Two recent MIT graduates and 10 current students have been awarded Fulbright scholarships to study abroad for the 2009-2010 academic year. This year’s tally of 12 Fulbright winners is MIT’s highest on record, eclipsing the nine MIT students who received the scholarships in 2003. Two MIT students were also chosen as alternates, but will not learn final results of their applications until mid-summer.

Fulbright scholarships have given students a role in U.S. foreign relations since their inception in 1946. More than 7,000 students apply for the program each year, and about 1,500 are selected based on their achievement and potential. Each grant covers the costs of travel abroad and living expenses for one academic year.

The Fulbright scholarship winners from MIT are:

- Koyel Bhattacharyya, who recently completed her SB in chemistry. She will travel to France to conduct electrochemistry research at l’Ecole Normale Superieure on the delivery of nanoquantities of ions and their role in the nanofabrication of molecular electronic devices, artificial photosynthetic system, organic light-emitting diodes, biosensors, and the study of many cellular functions.
- Nathan Cisneros, a PhD student in political science, will travel to Japan to examine the persisting dualism between workers with job protection and good wages with those without such security, by examining bargaining incentives created by enterprise unionism. He will collaborate with Professor Nobuhiro Hiwatari of the University of Tokyo while in Japan.
- Greg Distelhorst, a PhD student in political science. He will continue

The number of Fulbright scholars from MIT since 2000.
Today
“Drip, Drip, Drip...” In Lobby 11, the interactive exhibits developed and produced by TerrAscend freshen on water use and sustainability will be on display through May 11.

• Bike Awareness Day - MIT’s Bay State Bike Week Event, 11 a.m.-2 p.m. in V20, Student Center Plaza. Food, fun and free stuff. Bike safety tips, maintenance and repair demonstrations. Rule in the campus bike tour. Bring your bike and participate.

• MIT $100K Entrepreneurship Competition final. Speaker: Rodney Brooks, founder of iRobot. 6-9 p.m. in W16. Come watch the finale of the MIT $100K Entrepreneurship Competition where participants will give their pitches in cash to a startup plus a $10,000 audience choice winner.

Friday, May 15
• Environmental law, policy, & economics: Reclaiming the environmental agenda. 6-7:30 p.m. in E51-145. Please join us as Nicholas Abuot, professor of technology and director of the technology and law program at MIT, shows how environmental law cases have led to important legal, economic, and scientific developments, and how use of the law can stimulate innovation and change industrial transformation.

• MIT Pappalardo fellows in physics symposium, 2-5 p.m. in 4-349. Five members of the department’s renowned postdoctoral fellowship program, the Pappalardo Fellows in Physics, will present highlights of their independent research.

• “And Things of That Nature” - Opening of student exhibition, Mills Gallery. 6-8 p.m. at Mills Gallery, Boston Campus for the Arts. The public opening of “And Things of That Nature” an exhibition featuring projects developed by graduate students at MIT’s Visual Arts Program. Haseeb Waqar Ahmed, Gina Badger, Caitlin Berri- gan, Jaekyung Jung, Jin Jung, Matthew Mazzotta, Alexander Rosenbery and Jess Whittrock.

Monday, May 18
• Recycling Nuclear Waste: Addressing Nuclear Waste in the 21st Century,” Speaker: Senator Tom Carper. 10 a.m.-noon in 56-114. One of the long-term questions about nuclear energy is how to manage the waste. For many years, U.S. nuclear utilities have paid fees to the federal government for nuclear waste disposal. But work on disposal has continued to stall. The cards are available free in the News Office and the Information Center.

Subscribers may call 617-252-1550 or send e-mail to mailsvc@mit.edu. In the News Office is in Room 11-400, Massachusetts Institute of Technology, 77 Massachusetts Ave., Cambridge, MA 02139-4307.

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MENTIONED

MIT Tech Talk

People

Events at MIT

Daria Chang

MIT News Office

On May 16, two years from the day of its initial launch, the Media Lab’s open source programming language Scratch is being celebrated with events in more than 100 countries in 41 countries around the world, says its creator, Mitchel Resnick.

“Scratch is currently available in more than 50 languages, making it easy for users worldwide to collaborate and build projects together,” he said.

The resulting projects, games, interactive stories and so on can then be downloaded to the Scratch site, where other users anywhere in the world can see, play with and modify them. Scratch can now be installed on almost any device, and can be accessed on the fly, even by those who speak only a few words of English.

The software download, and access to all the projects that have been uploaded, are available at http://scratch.mit.edu. Even the “Scratch Day” events, except for the one at the Media Lab, are entirely initiated and run by the worldwide community of users, with very little promotion by the Scratch team. In all, there will be events around the world, from Europe and South America to China, India and even Iran. “We didn’t promote it, hardly at all,” says Resnick, who was delighted to see how it took off as a grassroots movement. “It’s an indicator of the interest in Scratch around the world.”

In Cambridge, the afternoon events (already closed, having reached the maximum number of registrations) will consist of a set of four parallel workshops. The event is aimed both at students who use the software and parents and teachers who work with them. In the next few months, the Scratch team will be launching a new web site aimed specifically at educators who work with the language, providing resources and suggestions. They will also be holding a workshop this summer for teachers.

Scratch Day goes global

Conference on programming language spans 100 sites

David Chandler

MIT News Office

A ‘key moves’ card, which shows how to use the Scratch programming language. The cards are available on the Scratch web site at http://scratch.mit.edu.

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Grants will support efforts in developing nations

Eight teams win IDEAS awards

David Chandler
News Office

At an awards ceremony on Monday, May 4, for MIT’s annual IDEAS contest, eight teams were awarded prizes of up to $7,700 each for their efforts to create business ventures that could address pressing needs in the world’s developing countries. This year’s competition saw a big increase in the number of entries, said its co-founder Amy Smith, a senior lecturer and creator of the D-Lab program at MIT. Thirty-five teams, each of them including at least one MIT student, vied for this year’s awards, up from about 25 last year, Smith said.

The competition includes a special category, called the Muhammad Yunus Innovation Challenge to Alleviate Poverty, for projects aimed at tackling a specific issue in the developing world. This year, Yunus Challenge centered on affordable, small-scale energy solutions.

Two of the winning entries addressed this challenge, with projects to provide electricity in rural areas not currently served by electric grids. One is based on a fuel cell powered by dirt — or, more accurately, by the microbes living in dirt. The device can be bought for under $20, can be used to power lights or radios or to charge cellphones, and can provide power for months on end, says mechanical engineering graduate student Aviva Fresser, leader of the team called Lebônê, which holds a patent on the technology.

The other power source, by a team called EGG, would use conventional rechargeable battery technology with a new distribution system. The battery would be charged centrally, whether in a place where grid power is available or from solar panels or other sources, and provide them to local users on a rental basis. After paying an affordable annual fee, users can then return the depleted batteries to a central location to be swapped for a fully charged set. The system will be tested in Tanzania. The team consists of five students from MIT and three from Harvard Business School.

Among the other winners was a team called Aquaport, which created an ingenious modular water-transportation system to save the time and effort of carrying jugs of water, usually balanced on women’s heads, home from central wells. The system consists of molded disk-shaped tanks that snap together to form a larger drum shape, which then is fitted with an axle and a handle allowing it to be rolled along the ground instead of being lifted and carried. The system, costing less than $40, will be tested this summer in rural Ghana.

As for the quality of the water itself, that issue is addressed by a winning entry from a team called the Global Citizen Water Initiative. This open-source system will allow local users to order water test kits and then input the information into a location-based database that can provide information on water quality, both for the community and for public health officials and researchers.

Two different winning teams aim to provide help for the visually impaired. One winner was the 6-dot Braille labeler, a device that allows blind or visually impaired people to easily type labels that can be attached to objects such as food cans or boxes, allowing them to be identified quickly. The labeler, initially developed last fall as a project in the 2.009 product design class, will be licensed for manufacture sometime this summer, said team leader Karina Pikkart. Another winner is the Seeing Machine, a portable device that translates images from a digital camera or other source into a simplified form that can be beamed directly into the eye, bypassing distorting effects in the lens. The device is about to go into clinical trials.

A team called Business and Life Skills School (BLISS) is seeking to promote education and eliminate child labor among refugees in Pakistan. School attendance rates are low there because of the costs and local perceptions that the education is not useful. The team plans to introduce a curriculum that teaches useful skills, as well as hands-on afterschool activity that could cover the costs of education.

Finally, a team called LeaSure is developing a phase-change material for the Himalayan region. The material, made from local fabrics and readily obtained paraffin, can be used for clothing or bedrolls. Recharged in the sun, the material can then provide warmth for an extended period.

The winning teams will all take part in a two-day retreat later this month to further develop their plans.

Team members presented their projects during the IDEAS competition’s poster session on Monday, May 4. Eight teams were awarded up to $7500 to create business ventures that could address problems in developing countries.

12 journalists named Knight fellows

David Chandler
News Office

The Knight Science Journalism Fellowship program at MIT has selected 12 journalists from seven countries for its 27th class of fellows.

The Knight Fellowship is a mid-career program for working journalists who specialize in science, technology, medicine or the environment.

The new fellows, who will study at MIT during the 2009-2010 academic year, are:

• Michael Barnes, a TV documentary producer from England who has worked on the American science series NOVA.
• Marcin Jankowski, a writer and photographer from Poland who has worked extensively for National Geographic.
• Konstantin Kakaes, a writer for The Economist who has been based in Mexico City during the past four years.
• Chris Mooney, a blogger and author who has worked for The Washington Post, Science magazine and National Public Radio.
• Susan Moran, a freelance writer on environmental issues from Boulder, Colo.
• Chor Ng, a senior science and agriculture reporter at the Daily Independent newspaper in Lagos, Nigeria.
• Mary Orta, a former Washington Post reporter and now editor of the Latin America edition of the Washington Post.
• Rowan Philp, a senior correspondent at the Sunday Times in Johannesburg, South Africa.
• Eugenie Reich, a British freelance writer who has worked extensively for New Scientist magazine.
• Craig Simon, a science reporter who was Beijing bureau chief for the Cox newspapers.
• Daniela Hirschfeld, the editor of the magazine Galeria in Montevideo, Uruguay, and a regular contributor to the online news service Scidev.net.
• Xiaoxuan Zhao, a health reporter for the magazine Southern Weekly in Beijing, China.

Alumni adds to support of J-PAL

Mohammed Abdul Latif Jameel ‘78 has committed a substantial gift to support the Abdul Latif Jameel Poverty Action Lab (J-PAL) in its mission to reduce poverty worldwide by ensuring that policy is based on scientific evidence.

The lab, named in honor of Jameel’s father in 2003, is based in the Department of Economics in the School of Humanities, Arts, and Social Sciences. Jameel, who founded the lab along with MIT’s John P. Deere, plans to expand it over the next five years and well into the future with the primary goal of producing an additional 100 million people worldwide by 2030.

J-PAL takes the concept of randomized trials from medicine and applies it to evaluate the most effective ways to improve the lives of the poor — tackling issues from children’s health, to women’s empowerment and small holder productivity. It hopes to make the process both more rigorous and more cost-effective.

MIT President Susan Hockfield said, “Through the original gift that launched the Abdul Latif Jameel Poverty Action Lab, Mohammed Abdul Latif Jameel performed a hugely creative act of philanthropy: he is funding game-changing anti-poverty research that would produce powerful ripples of positive change in the lives of people across the developing world. By pinpointing ways to make health and education interventions far more effective, J-PAL’s findings have already improved daily life for millions. His magnificent new commitment will help ensure that these insights exponentially transform development policy and practice around the world.”

J-PAL’s scientific assessment of how best to relieve the burdens of poverty helps governments and NGOs target their limited funds — never more important than in this time of economic crisis.

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Members of the MIT community may submit one ad each issue. Ads should be 30 words maximum; they will be edited. Submit by e-mail to Classifieds, fmm 11-400. Deadline is noon Wednesday the week before publication.

HOUSING/RENTALS

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FURNISHED large four bedroom with sunny rooms, hardwood floors, dishwasher, disposal, full baths, including with whirlpool tub, front loading washer & dryer. Easy commute to MIT from Belmont. Off-street parking in the driveway or on Storrow Drive. Excellent schools. $3,250/month. Lease. No pets. Available September 1st. Contact 617-710-2724 or stevew@mit.edu

FOR SALE

1992 VW Cabriolet convertable, bile: Wait- made & maintained, still zippy, stylish, fun condition. Price to sell $13500.00. mross@mit. edu, 617-491-4339.

This year’s winners:

• Braille Label Baker
• HeatSource
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• BLISS
• Global Citizen
• Water Initiative
• Vision Group
• Aquaport
A team led by researchers at MIT’s Picower Institute for Learning and Memory has now pinpointed the exact gene responsible for a 2007 breakthrough in which mice with symptoms of Alzheimer’s disease regained long-term memories and the ability to learn.

In the latest development, reported in the May 7 issue of Nature, Li-Huei Tsai, Picower Professor of Neuroscience, and colleagues found that drugs that work on the gene HDAC2 reverse the effects of Alzheimer’s and boost cognitive function in mice.

“This gene and its protein are promising targets for treating memory impairment,” Tsai said. “HDAC2 regulates the expression of a plethora of genes implicated in plasticity — the brain’s ability to change in response to experience — and memory formation. ‘Thus, long-lasting changes in how other genes are expressed, which is probably necessary to increase numbers of synapses and restructure neural circuits, thereby enhancing memory,’ she said.

The researchers treated mice with Alzheimer’s-like symptoms using histone deacetylase (HDAC) inhibitors. HDACs are a family of 11 enzymes that seem to act as master regulators of gene expression. Drugs that inhibit HDACs are in experimental stages and are not available by prescription for use for Alzheimer’s.

“Harnessing the therapeutic potential of HDAC inhibitors requires knowledge of the specific HDAC family member or members linked to cognitive enhancement,” Tsai said. “We have now identified HDAC2 as the most likely target of the HDAC inhibitors that facilitate synaptic plasticity and memory formation.”

“This will help elucidate the mechanisms by which chromatin remodeling regulates memory,” she said. It also will help shed light on the role of epigenetic regulation, through which gene expression is indirectly influenced, in physiological and pathological conditions in the central nervous system.

Furthermore, this finding will lead to the development of more selective HDAC inhibitors for memory enhancement,” she said. “This is exciting because more potent and safe drugs can be developed to treat Alzheimer’s and other cognition diseases by targeting this HDAC specifically,” said Tsai, who is also a Howard Hughes Medical Institute investigator. Several HDAC inhibitors are currently in clinical trials as novel anticancer agents and may enter the pipeline for other diseases in the coming two to four years. Researchers have had promising results with HDAC inhibitors in mouse models of Huntington’s disease.

In addition to Tsai, co-authors are Picower postdoctoral associate Ji-Song Guan; and colleagues from Massachusetts General Hospital; Harvard Medical School; the Whitehead Institute for Biomedical Research; MIT’s Department of Biology; the Dana Farber Cancer Institute; and the Netherlands Cancer Institute.

The project, a collaboration enabled by the Cambridge-MIT Institute, began when the team decided to build a scaffold for bone growth. They started with an existing method to produce a skin scaffold, made of collagen (from bovine tendon) and glycosaminoglycan, a long polysaccharide chain. To mimic the structure of bone, they developed a technique to mineralize the collagen scaffold by adding sources of calcium and phosphate.

Once that was done, the team decided to try to create a two-layer scaffold to regenerate both bone and cartilage (known as an osteochondral scaffold). Their method produces two layers with a gradual transition between the bone and cartilage layers.

“We tried to design it so it’s similar to the transition in the body. That’s one of the unique things about it,” said Gibson.

There are currently a few different ways to treat cartilage injuries, including stimulating the bone marrow to release stem cells by drilling a hole through the cartilage into the bone; transplanting cartilage and the underlying bone from another, less highly loaded part of the joint; or removing cartilage cells from the body, stimulating them to grow in the lab and re-implanting them. The new scaffold could offer a more effective, less expensive, easier and less painful substitute for those therapies, said Gibson.

MIT collaborators on the project are Professor Ioannis Yannas, of mechanical engineering and biological engineering; Myron Spector of the Harvard-MIT Division of Health Sciences and Technology (HST); Biraja Kanungo, a graduate student in HST; Biraja Kanungo, a graduate student in HST; and Zachary Wissner-Gross, a graduate student in HST. The research was funded by the Cambridge-MIT Institute, the Whitaker-MIT Health Science Fund, Universities UK, Cambridge Commonwealth Trust and St. John’s College Cambridge.
Implantable device offers continuous cancer monitoring

New device, much smaller than a penny, could track tumor’s growth

Anne Tsafon
News Office

Surgical removal of a tissue sample is now the standard for diagnosing cancer. Such procedures, known as biopsies, are accurate but only offer a snapshot of the tumor at a single moment in time.

Monitoring a tumor for weeks or months after the biopsy, tracking its growth and how it responds to treatment, would be much more valuable, says Michael Cima, MIT professor of materials science and engineering, who has developed the first implantable device that can do just that.

Cima and his colleagues recently reported that their device successfully tracked a tumor marker in mice for one month. The work is described in a paper published online in the journal Biosensors & Bioelectronics in April.

Such implants could one day provide up-to-the-minute information about what a tumor is doing — whether it is growing or shrinking, how it’s responding to treatment, and whether it has metastasized or is about to do so.

“What this does is basically take the lab and put it in the patient,” said Cima, who is also an investigator at the David H. Koch Institute for Integrative Cancer Research at MIT.

The devices, which could be implanted at the time of biopsy, could also be tailored to monitor chemotherapy agents, allowing doctors to determine whether cancer drugs are reaching the tumors. They can also be designed to measure pH (acidity) or oxygen levels, which reveal tumor metabolism and how it is responding to therapy.

With current tools for detecting whether a tumor has spread, such as biopsies, by the time you have test results it’s too late to prevent metastasis, said Cima.

“This is one of the tools we’re going to need if we’re going to turn cancer from a death sentence to a manageable disease,” he said.

In the Biosensors & Bioelectronics study, human tumors were transplanted into the mice, and the researchers then used the implants to track levels of human chorionic gonadotropin, a hormone produced by human tumor cells.

The cylindrical, 1-millimeter implant contains magnetic nanoparticles coated with antibodies specific to the target molecules. Target molecules enter the implant through a semipermeable membrane, bind to the particles and cause them to clump together. That clumping can be detected by MRI (magnetic resonance imaging).

The device is made of a polymer called polyethylene, which is commonly used in orthopedic implants. The semipermeable membrane, which allows target molecules to enter but keeps the magnetic nanoparticles trapped inside, is made of polycarbonaté, a compound used in many plastics.

Cima said he believes an implant to test for pH levels could be commercially available in a few years, followed by devices to test for complex chemicals such as hormones and drugs.

Lead author of the paper is Karen Daniel, a recent MIT PhD recipient. Other authors are recent PhD recipients Grace Kim and Christorphorus Vassiliou, Marilyn Galindo, research affiliate in the Harvard-MIT Division of Health Sciences and Technology; Alexander Guimares, a radiologist at Massachusetts General Hospital; Ralph Weissleder, a professor of radiology at Harvard Medical School; Al Charache, visiting assistant professor of biology at MIT; and Institute Professor Robert Langer.

The research was funded by the National Cancer Institute Centers of Cancer Nanotechnology Excellence and the National Science Foundation.

Solar-powered art

Last week marked the opening at the MIT List Visual Arts Center of “The Immeasurable Distance,” a solo exhibition that includes works based on artist Matthew Day Jackson’s residency at MIT. Among the pieces on display is ‘Chariot II’—like America and America likes me’ — a crashed car frame Jackson rescued from the front lawn of his cousin, racecar driver Skip Nichols. Jackson painstakingly restored and rebuilt the car as a material metaphor for transformation. One of the physical-metaphors in the work is that the car appears to float on a spectrum of fluorescent lights arranged in a circular red, orange, yellow, green, blue, indigo, violet sequence.

This sequence of lights is not powered by the building’s local power grid but by alternative energy — and that’s where MIT’s Department of Facilities comes in. Several months ago, Walt Henry and Dick Amster of Facilities met with Jackson to discuss design options to power the lighting for Chariot II. Peter Cooper, Ron Adams, Eric Beaton, and Julia Ledewitz — members of Henry’s team in the Systems Engineering Group — worked to develop a solar array installed on the roof that provides the power to illuminate Chariot II. The exhibition runs through July 12.

PHOTO COURTESY OF THE MIT LIST VISUAL ARTS CENTER
MIT student project wins coveted EPA award

Patrick Gilliosy  
News Office

MIT students working to bring affordable, eco-friendly energy to off-the-grid areas of the world have received one of six Environmental Protection Agency (EPA) grants for programs that protect the environment and are economically sustainable.

Doctrinal studies by Amy Mueller and Matt Oronz, both members of the research group of Harold Hemond, the William E. Leonhard (1940) Professor of Engineering in the Department of Civil and Environmental Engineering, initiated the project. They have been working for several years in Lesotho with the goal of replacing polluting diesel generators — which are commonplace in the mountainous southern African country — with a more affordable and environmentally friendly alternative.

Their solar power generator, based on technology that uses a parabolic trough to concentrate solar power, is similar in concept to multimegawatt plants now being built in the Nevada desert, but are scaled down to provide 3 to 5 kilowatts of power as well as hot water for individual institutions such as rural health clinics. The EPA award, from the agency’s People, Prosperity and the Planet (P3) program, includes a $75,000 grant that will go toward helping the students install a next-generation prototype solar collector at a clinic this fall or early next spring.

The best way to help these communities is by helping the institutions that are there to serve them,” said Mueller. As the grant requires the project to be economically viable as well, Mueller and Oronz have worked to engineer the solar plant so it can be built using locally available parts and labor.

The ultimate goal, Mueller notes, is to teach local residents how to build the solar power plants on their own, thus providing a business opportunity that will create a stronger electricity infrastructure in developing countries.

The P3 award competition encourages college students to apply technology in innovative ways to tackle global environmental challenges. For more information on award winners, visit http://epa.gov/nctcr/p3/project,_websites/2009/2009awardees.html.

Annual support staff ‘toolkit’ and luncheon set for June 11

MIT will host the third annual Support Staff Professional Development Toolkit event on Thursday, June 11. A collaboration between the Working Group on Support Staff Issues (WGSSI) and the Human Resources Department, the event features a series of workshops that give support staff an opportunity to focus on their professional development.

The toolkit event is coupled with the annual Support Staff Appreciation Luncheon, hosted by WGSSI and funded by HR. The toolkit and the luncheon are open to all support staff, but separate, advanced registration is required for each activity.

Building on last year’s model, each workshop will be presented by a support staff person and a colleague from HR. This year’s event will cover the following topics in one-hour workshops: “Communicating Upward,” “The ABCs of Diversity and Inclusion,” “Promotions and Transfers at MIT,” “Toolkit: Skills and Job Families at MIT,” and “Networking for Your MIT Career.”

“The toolkit event is one way to show our commitment to investing in our support staff. We hope with enough advance notice that managers and supervisors will encourage their staff to participate in this event,” says Human Resources Vice President Alison Allen. “It’s always important that we find the time for developing our support staff.”

The direct link for registering for the luncheon — http://web.mit.edu/member- ship/lunch.html — will go live on May 18 and will remain active until May 29.

The link to register for the Support Staff Toolkit will also go live on May 18, at which time an e-mail reminder will be sent. Go to http://web.mit.edu/sasweb and click the training tab and then “Training Catalog and Registration.” Click “Career Management and Employee Benefits” and look for “Support Staff Toolkit Introduction.”

QUITTING: MIT Medical program helping smokers kick the habit

Continued from Page 5

she says, noting that nicotine gets to a smoker’s brain just seven seconds after inhaling. “It’s also a major coping tool for anger, anxiety and depression. And the habit is reinforced by associations like always having a cigarette after dinner or with a glass of wine.”

“Five o’clock cigarette was a hard one to quit because I looked forward to it so much,” says Pyron. “I’d go hide behind the Marriott to smoke it.”

Mayhew explains to clients that unsuccessful attempts to quit are not a moral issue and that tobacco addiction is a chronic medical condition. “A lot of smokers feel ashamed. There can be a real sense of failure if they’ve tried to quit before,” she says. Studies show it takes five to eight attempts on average for most smokers to quit for good. “I will help,” adds Mayhew.

“Anyone who truly wants to quit can, but even one to four cigarettes a day is bad for your health,” says Slotnick. “They don’t need any more information about that; they need someone who understands the addiction and shows them that there are effective approaches to quitting. It’s good if they hear from their doctor that they should quit smoking, but they still need help and guidance on how to go about it.”

As one form of encouragement, Mayhew reminds clients that smoking is powerfully addictive both physically and psychologically. “Cigarettes are a highly engineered nicotine-delivery system designed to get people addicted,” she says, adding, “It’s always important that we find the time for developing our support staff.”

The direct link for registering for the luncheon — http://web.mit.edu/member-ship/lunch.html — will go live on May 18 and will remain active until May 29. The link to register for the Support Staff Toolkit will also go live on May 18, at which time an e-mail reminder will be sent. Go to http://web.mit.edu/sasweb and click the training tab and then “Training Catalog and Registration.” Click “Career Management and Employee Benefits” and look for “Support Staff Toolkit Introduction.”

Mayhew adds.

“Mayhew helps smokers pick a ‘quit date’ within a few weeks of their first meeting, and then meets with them regularly to develop methods for coping with cravings and strategies for dealing with potentially ‘triggering’ situations. A typical treatment plan involves some combination of a medication (an over-the-counter nicotine patch or gum, or a prescription drug such as Zyban or Chantix) plus stress reduction techniques and other cognitive and behavioral approaches.

“Some people just want some information but they’re not really ready to quit, they’re still contemplating the decision,” says Mayhew, who received tobacco treatment training at the University of Massachusetts Medical School’s Division of Preventive and Behavioral Medicine.

“I work with them to help them understand and resolve their ambivalence, and to hopefully get to the point where they’re ready to make a quit attempt. Everyone is amenable to some degree; no one runs in here and says, ‘Yay, I really want to quit and I’m completely ready!'” Adds Pyron, “It’s a common misconception that you have to really want to quit to succeed. There’s a difference between wanting to quit and being ready to.”

A medical issue, not a moral one

Though Mayhew has plenty of data on the unhealthy effects of smoking, that’s not why people consult her. “Anyone who smokes knows it’s bad for them,” she says. “They don’t necessarily need any more information about that; they need someone who understands the addiction and shows them that there are effective approaches to quitting. It’s good if they hear from their doctor that they should quit smoking, but they still need help and guidance on how to go about it.”

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Donald Mayhew, a medical issue, not a moral one

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According to the EPA, about 45% of the active U.S. adult population smokes cigarettes, and smoking is estimated to cost $180 billion a year in health care.
Gauge declines nearly 6 percent in first quarter; demand sentiment in record drop

Transaction prices of commercial property sold by major institutional investors fell by almost 6 percent in the first quarter, according to an index developed and published by the MIT Center for Real Estate.

The 5.8 percent drop in the transactions-based index (TBI) for the first quarter was the fourth consecutive quart-erly drop and the sixth in the past seven quarters. The index was lower than the 12 percent drop in the fourth quarter, but it was a year ago, and 26 percent below its mid-2007 peak — comparable to the 27 percent drop the index experienced in the previous major period of real property downturn in the late 1980s and early 1990s.

“It’s possible that the first quarter of 2009 was the nadir,” said Professor David Geltner, director of research at the MIT Center for Real Estate. “Sales volume is down almost to nothing, as reflected in our demand index. The prices buyers are willing to pay fell a record 12 percent in the first quarter and is now 28 percent below a year ago and 19 percent below its mid-2007 peak,” Geltner noted.

The MIT/CRE publishes not only the price index based on closed deals, but also compiles indices that separately gauge movements on the demand side and the supply side of the market that it tracks. The demand-side index tracks the changes in prices that potential buyers are willing to pay (sometimes called a “constant-liquidity” index of the market, because it tracks what prices would have to do to change to keep a constant ability to sell as many properties at the same rate of trading volume). That index has now fallen steadily for all of the past seven quarters. In contrast, the supply-side index, reflecting what deep-pocket institutional owners of commercial properties are willing to sell for, actually rose slightly, by about 1 percent, in the first quarter. “This type of disconnect between the supply and demand sides of the market, with demand-side sentiment plunging and property owners refusing to sell into such losses, is greater than we have ever seen before, and is very nearly removing every bit of liquidity from the market,” said Geltner.

“As is generally the case, the results posted by our index are corroborated by recent evidence from another commercial property price index whose methodology was developed at the MIT/CRE, the Moody’s/REAL Commercial Property Price Index produced by Moody’s Investors Service,” said MIT/CRE Research Technician Holly Horrigan, noting that Moody’s March results were scheduled to be published May 19. “The Moody’s index was already down 22 percent as of February,” Horrigan noted.

The TBI tracks the prices that institutions such as pension funds pay or receive when buying or selling commercial properties such as shopping centers, apartment complexes and office towers. The MIT Center’s TBI is based on prices of National Council of Real Estate Investment Fiduciaries (NCREIF) properties sold each quarter from the property database that underlies the NCREIF Property Price Index (NPPI), and also makes use of the appraisal information for all of the currently 6,000 NCREIF properties. Such an index — national in scope, modern based and by property type — had not been previously available prior to MIT’s index, but the data has supported the NCREIF supported development of the index as a useful tool for research and decision-making in the industry.

Endicott House, gardeners’ group holding plant sale May 20-21

The annual Endicott House Spring plant sale will take place from 9 a.m. to 2 p.m. on Wednesday, May 20, at McDermott Court, and on Thursday, May 21, on the Student Center lawn.

Staff from Endicott House and volunteers from the MIT Gardeners’ Group will be selling a selection of vegetable plants, herbs, flowers, supplies (such as earth boxes), and other garden-related items. The price is a great way to get healthy and reasonably priced plants and grower supplies, while also supporting the greenhouses at Endicott House. Community members who expect to buy a lot of plants should try to bring boxes.

Committee on Animal Care solicits feedback

The Committee on Animal Care is soliciting information that would aid MIT’s effort to maintain the humane care of animals used in research. The effort is to ensure that MIT researchers working with animals comply with applicable federal, state, local and institutional regulations on animal care, the Committee on Animal Care inspects animals, animal facilities, and laboratory facilities, and reviews all research and teaching exercises that involve animals before experiments are permitted.

If you have information about inade-quate animal care or treatment, please call 617-253-9336 or call Professor Claude Canizares, vice president for research and associate provost, at 617-253-3206. All concerns about animal care will be handled confidentially and will be investi-gated by the committee. The panel will report its findings to anyone who has such concerns, as well as to the vice president for research and associate provost.

Blood drive this week in student center

MIT’s American Red Cross Team and Network will be sponsoring a blood drive through the rest of this week in La Sala de Estar. The drive will run from 10 a.m. to 2 p.m. on the second floor of the MIT Student Center.

Today — noon to 6 p.m.
Thursday, May 14 — noon to 6 p.m.
Friday, May 15 — noon to 6 p.m.
For more information or to make an appointment, visit http://web.mit.edu/ blood-drive/www/. All donors will have an opportunity to win raffle tickets to see the Red Sox and the Dave Matthews Band at Fenway Park, and will receive a scratch and win ticket from Unos.

Endicott House, Civil and environmental engineering (CEE) sophomores foutowed off the fruits of their labor this past weekend, as they displayed the energy-harvesting machines they designed and built in 1.102 (Introduction to CEE Design II).

Senior Allison St. Vincent, left, helps sophomore Emily Moberg demonstrate the Glowing See-Saw machine. The device, which at a leisurely pace pumped six gallons of water every minute from the Kresge moat to the students’ “handmade” miniature fountain (shown in the background). At a faster pace, the machine pumped closer to 10 gallons per minute.

"Bother bots" win the day

Annual 2.007 robot competition features good defense

There were a variety of ways to score points in this year’s 2.007 competition, which culminated in head-to-head (or wheel-to-wheel) matches among about 150 robots built by students over the course of the semester. But one strategy seemed to prevail: preventing one’s opponent from scoring, using a secondary “bother bot” to get in the way.

The final contest, which had no effect on students’ grades for the class but nevertheless spurred intense competition and several trophies and T-shirts were given to the top eight finishers, including a special award for excellence in design and manufacturing — to four competitors.

Extra points for stacking the blocks, more points for picking up crushed cans and placing them in a slot, and the highest scores for crushing a can and then placing it in the slot. The scores could also be multiplied by inserting a boot, attached to a towel, toward one’s own side of the field — something that none of the robots managed to do.

Many students built elaborate can-crushing devices, some of which worked well in the preliminary elimination rounds on Wednesday. But because the bother bots were so effective in thwarting can crushers, not a single can was successfully crushed during the final contest, which featured the 32 highest-scoring bots.

“Both bother bots seemed to rise to the top,” said lead instructor Daniel Frey PhD ’97, a professor of mechanical engineering and engineering systems. “A good defense often beats a good offense.”

Simple but robust strategies prevailed. In second place was a machine built by Pablo Bellos, which had a bother bot of its own but was defeated by Grinnell’s more sturdy low-along wedge-shaped bother bot. The third-place finisher, built by Eugene Pineda, was decorated with blue lights and was one of the most attractive robots in the contest; very effective in the early rounds, it quickly grabbed the pre-crushed cans and placed them in the slot. But in the final contest, it was successfully thwarted by Bellos’ bother bot, which prevented it from reaching the slot.

T-shirts and T-shirts were given to the top eight finishers, and the top four finishers will have an opportunity to attend a similar international robot design competition in Tokyo this summer. Organizers also presented the Whitelaw prize — a special award for excellence in design and manufacturing — to four competitors.

Dick Fenner, director of the Pappalardo Lab, emphasized that while the competition is fun and exciting for students, the class, just creating a novel design and building a machine that works at all, in the brief period of one semester, is a significant accomplishment. “If you put something on the table and it wiggles, you’ve lost a hero in my book,” he said.
Ancient trading raft sails anew

Faithful copy of pre-Columbian vessel tested on Charles River

For the first time in nearly 500 years, a full-size balsa-wood raft just like those used in pre-Columbian Pacific trade took to the water on Sunday, May 10. Only this time, instead of the Pacific coast between Mexico and Chile where such rafts carried goods between the great civilizations of the Andes and Mesoamerica as long as a millennium ago, the replica raft was floated in the Charles River basin.

The faithful reproduction of the ancient sailing craft, built from eight balsa logs brought from Ecuador for the project, was created in less than six weeks by 30 students in the Ancient Materials class taught by Professor of Archeology and Ancient Technology Dorothy Hosler of the Department of Materials Science and Engineering. The replica was based on an analysis carried out by Hosler and her former student Leslie Dewan ’06, which was published last year in the Journal of Anthropological Research.

Based on drawings and descriptions recorded by Spanish, Portuguese and Dutch explorers, Dewan and Hosler figured out the dimensions and construction methods that most likely were used for the ancient craft, and reproduced these as accurately as possible. While some other attempts have been made to reproduce the ancient craft, including a one-third scale version built by Dewan and other students five years ago, none had previously copied the ancient designs and materials so precisely. No modern materials were used in the construction.

The full-size replica was built to confirm the computer analysis of the craft’s size, capacity and construction, and to prove that such a vessel really is seaworthy and could have made the voyages of thousands of miles indicated by Hosler’s research on similarities in the metalwork design and manufacture between the Andean and Mesoamerican cultures. The reproduction was financed through a donation from Alcan-Beltec Corp.

The raft will undergo a series of tests over the summer, but so far it performed very well, Hosler said. Although high winds caused problems for many sailboats on the Charles on Sunday, the raft with nine students aboard remained very stable, she said.

ABOVE: Junior Dereck Barber, left, hands one of the eight daggerboards, used to control the craft, to freshman Chinedum Umachi, while a group of students waits on the raft.

RIGHT: Freshman Erich Brandeau works on the balsa raft.

BELOW: Students carry the raft toward its launching point on the Charles River while Leslie Dewan ’06, foreground, directs them.