-founder Sarah Johnstone, a graduate student in biology, suspected that something inspirational would be necessary.

While the few people who attended the rally were dedicated, the turnout was disappointing. "People are a bit depressed," said Pollock.

The steps outside the Student Center became a makeshift stage for them to air thoughts, feelings and

concerns following the U.S. Presidential election. Speakers came up in between recorded songs by pop stars like Pink and Christina Aguilera, picked for their angry lyrics and energizing beat.

"The first thing we have to realize is that we do not represent the majority of Americans," said freshman Richard Hughes, a computer science and comparative media major from Texas. "America is more conservative, socially and economically, than most people are willing to accept."

Hughes competed with gusts of wind up to 61 mph whipping past the microphone. "The massive division is a major problem. We need to stop debating and start looking for compromise," he shouted.

Guest speaker Hugh Gusterson, associate professor of anthropology in the Program in Science, Technology and Society, shared a letter he received on Nov. 2 from a young woman in Georgia who had lived with his family last summer. She had come to Massachusetts knowing she would vote for Bush, but by summer's end, she was a Kerry supporter, Gusterson said. That transition gave him hope.

"You represent the future of this country," Gusterson told the small crowd, most of whom were under 30.

## Number of genes in human genome unexpectedly low

A team of more than 2,800 scientists, including several from MIT, has published its scientific description of the finished human genome sequence, reducing its estimate of the number of human protein-coding genes from 35,000 to only 20,000-25,000, a surprisingly low number for our species.

In the Oct. 21 issue of *Nature*, researchers with the International Human Genome Sequencing Consortium describe the final product of the Human Genome Project, the 13-year effort to read the information encoded in the human chromosomes. One of the central goals of the effort was to identify all genes, which are generally defined as stretches of DNA that code for particular proteins.

The *Nature* paper provides rigorous scientific evidence that the genome sequence produced by the Human Genome Project has both the high coverage and accuracy needed to perform sensitive analyses, such as those focusing on the number of genes, segmental duplications involved in disease, and the "birth" and "death" of genes over the course of evolution.

"The human genome sequence far exceeds our expectations in terms of accuracy, completeness and continuity. It reflects the dedication of hundreds of scientists working together toward a common goal—creating a solid foundation for biomedicine in the 21st century," said Eric Lander, director of the Broad Institute of MIT and Harvard and a professor in MIT's Department of Biology.

Francis S. Collins, director of the National Human Genome Research Institute (NHGRI), said, "Only a decade ago, most scientists thought humans had about 100,000 genes. When we analyzed the working draft of the human genome sequence three years ago, we estimated there were about 30,000 to 35,000 genes, which surprised many. This new analysis reduces that number even further and provides us with the clearest picture yet of our genome." In the United States, the International Human Genome Sequencing Consortium is led by NHGRI and the Department of Energy (DOE).

The *Nature* paper also provides the scientific community with a peer-reviewed description of the finishing process and an assessment of the quality of the finished human genome sequence. The assessment confirms that the finished sequence now covers more than 99 percent of the euchromatic (or gene-containing) portion of the human genome and was sequenced to an accuracy of 99.999 percent—10 times more accurate than the original goal.

"Finished" doesn't mean that the human genome sequence is perfect. There still remain 341 gaps in the sequence, in contrast to the 150,000 gaps in the working draft announced in June 2000. The technology now available can't readily close these gaps; doing so will require more research and new technologies.

The human genome sequence and its annotations can be accessed through several public genome browsers, including GenBank at the National Center for Biotechnology Information.

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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.

# Physicist pens bio of women's rights pioneer

Elizabeth Thomson  
News Office

An MIT physicist and his wife have penned the first biography of a pioneering women's rights activist and abolitionist whose good friends included Susan B. Anthony, Frederick Douglass, Harriet Tubman and Elizabeth Cady Stanton.

"A Very Dangerous Woman: Martha Wright and Women's Rights" (University of Massachusetts Press, 2004) describes its heroine's significant involvement in some of the major issues of her time. The book's title refers to her conservative neighbors' opinion of the mother of seven.

How did James Livingston, a senior lecturer in MIT's Department of Materials Science and Engineering, come to co-author a book on Wright? In the 1980s, he discovered that she was his great-great-grandmother. Further sleuthing revealed that a large collection of her letters had been stored in the archives at Smith College and elsewhere. Wright's sister was Lucretia Mott, one of the country's most famous early feminists.

No one, however, had ever written a book about Martha, despite her many illustrious acquaintances, voluminous letters and heady resume. She was one of the five women who organized the 1848 Seneca Falls Women's Rights Convention. She

was president of the National Woman Suffrage Association. And at age 26, she attended the founding of the American Anti-Slavery Society. Later she was active in the Underground Railroad.

She had been lost in her sister's shadow.

Enter Livingston and his wife, Sherry H. Penney. The two began devoting serious time in 2000 to researching and writing "A Very Dangerous Woman." Before then, Livingston explained, they simply didn't have the time. Both had demanding careers; he was teaching solid-state physics at MIT and she was chancellor of the University of Massachusetts.

But as Livingston's teaching load began to decrease (he currently teaches a freshman seminar on magnets) and Penney stepped down from the chancellor position (she remains a professor at the university), the book about Wright began to become a reality.

The couple made some 12 trips to Smith College, staying for three days at a time to scan through about 1,500 letters written by Wright. "If we found one that looked interesting, we had it copied so we could read it at home," Livingston said. On each trip they made an estimated 100 copies.

Other sources included Syracuse University (home to 300 more Wright letters), and MIT's Program in Women's Stud-

ies reading room. "I was used to using the MIT Libraries as a major resource for physics, but I was surprised by the wealth of material on women's studies," Livingston said.

The result? "A wonderful book," writes Syndicated Columnist Ellen Goodman. "Is it possible that we are still discovering our Founding Mothers? Now it's Martha Wright's turn to be unearthed from history to her story. This book shows her passion, joy and humor. If she was 'a very dangerous woman,' we could use a lot more of them," wrote Goodman.

Listen to Martha herself:

On a neighbor's asking "with the slightest possible sneer" whether overnight guest Frederick Douglass was given "the best room"—"I told him 'certainly' and informed him that in conversing with a man of superior intellect one forgot whether he was black or white."

On the Civil War and her son's being in the Union army—"I open the paper every day with fear and trembling ... I cannot say that I wish [the war] to end, till slavery is abolished."

On challenging traditional gender roles by teaching her young sons to knit—"One of them has ... made a bag to put his marbles in, not sewed exactly like a thread case, but sufficiently neat for a beginning, and quite marvelous considering the slow perceptions of the sterner sex."

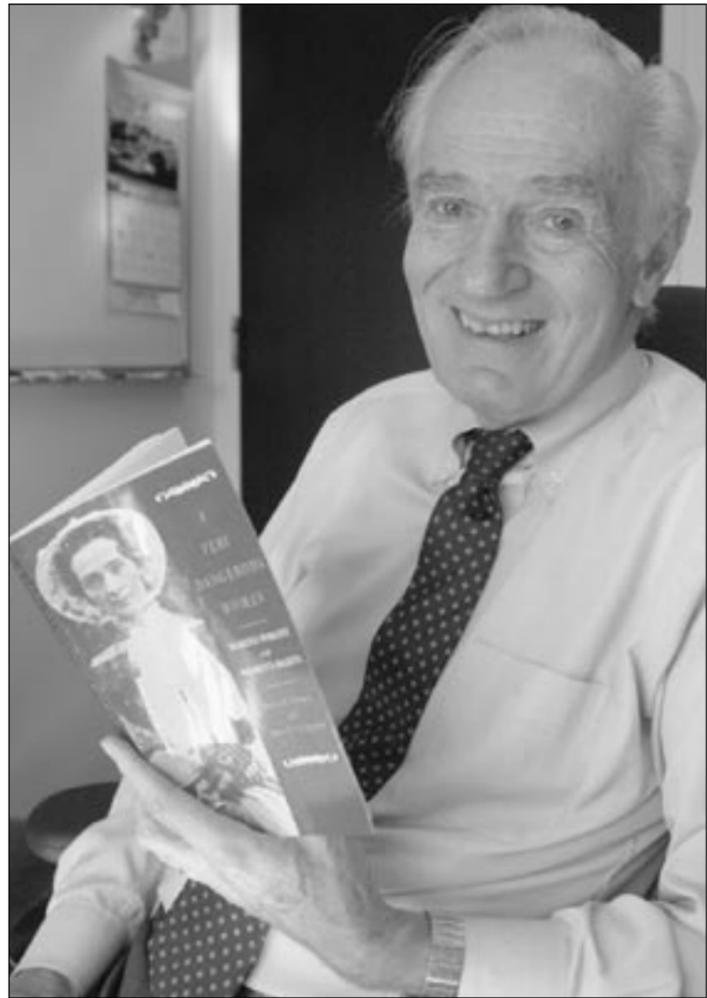


PHOTO / DONNA COVENEY

James Livingston co-authored a biography about Martha Wright.

## SCIENTIFIC

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lems with that election. President David Baltimore of Caltech and MIT President Charles M. Vest initiated the project as a cross-disciplinary effort funded by the Carnegie Foundation and the Knight Foundation.

"The project achieved much more than anyone could hope for," said Selker, an associate professor who leads the Context-Aware Computing Group at the Media Lab. "We were listened to by legislators, election officials, lobbyists, voters and election machine manufacturers. We have had tremendous successes at bringing new data and analysis to the field, inventing better security approaches, ballot designs and processes. Our work helped motivate the Help America Vote Act and is finding its way into new voting equipment and statements made by the Election Assistance Commission and election officials. With funding and effort, the American voting systems can become exemplary machinery to run democracies."

An MIT team began reviewing equipment, election data and people's performances with scientists from Caltech early in 2001. By July of that year the team, which included Selker, professors Stephen Ansolabehere and Charles Stewart of political science, Stephen Graves of man-

agement, and Alex Slocum of mechanical engineering, had created a groundbreaking report and the beginnings of prototypes.

"We brought in students who found themselves learning and working in a nascent field that crosses many boundaries," said Selker. "The project has given me a fantastic opportunity to learn with and from broadly different world-class scientists."

Graduate students involved in the work include Ben Adida, Sharon Cohen, Jonathan Goler, Matthew Hockenberry, Soyini Liburd, Sarah Sled and Shawn Sullivan.

The Scientific American 50 were selected by the magazine's board of editors and a group of outside advisors. The list recognizes research, business and policy leaders in several technological categories. The winners will be honored Nov. 16 at a celebration at the New York Academy of Sciences.

"Scientific American believes strongly that the best hope for a safer, healthier, more prosperous world rests in the enlightened use of technology," said John Rennie, editor-in-chief. The magazine was founded in 1845; this is the third year it has published the list. Past winners included Gro Harlem Brundtland, former World Health Organization Secretary General, and Steven Jobs, CEO of Apple.



PHOTO / PAM BERRY

Michael Alvarez (on screen) of Caltech and Ted Selker of MIT, the co-directors of the Caltech/MIT Voting Technology Project, were named to the "Scientific American 50."

## Benefits open enrollment runs Nov. 15 to Dec. 3

The annual benefits open enrollment period at MIT will begin Monday, Nov. 15, and run through Friday, Dec. 3. Enrollment guides will be sent by e-mail only to active employees; early retirees will receive guides by regular mail.

Enrollment guides will summarize each employee's current benefit coverage and include changes to benefits and rates for 2005. Guides also include instructions for making selections using Employee Self Service. Employees who wish to maintain their current levels of coverage for next year will not need to do

anything, unless they want to participate in a Flexible Spending Account, which requires re-enrollment each year.

To make changes or enroll in a Flexible Spending Account, go to Employee Self Service at <http://web.mit.edu/sapwebss/PS1/home.shtml> and click on the Open Enrollment Tab. The system is a secure web service that operates best with the Internet Explorer browser.

Early retirees (under age 65) will receive their enrollment guides by regular mail in early November. They will not need to do anything in order to maintain

current coverage for 2005.

This year, as in the past, employees are invited to attend one of the Benefits Fairs scheduled between Nov. 18 and 22 (see box this page) to meet representatives from the health plans, dental plan and life insurance plan. Benefits Office staff also will be on hand to answer questions.

The Benefits Office asks that anyone who does not receive an enrollment guide by Nov. 16 send e-mail to [openenroll2005@mit.edu](mailto:openenroll2005@mit.edu) or call the Campus Benefits Office at 253-5100. Lincoln Laboratory employees should contact

the Lincoln Benefits Office at (781) 981-7055. Further information on 2005 Open Enrollment

changes and MIT benefit plans can be found at <http://web.mit.edu/hr/benefits>.

### OPEN ENROLLMENT FAIRS

<b>Campus</b>	Nov. 18	10 a.m. – 2 p.m.	Bush Room 10-105
<b>Haystack</b>	Nov. 19	10 a.m. – 11 a.m.	Conference Room A
<b>Bates</b>	Nov. 19	2 p.m. – 3 p.m.	Library
<b>Lincoln Lab</b>	Nov. 22	11 a.m. – 4 p.m.	Lincoln Lab Auditorium



PHOTO / TIM HEIDEL

Women in a Ghanaian village make butter from locally grown shea nuts. Shea butter is a popular beauty treatment as well as an ingredient in foods. The women asked the EnGhana group for an easier way to grind the nuts.

## GHANA

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Heidel put out feelers, and Kwame Nkrumah University of Science and Technology in Ghana responded favorably. Despite being a country well-endowed with natural resources, Ghana remains heavily dependent on international financial and technical assistance.

Two students from Kwame Nkrumah joined the expedition along with three from Cambridge University, and Kathleen Connolly, an MIT senior in electrical engineering and computer science who was attracted to the project by the human element. "One of the negative things about engineering is the little interaction with people," said Connolly.

Together, the students were able to raise the necessary funds. "We did a lot of grant-writing," said Connolly. The group raised \$12,000, largely from Cambridge University, the MIT Public Service Center and the Royal Geographical Society. As per the rules of any Cambridge University expedition, each student was required to supply 300 pounds (roughly \$450) of their own money. "But it was less than the cost of the plane ticket," Connolly said.

On June 20, the crew left for Ghana. They stayed first in the Adaklu Mountain communities, about 10 miles outside of Ho, a regional capital city. The team then spent two weeks in Kumbungu, about 25 miles north of Tamale, capital of the northern region.

Primarily focusing on problems the citizens identified themselves, the team held discussions with community members of all ages to encourage reflection on resources that might already be available but not utilized. "We weren't interested in documenting challenges they didn't see as challenges," said Connolly.

The problems would also need to have solutions the villagers could take on without a lot of outside help. To gain further insight into challenges, the team of students participated in most aspects of the communities' daily activities.

As predicted, road conditions were a problem. The dirt

road connecting Adaklu to Ho is pure mud after rains and blindingly dusty during drier times. After heavy rains, "they are left with the inability to reach town or the hospital," said Heidel. Clearly, a way to better maintain the road is needed.

Another problem the students found was water scarcity in both areas. During November through March, no rain falls; the wells dry up. The current method of rainwater collection, in giant oil barrels, can only save water for about a week, Heidel said. "We need to design a way to store water in a long term way," he said.

All told, the students identified at least 10 engineering problems that they have since brought to the engineering community at large. Working with MIT's Design that Matters club, the ENGhana (Engineering Ghana) team is trying to get the word out about the project.

Design that Matters (DtM) is a Massachusetts nonprofit founded at MIT by students. The DtM is sponsored by the non profit whose aim is to help people in underserved communities improve their quality of life by creating products and services that meet needs identified by the communities themselves. DtM acts as a bridge to bring problems identified by nongovernmental organizations and the communities into the classrooms of MIT and other universities so that engineering and business students can help solve them.

Since its launch in 2000, DtM has worked with more than 300 university engineering and business students to develop dozens of prototypes.

In addition to solving new problems, the ENGhana team members want to make sure that they do not end up working on problems that have already been solved elsewhere. To help spread the word and gain input, the team presented its findings at the Sustainable Resources 2004 conference in Colorado last month.

"A lot of the solutions already exist," said Heidel. "We just need to find them."

### Ghanaians identify areas of need

**Water scarcity:** Water is in extremely scarce supply throughout the Adaklu communities. The problem is compounded by an annual four-month period without rainfall. The community needs a method of supplying and/or conserving safe drinking water.

**Road conditions:** The single-track dirt road connecting Adaklu to Ho is an essential resource for the local communities, but it is often in terrible shape because of alternating extreme wet and dry conditions. The communities need a way to maintain the road locally.

**Cracking buildings:** Loose and shifting ground at the foot of Adaklu Mountain causes structures built there to crack during or soon after construction. Builders need a way to adapt building styles to the local environment.

**Temporary school buildings:** Temporary school structures that are near collapse are being used indefinitely in the Adaklu communities because there are no alternatives. The communities need a way of adapting the temporary structures for long-term use.

**Cassava pounding:** Fufu and other popular local

dishes are made through a physically demanding and time-consuming process of pounding cassava into dough using an oversized mortar and pestle. The women need a better method of pounding cassava.

**Cassava squeezing:** Moisture must be extracted from cassava before it can be used for cooking. The current method—placing cassava in a sack with large rocks on top to squeeze out the moisture—takes three days or more. A quicker and safer way of extracting moisture from cassava would be beneficial.

**Honey production and bottling:** Honey production is an important source of supplementary income for people in the Adaklu communities. They make hives for the bees inside hollow hardwood logs that take several years to prepare. Honey producers need a quicker way of hollowing the logs so they can increase honey production over a shorter period.

Honey producers currently distribute honey only to local communities and Ho. If a cost-effective means of bottling and sealing the honey can be found, the producers could sell honey to the tourist market in Accra.

## ENERGY LAB

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neering school in the country, MIT brings unique knowledge and experience to the partnership. Together with the other universities in the consortium, we will ensure strong linkage of the lab to America's university research and educational programs," said Hutchinson.

David Moncton, director of the MIT Reactor Lab, said, "MIT brings enormous strengths to the country's quest for a renewal of nuclear power, both in terms of the intellectual quality of its faculty, students and research staff, and in terms of physical research facilities, most importantly the MIT Research Reactor."

"The MIT reactor is the leading facility operated by a university in this country for performing the critical R&D on new materials and fuels necessary to design the next-generation nuclear power plant. The opportunity to be intimately involved in the operation of the new Idaho National Laboratory will give renewed focus and genuine excitement to the mission of MIT Reactor," Moncton said.

The universities in the consortium are MIT, University of New Mexico, North Carolina State University, Ohio State University, Oregon State University, and a regional collaboration of the major Idaho universities (University of Idaho, Idaho State University and Boise State University).

According to Secretary Abraham, "This new laboratory was the missing element in our strategy to provide long-term energy security for the nation. We needed a laboratory that can work with the other labs in our complex, academia and industry to advance nuclear power technology and create an entirely new type of nuclear energy plant for the longer term future."



*MIT brings enormous strengths to the country's quest for a renewal of nuclear power, both in terms of the intellectual quality of its faculty, students and research staff, and in terms of physical research facilities.*

David Moncton

Director of Nuclear Reactor Laboratory

The Idaho National Laboratory will conduct science and technology across a wide range of disciplines with strong programs in areas such as materials, chemistry, environment, and computation and simulation. The lab also will play a key role in ensuring the nation's security by applying its technical expertise to helping protect the country's critical infrastructure and preventing the spread of nuclear material.

One of the laboratory's first major tasks will be to lead an international research and development effort to create an advanced nuclear energy technology called the Next Generation Nuclear Plant (NGNP). The NGNP will be a Generation IV nuclear system that the Department of Energy hopes will produce both inexpensive electric power and large quantities of cost-effective hydrogen to support the development of a clean and efficient hydrogen economy in the United States and reduce the nation's dependence on imported fossil fuel.

The laboratory also will lead the establishment of the Center for Advanced Energy Studies. This center will bring academia into the life of the laboratory in a substantive way and provide students and professors access to the laboratory's unique capabilities.

Now accepting applications!

**\$30K**  
**LEMELSON-MIT**  
**STUDENT**  
**PRIZE**

You could win \$30,000 plus national recognition for your inventiveness. Inventive graduate students and seniors may apply.

**DEADLINE: WEDNESDAY, JANUARY 12, 2005**

For more info, visit: <http://mit.edu/invent/a-student.html> or contact Mike McNally @ (617) 253-3490/mmcnally@mit.edu

# Ford partnership drives results at MIT

Nancy DuVergne Smith

Center for Technology, Policy and Industrial Development

The research agreement between the Ford Motor Company and MIT is larger than the sum of its financial commitment.

The multimillion Ford-MIT Alliance that began in 1997 now has linked MIT and Ford researchers on more than 80 research projects as diverse as voice recognition and possible energy sources. Three of these areas illustrate the breadth of Ford's interests and influence: climate research, a new CAD modeling concept and voice recognition for automobiles.

## Sustainable energy

Global challenges like developing sustainable energy require broad approaches such as the more than 30 projects at the Laboratory for Energy and the Environment and affiliated programs. The globalization of environmental and security-related concerns plus the likelihood of regulation has given the transportation industry a vested interest in both competitive advantage and sustainable strategies like clean energy.

In May, a team led by Professor David Marks, director of the Laboratory for Energy and the Environment, briefed Ford executives on MIT's climate research and its implications for business, and on a new, large-scale initiative on near-term energy strategies. That

conversation continues this fall, focusing on topics such as emissions trading, carbon sequestration, the infrastructure for a hydrogen economy, and energy security issues.

"Through MIT's many research approaches, we are helping Ford see the broader implications of growing energy use, environmental impacts, and technological and regulatory advances. The research product itself allows us to advance the debate about pathways to a sustainable future and the methods that will identify those paths," said Marks.

## Interactive designers

In the Computer Aided Design (CAD) Lab, Professor David Wallace, the lab's co-director, has been working since 1996 on a new modeling concept and software that allows product designers to share, integrate and experiment with one another's computational models easily. While the web allows users to navigate and contribute to a network of static documents, the Distributed Object-based Modeling Environment (DOIME) allows users to dive into networks of dynamic computational simulations.

"We wanted to test the idea on real problems," said Wallace. "What we've been able to do with Ford is show that this type of approach allows you to build the models much faster and more cheaply, to evolve and change them, and to reuse them flexibly. It removes the barriers that prevent integrated modeling from being practical."

## Car talk

Most people have talked to cars—often not very politely. At the Computer Science and Artificial Intelligence Laboratory (CSAIL), however, people are building the tools that will allow drivers to speak to their cars and get a useful response.

James R. Glass, head of CSAIL's Spoken Language Systems group, is working with Ford to explore the use of voice recognition technologies in realistic operating environments. The problem is challenging for a number of reasons specific to the automobile. "The car environment presents an acoustic challenge because it can be extremely noisy," said Glass. "Because the driver's hands and eyes are busy, we try to reduce the driver's cognitive load. In addition, since the driver's location is relatively fixed, it is a good environment to explore audio-visual processing methods."

MIT students have spent the past two summers at Ford road testing next-generation voice recognition systems called "In Vehicle Conversational Interfaces." One thing they're working on now is an address-recognition system that will allow users to say a destination aloud, rather than having to enter it via keystrokes into an onboard navigation system. Future applications may make it possible simply to ask for Russian folk music or the Boston weather rather than taking your eyes off the road to scan the radio display on the dashboard.

# The Game trims fat from Air Force supply chain

MIT's Lean Aerospace Initiative members and partners huddled with Textron Systems last summer to develop a fresh approach to understanding and improving the production of Sensor Fuzed Weapons, a Textron product sold to the U.S. Air Force.

Using the Initiative's Lean Enterprise Value Business Simulation (otherwise known as the Game), participants in the workshop held at Textron's Wilmington, Mass., facility showcased how a collaborative engagement can benefit all—not just some—of the stakeholders in an enterprise relationship.

The simulation used at the Aug. 24-Sept. 10 workshop is a flexible, game-style model of a complex enterprise. The Game plunges participants into the decisions and strategies necessary for lean improvement throughout the supply chain, not just their own sector. Textron is the first consortium member to use the entire simulation in a workshop involving all stakeholders: Air Force customers,

suppliers and Textron.

"The true power of the simulation lies in its integration," said co-facilitator Tom Bednar of Rockwell Collins. "It demonstrates how efficiencies in one functional area do not necessarily translate to improvements to the enterprise. The need for a big-picture view and coordination among all stakeholders within the enterprise is demonstrated very well during the simulation."

Key simulation benefits include the ability to unite stakeholders in a mutually beneficial process, make lean strategies an enterprise priority, accelerate the development of meaningful outcomes, and discover ways to eliminate waste across the enterprise, not just in production.

By the workshop's end, the 30 participants had identified actions to close the gap between current program practices and desired improvements. Goals set in a one- to two-year timeframe resulted in a realistic plan.

"These Value Stream workshops provide the founda-

tion for formulation of a lean implementation strategy that is based on data and linked to customers' needs and expectations. I like to think of this process as providing us fact-based insight so that we are 'lean with a purpose,'" said Jeff Picard, Textron's vice president for lean acceleration.

The Lean Aerospace Initiative at MIT is a research program of the Center for Technology, Policy and Industrial Development involving 17 faculty and researchers from the Department of Aeronautics and Astronautics and the Sloan School in seven collaborative research teams. It also involves hundreds of people in more than 50 corporations and governmental agencies. It was founded in 1993 by the U.S. Air Force, MIT, labor unions and defense aerospace businesses to revolutionize the industry based on the "lean" philosophy of eliminating waste, being responsive to change, focusing on quality and enhancing the effectiveness of the workforce.



PHOTO / DONNA COVENEY

A local canine citizen stopped for a bite to eat and a short rest at the Parthenon in Lobby 7.

## Pet Parthenon spruces up spartan doghouse

A pet-scale Parthenon made a brief appearance near the elevator in Lobby 7 on Oct. 12 and 13, courtesy of freshman Diana Nee, designer and builder, and Pia Lindman, lecturer in architecture, who assigned the project as part of Course 4.302.

Nee, a dog lover and dog owner, built the doggy Parthenon to "bring attention to the unique nature of the relation-

ship between dogs and humans," she said. "We humanize dogs so much that the doghouse itself has become an American cultural icon. [But] this gift of architecture still serves as a comfortable imprisonment," Nee said.

Other Course 4.302 student projects included a wind chime under the Green Building and a voice transmitter across the McCormick towers.

## NEWS YOU CAN USE

### Design semifinals scheduled

More than 20 teams of creative young inventors will come together next Tuesday for the semi-final judging of the MIT Soldier Design Competition. Students and others will present designs for products of use to soldiers and other first responders, such as police, firefighters and EMTs. This year's entries include a powered rope ascender and a hands-free casualty carrying system.

Judging will take place Nov. 16 from 6-9:30 p.m. in Room 26-100. Winning teams will receive seed funds from the Institute for Soldier Nanotechnologies to build a prototype for the final competition in February. All MIT community members are invited. Write to soldierdesign@mit.edu for more information.

### X-Prize founder Peter Diamandis to discuss space exploration

A student-run conference on space exploration, SpaceVision 2004, will be held on campus from Nov. 11 to 14.

Organized by Students for the Exploration and Development of Space (SEDS) and the MIT Mars Society, the SpaceVision 2004 Conference will feature nationally recognized speakers, including X-Prize founder Peter Diamandis, an MIT alumnus who founded SEDS. NASA administrator Craig Steidle and Mars Society president Robert Zubrin also will speak at the conference. Speakers will examine the balance between public and private space programs and the formation of national space policy.

The four-day conference is organized so that each day will focus on a particular theme. For Nov. 11 organizers have planned forums on the value proposition of human space flight and space advocacy; on Nov. 12, communicating the vision of exploration; Nov. 13, commercialization and private enterprise; and Nov. 14, government space programs. Other events during the conference will include a demonstration of the space elevator climber, a space industry career fair and a poster session.



PHOTO / DONNA COVENEY

At the Educational Technology Fair, Professor Eric Klopfer of urban studies and planning gestures in front of his computer screen as he describes how he integrates handheld devices into his courses.

## Big turnout at Ed Tech fair signals ideas catching on

Faculty, students and educational technology professionals attended an Educational Technology Fair at MIT on Nov. 2 to see examples of technology currently being utilized in classrooms, libraries and other areas of MIT and to find out how to incorporate them into their own work.

All of the projects that were exhibited in Lobby 13 are currently being used at MIT and are ready for consideration by other faculty for their classrooms.

"One of the main goals of the Ed Tech Fair is to give the MIT community a better perspective on the breadth and depth of educational technology research being done here, and also to display the passionate interest of some of our faculty for finding ways to improve teaching through the thoughtful use of technology," said Jean Foster, team leader in Academic Computing and one of the fair's organizers.

"The turnout demonstrated the myriad ways in which computer technology is being used to expand teaching and learning across the campus," said Jerry Grochow, vice president, Information Services and Technology at MIT. "The fact that faculty came to show off their activities is a testament to the expanding integration of technology in the academic arena."

Among the 22 projects exhibited were Professor Eric

Klopfer's use of handheld and desktop simulations in the classroom, Mathematics Professor Haynes Miller's Interactive Mathematics Project, and Physics Professor Dave Pritchard's program to evaluate the learning potential of interactive environments and the associated scalability and economy of Internet delivery. Library representatives from DSpace, Metadata Services, Data and Global Information Systems (GIS) Services also were on hand to discuss their areas.

DSpace user support manager Margret Branschofsky demonstrated how the DSpace digital archiving system works to capture, distribute, manage and preserve digital research and educational materials. Katherine McNeill-Harman, Data Services librarian, explained to faculty the types of assistance her unit can provide in finding, understanding and using statistics or numeric data, as well as archiving and distributing it. Lisa Sweeney, head of the Libraries' GIS Services, demonstrated GIS mapping software.

"The Ed Tech Fair has evolved into a wonderful opportunity for faculty and others involved in education to share ideas and new techniques which are significantly enhancing our abilities to provide a first-class education for our students," said Robert Redwine, dean of Undergraduate Education.

## John Longwell, expert on combustion, dies at 86

Sarah H. Wright  
News Office

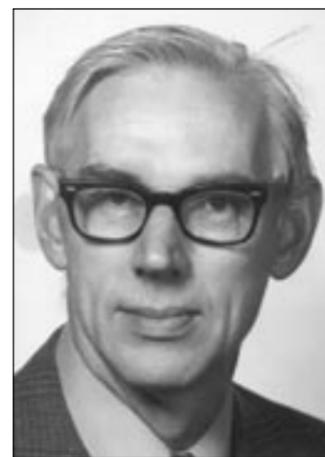
Professor Emeritus John P. Longwell of MIT, a chemical engineer widely known for his research in synthetic fuels, combustion and petroleum refining, died on Oct. 6 from congestive heart failure. He was 86.

Professor Longwell, a native of Colorado, received the B.S. degree from the University of California at Berkeley and the Sc.D. from MIT in 1943. During World War II, he was a member of the Talos missile research team at Johns Hopkins Applied Physics Laboratory.

He joined the MIT faculty in 1976 after a 30-year career at Exxon Research and Engineering Company, where he concentrated on petrochemicals, fuel processing and combustion, and advanced to the company's highest technical rank, senior scientific advisor.

At Exxon, he also organized and managed the Central Basic Research Laboratories.

At MIT, he taught courses in chemical engineering and worked to develop energy-related programs in that department and in the MIT Energy Laboratory. He served as associate director of the Center for Environmental Health Services. In 1981



John Longwell

he was named the first Edwin R. Gilliland Professor of Chemical Engineering at MIT.

His own research included studies of coal, oil shale and biomass conversion, as well as formation and control of emissions from combustion. In 1979 the American Institute of Chemical Engineers recognized Professor Longwell for his scientific contribution in combustion, both in the design of industrial burners and jet combustors, and in reaction kinetics and transport. He held 23 patents.

Professor Longwell authored or co-authored numerous unpublished government studies and dozens of publications on combustion, alternative fuels, synthetic fuels and hydrocarbon fuels for aviation. He is best known for his role in developing the well-stirred reactor, widely used for studying combustion kinetics.

In 1966, he testified on the use of alternative fuels for aviation before the Senate Subcommittee on Aerospace Technology and National Needs. As a member of the National Research Council committee on alternative technologies for the destruction of chemical weapons, Professor Longwell played an important role in displacing incineration with alternative technologies at the eight chemical weapons stockpile locations in the continental U.S.

A member of the National Academy of Engineering, Professor Longwell received wide recognition from professional organizations and from his peers. He served as president of The Combustion Institute and received its Sir Alfred Egerton Medal in 1974. In 1980, he was appointed to the Energy Engineering Board of the National Research Council's Assembly of Engineering.

An avid conservationist and lifelong outdoorsman, he enjoyed fishing, bow-hunting, hiking and skiing as well as quieter pursuits including woodworking, rock and mineral collecting and listening to classical chamber music, said Marion Longwell, his wife of 59 years.

He is survived by his wife Marion of Kingston, Wash.; his brother Robert Longwell of Houston; two daughters, Martha Blair of Rochester, N.Y., and Ann Strickland of Kingston; his son John of Evergreen, Colo.; and eight grandchildren.

A memorial service was held Oct. 16. Donations in Professor Longwell's name may be sent to the conservationist Henry's Fork Foundation, P.O. Box 550, Ashton, Idaho 83420, or to the John Longwell Memorial Fund at MIT, Room E19-411.

### 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.

#### HOUSING

Arlington: Furnished 2 BR. Sublet. Modern kitchen w/ new appliances, includes pots, pans, dishes. Basement w/ W/D. Garage. \$1,500/mo, no fee. 781-646-1765.

Lexington: condo for sale. 3BR, 1,200+ sqft, new kitchen, new windows. 781-274-0528.

Arlington: furnished room, near public trans., off st. prkng. Own TV and fridge, kitchen privileges. \$500/mo. Security deposit/references required. Avail. Dec. 1. 781-648-7425.

#### VEHICLES

1995 Nissan Sentra. Auto, good cond. 75K, great engine, body dings, well maintained yearly. AC/all power/tilt/cruise/air bags/

moon roof. \$3,000. Clare at 253-7708 or [clares@mit.edu](mailto:clares@mit.edu).

1991 Toyota Corolla DX 4 door sedan. 76K, body ok, MA inspection sticker. Reliable transportation. \$1,350. 978-793-0737 or [salamone@mit.edu](mailto:salamone@mit.edu).

#### WANTED

Seeking parking space to rent monthly near Boston medical area/Longwood/Fenway. Sue at [shansky@ilp.mit.edu](mailto:shansky@ilp.mit.edu) or 253-0423 or 781-799-8039 (until 7 pm).

#### STUDENT POSITIONS

Help students with homework and studying for tests in all subject areas. Teach literacy and health information workshops. Training and supervision provided. Teen Tutoring Center at skye. [macleod@dorchesterhouse.org](mailto:macleod@dorchesterhouse.org) or 617-825-0110 (x2-119).

Legal Advocacy & Resource Center, Inc. seeks advocates for free legal hotline. Hotline advocates will provide legal information and referrals to callers or will prepare intake screenings to be directed to an attorney. Send resumes to [dbiagiotti@gbls.org](mailto:dbiagiotti@gbls.org) or 617-371-1123.

# Origami master Lang will visit MIT

MacArthur Fellowship winner Erik Demaine, assistant professor of electrical engineering and computer science, continues his mission to foster the art of origami at MIT, hoping to create new paper-folders on campus.

Demaine will host Robert J. Lang, one of the world's leading masters of origami, as an artist in residence at MIT from Nov. 11 to 17. During this period, Lang will give two lectures and two workshops (one for novices, the other for experts), visit classes, tour labs and share meals with faculty, staff and students, including members of MIT's Origami Club.

During his successful career as a physicist and engineer working in the fields of semiconductor lasers, optics and integrated optoelectronics, Lang was also an avid student of origami. He is now recognized as one of the world's leading masters of the art, with more than 400 designs cataloged and diagrammed.

Lang is noted for designs of great detail and realism, and his repertoire includes some of the most complex origami designs ever created. His work combines aspects of the Western school of mathematical origami design with the Eastern emphasis on line and form to yield models that are at once distinctive, elegant and challenging to fold.

A pioneer of the cross-disciplinary marriage of origami with mathematics, Lang has presented several refereed technical papers on origami-math at mathematical and computer science trade meetings. He has consulted on the applications of origami to engineering problems ranging from air-bag design to expandable space telescopes.

A native of Ohio, Lang has been one of the few Western columnists for *Origami Tanteidan Magazine*, the journal of the Japan Origami Academic Society. Addi-

tionally, he was the first Westerner invited to address the Nippon (Japan) Origami Association's annual meeting, in 1992, and has been an invited guest at international origami conventions around the world.

Lang is now a full-time origami artist and author or co-author of eight books and numerous articles on the art. He lives in California.

Demaine's love of origami grew out of his interest in the mathematics of folding. He is currently studying protein folding and hopes that computational origami—the geometry of paper folding—could eventually lead to the design of custom-made proteins to help fight disease. Demaine teaches a course on origami in the Department of Mathematics.

## Folding schedule

On Thursday Nov. 11, Lang will give an overview of his work, both artistic and mathematical, at 7 p.m. in Room 123 of the Stata Center. On Saturday, Nov. 13, he'll give a workshop on folding techniques for novices from 2-4 p.m. (Sign up by e-mail to edemaine@mit.edu to learn the workshop location.)

On Monday, Nov. 15, Lang will give a technical lecture on the mathematics and algorithms in origami design from 11 a.m. to 12:30 p.m. in Room 4-231. Attendees to this lecture should be familiar with mathematics and algorithms. And on Tuesday, Nov. 16, Lang will give an advanced origami design workshop for experienced folders who want to design their own models or refine their design skill from 7-9 p.m. Send e-mail to edemaine@mit.edu as soon as possible to reserve a space in that class.

On Nov. 16, Lang will sign his latest book, "Origami Design Secrets: Mathematical Models for an Ancient Art," at 4 p.m. at Quantum Books (Four Cambridge Center, Kendall Square).



PHOTO / ROBERT LANG

The six-inch tall "Bull Moose, Opus 413" by Robert Lang is one uncut square of Japanese lokta paper.

## MIT's gamelan orchestra will perform at MIT, Carnegie Hall and later in Bali

MIT's Gamelan Galak Tika opens its 12th season this week with a concert on campus tomorrow followed by its debut performance at Carnegie Hall in New York City Saturday.

The concerts will feature two cross-cultural compositions by Professor Evan Ziporyn for the 25-member gamelan, an Indonesian-style orchestra featuring mostly percussion instruments such as gongs and chimes. Gamelan Galak Tika plays traditional Balinese music as well as experimental pieces composed by Ziporyn, a well-known jazz clarinetist and composer who directs the orchestra. His compositions, including the two to be performed this week, helped propel MIT's gamelan onto the world music scene. Ziporyn's pieces often combine Western instruments such as electric guitars, mandolins and even symphony orchestras with traditional gamelan instruments.

"Tire Fire" (1994) is a clash of gamelan and electric guitars, bass and keyboard that brought the audience to its feet at the conclusion of the 1995 "Bang On A Can Marathon" at Lincoln Center in New York. "Amok!" (1997) is a 30-minute piece featuring sample technology, extended instrumental techniques and elements of electronica.

Joining the gamelan for this cross-cultural reunion is Odd Appetite, the electro-acoustic new music duo of cellist Ha-Yang Kim and percussionist Nathan Davis, who performed Ziporyn's music for the recent production of "Oedipus Rex" at the American Repertory Theater. Also from the "Oedipus" ranks are multi-instrumentalist Jeff Lieberman and bassist Blake Newman, accompanied by guitarist Eddie Whalen, a former member of the Gamelan Galak Tika. Bali's master musician Dewa Ketut Alit begins a year-long residency with the orchestra by reuniting with Balinese choreographer I Nyoman Catra for a performance of "Semara Wisaya," featuring dancers Desak Made Suarti Laksmi and Cynthia Laksawana

The campus concert will be held in Kresge Auditorium on Nov. 11 at 8 p.m. Tickets are \$10 for adults, \$5 for students/seniors, and free with MIT I.D. The New York concert will be in Zankel Hall at Carnegie Hall (881 7th Ave., New York) Nov. 13 at 4 p.m. It is part of the "In Your Ear Festival" curated by John Adams. Tickets range from \$20-\$32.

### Bali-bound gamelan

Since its founding 11 years ago as the Boston area's first gamelan, Gamelan Galak Tika has devoted itself to studying traditional Balinese music and dance and to developing new works by Balinese and American composers. The group has given dozens of performances around



PHOTO / BILL SOUTHWORTH

Cynthia Lakswana dancing the "Taruna Jaya."

the East Coast and New England.

Now, Balinese audiences may have the opportunity to hear the American gamelan orchestra. The ensemble has been invited to participate in the annual Bali Arts Festival in June 2005 in Denpasar, Bali. The festival is a month of daily performances, handicraft exhibitions and other cultural activities.

"Taking a gamelan to Bali might seem like taking coals to Newcastle, but it's a signal moment for the ensemble," said Ziporyn. "It's illuminating to hear the music as it's meant to be played and meet the musicians who play it. I also think it's increasingly important at this time to show people in other cultures that we value and respect them, and that connections and meaningful exchanges are still possible."

The orchestra has begun an intensive fund-raising effort to make the trip a reality, offering concert tickets, T-shirts, CD's and gamelan music and dance lessons as incentives to donors for their tax-deductible donations. For more information, see the Galak Tika web site.

## Harries presents lecture on materials in art

Cambridge-based artist Mags Harries, known locally for her whimsical public art installation called "The Glove Cycle," a cascade of "lost" bronze gloves along the escalator of the Porter Square subway station, will deliver the 2004 Page Hazlegrove Lecture on Glass Thursday, Nov. 11, at 7 p.m. in Wong Auditorium.

The lecture's title, "Mining Materials," refers to Harries' resistance to being seduced by materials. "She likes to strip the materials down to their essentials," said Peter Houk, director of MIT's Glass Lab.

The lecture itself marks a return to MIT for Harries, who became embroiled in controversy on campus in the early 1990s over her proposed sculpture for the Stratton Student Center—a shaman's hat woven from hair donated by members of the MIT community.

"Public art is by nature a messy business. It gets dirty, vandalized, battered by the weather," wrote Christine Temin in the Boston Globe about Harries' work and controversy. "And that's after it's realized. In the earlier stages, it is often compromised in battles with whatever bureaucracy is commissioning it."

Harries, who works mainly as a sculptor, was educated at Leicester College of Art and Design and Southern Illinois University. She has held two residencies at the Pilchuck Glass School in Seattle, in 1997 and 2000, and has taught at the School of the Museum of Fine Arts in Boston since 1980.

She has exhibited throughout the U.S. and her work is in many collections including the National Museum of Wales and the Boston Museum of Fine Arts. Harries' awards include an Artist Fellowship from the Massachusetts Council on the Arts and Humanities. In 1993 she won the Honor Award for Design Collaboration from the Boston Society of Architects.

The Page Hazlegrove residency, sponsored by the MIT Glass Lab, was established in 1998 to celebrate the life and work of Hazlegrove, who died unexpectedly in 1997. As director of the Glass Lab for more than 10 years, one of Hazlegrove's highest priorities was to invite glass artists to the Institute for the benefit and further development of the MIT community.

MIT EVENT HIGHLIGHTS NOVEMBER 10 - 14

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



PHOTO / BILL SOUTHWORTH

**Gamelan Galak Tika**

Chris Kline plays the Banyuwangi gongs with the MIT Gamelan Galak Tika. The Balinese-style orchestra performs Nov. 11 in Kresge Auditorium at 8pm.

**WEDNESDAY**  
November 10

**Craft Fair**  
5th Annual MIT Medical craft fair. 9:30am-1:30pm. Room E25-119.

**List Visual Arts Center Gallery Talk**  
Led by Bill Arning, curator. Noon. List Center. 253-4680.

**Opportunities in Energy Technology: A Climate for Change?**  
Panel discussion. \$20 members of MIT Enterprise Forum, \$25 others, MIT students free. 6-9pm. Kirsch Auditorium. 253-8240.

**Human Rights and Private Wrongs: Doctors Across Borders and Their Discontents**  
Speaker Alison Brysk, University of California-Irvine. 6pm. Room 4-156.

**Humanitarian Bridgebuilder: Toni Ruttimann**  
Talk by Ruttiman, who has helped build 234 bridges across Latin America, Cambodia and Vietnam. 7pm. Room 54-100.

**THURSDAY**  
November 11

**Veteran's Day**  
Institute Holiday

**SpaceVision 2004**  
Conference focusing on both public and private opportunities emerging in human spaceflight, with two dozen speakers. \$10 - \$40. Nov. 11-14. Various campus locations.

**Page Hazlegrove Lecture on Glass Art**  
Talk by the Cambridge-based public artist Mags Harries. Sponsored by the MIT Glass Lab. 7pm. Wong Auditorium. 253-5309.

**Student-Written One Acts**  
Dramashop production of "Arlo," "On the Fritz," and "The Trouble with Dating an Artist." Nov. 11-13. 8pm. Kresge Little Theater. 253-4720.

**FRIDAY**  
November 12

**"The Clipper Ship Era"**  
Exhibit focuses on the design, construction, speed and social experience of the clipper ship era. 9am-5pm. MIT Museum.

**Positive Next Steps**  
Conversation on next steps following election 2004. Noon. Mezzanine Lounge, Student Center.

**"Body Parts: A Self-Portrait by John Coplans"**  
Special tour led by Howard Yezerski, of the Howard Yezerski Gallery, Boston. 6pm. List Center. 253-4680.

**MIT Anime Screening**  
Weekly showing. 7pm. Room 6-120.

**"Iolanthe"**  
Gilbert and Sullivan Players. \$12; \$8 other students, MIT alumni, children, senior citizens; \$6 MIT students. 8pm. Sala de Puerto Rico. 253-0190.

**SATURDAY**  
November 13

**Varsity Women's Openweight Crew**  
Foot of the Charles Regatta. 9am. Charles River. 258-5265.

**Origami Workshop with Robert Lang**  
Workshop with origami artist Robert Lang, artist-in-residence at MIT Nov. 11-17. 2-4pm. Room 5-134.

**KSA Culture Show**  
Exploration and celebration of Korean culture. \$8. 6pm. Walker Memorial. 851-5753.

**MIT Juggle Mania**  
Olga and Vova Galchenko—The World's Best Passing Jugglers. 7-9pm. Room 54-100. 232-3257.

**"Before Sunset"**  
LSC movie. 10pm. Room 26-100. 253-3791.

**SUNDAY**  
November 14

**List Visual Arts Center Gallery Talk**  
Led by Hiroko Kikuchi, Education/Outreach Coordinator. 2pm. List Center. 253-4680.

**"Drowned Out" - Movie and Talk**  
Screening of documentary and discussion with Sukumar Krishnan, Activist. 2-5pm. Room 4-237. 628-9826.

**Carnatic Vocal Concert**  
Sanjay Subramanyam performs. \$18, \$14 MITHAS members, \$10 students, MIT students free. 5:30pm. Wong Auditorium

**International Folk Dancing (participatory)**  
International folk dancing. 8pm. Lobdell Dining Hall. 253-FOLK.

**MIT Chamber Chorus**  
William Cutter, musical director. 8pm. Kresge Auditorium. 253-9800.

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

EDITOR'S CHOICE

**ANCIENT MUSIC TRADITIONS**  
Talk by Composer-in-Residence Elena Ruehr: "Everything You Always Wanted to Know About Modern Music." 253-3656.

*Nov. 10*  
**Killian Hall**  
12:30 - 1:30 p.m.

**ORIGAMI: ARTISTIC/MATHEMATICAL**  
Talk by origami artist Robert Lang: Artist-in-Residence at MIT Nov. 11-17.

*Nov. 11*  
**Stata Center Room 123**  
7 p.m.

**MIT GAMELAN GALAK TIKA**  
Concert featuring Evan Ziporyn's "Tire Fire" and "Amok!" Tickets: \$10, \$5, free with MIT ID. 452-2302.

*Nov. 11*  
**Kresge Auditorium**  
8 p.m.

MIT EVENT HIGHLIGHTS NOVEMBER 15 - 21

**MONDAY**  
November 15

**Mathematics and Algorithms in Origami Design**  
Lecture by Robert Lang: Artist-in-Residence. 11am-12:30pm. Room 4-231.

**Unnatural Monopoly**  
Talk by Richard R. John, University of Illinois at Chicago on American Telegraphy. 4-6pm. Room E51-095. 253-4062.

**Rural-Imperial Relations in Medieval Jordan**  
Lecture by Dr. Bethany Walker, Grand Valley State University. 5:30pm. Room 3-133. 253-1400.

**How the Connection Machine Got Its Blinking Red Lights**  
Presentation by artist Tamiko Thiel on the first commercial computer designed expressly to work on simulating intelligence and life. 7pm. Room 32-D463.

**TUESDAY**  
November 16

**Realities and Rewards of Refugee Research**  
Talk by Sarah Titus, 2004 Mellon-MIT Grantee. Noon. E38-714. 258-7706.

**Vital Difference**  
An open forum to discuss the role of race in community-building at MIT, hosted by the Center for Reflective Community Practice. 5-6:30pm. Sydney-Pacific residence hall. 253-7587.

**A Personal View of the Swiss Legacy**  
Architecture lecture by Jürg Conzett, structural engineer, Switzerland. 6:30pm. Room 10-250. 253-7791.

**Thanksgiving Klezmer-Style Contra Dance**  
Live music by ContraKlez with John Chambers & Friends. \$5, \$3 donation. Students free. 8-10:30pm. Lobby 13. 354-0864.

**WEDNESDAY**  
November 17

**List Visual Arts Center Gallery Talk**  
Led by Jane Farver, director. Noon. List Center. 253-4680.

**Object Lesson: Hip Enough**  
A talk about the Hip Joint Simulator on display at the MIT Museum. Deborah Douglas, curator of science and technology, and Institute Professor Emeritus Robert Mann. Noon-1pm. MIT Museum. 253-4444.

**Words and Music with Kenny Werner and MIT Poets**  
Faculty and student poets share their work with Artist-in-Residence, Kenny Werner. 3:30-5pm. Killian Hall. 253-2826.

**U.S. premiere of "Invisible Object"**  
Documentary on contemporary art and architecture. 6:30pm. Room N52-390. 452-2484.

**THURSDAY**  
November 18

**MIT Chapel Concert**  
Renaissance and early Baroque music from Italy, Spain, France and England. Noon. Chapel. 253-9800.

**Copyright Wars**  
Talk by Wendy Gordon, BU School of Law. 5-7pm. Room E25-111. 253-3521.

**poetry@mit**  
Tom Pickard, author of 10 books of poetry and prose. 7pm. Room 6-120. 253-7894.

**MIT Chamber Orchestra**  
Dante Anzolini, music director. Corelli's "Concerto per la notte di Natale," Dvorak's "Serenade." 8pm. Killian Hall. 452-2394.

**FRIDAY**  
November 19

**The Painter, the Critic, her Pictures, his Words**  
Talk by Architecture Professor Caroline Jones. MIT community only. Noon. Room 14E-304.

**Special Gallery Tour**  
Led by William Stover, curator for the MFA's Cerith Wyn Evans exhibition. 6pm. List Center. 253-4680.

**Weekly Anime Screening**  
MIT Anime Club. 7pm. Room 6-120.

**The Musical World of Kenny Werner**  
MIT Festival Jazz Ensemble, Frederick Harris Jr., music director. With special guest pianist and composer, Kenny Werner, MIT artist-in-residence. \$5. 8pm. Kresge. 253-2826.

**SATURDAY**  
November 20

**Varsity Women's Basketball MIT Invitational**  
2pm. Rockwell Cage. 258-5265.

**Tamasha! Celebrate Africa!**  
Performances from all over Africa and an all-you-can-eat African buffet. \$10 MIT students, \$12 college students, \$15 general. 7pm. Walker Memorial. 225-8385.

**MIT Concert Choir**  
William Cutter, music director. Benjamin Britten's "St. Nicholas" with guest soloist Jason McStoots, tenor, and the PALS Children's Chorus. \$5 at the door. 8pm. Kresge. 253-9800.

**SUNDAY**  
November 21

**MIT Museum Free Admission**  
Third Sunday of every month. Always free with MIT ID. Noon-5pm. 253-5927.

**MIT Chamber Players**  
Concert by faculty, students and their guests. Berg's Four Pieces for Clarinet and Piano; Brahms' Horn Trio; Schoenberg's "Verklaerte Nacht." 4pm. Kresge. 253-9800.

**International Folk Dancing (Participatory)**  
International folk dancing. 8pm. Lobdell Dining Hall. 253-FOLK.



"Kabuto Mushi, Opus 417" by Robert Lang