Institute brimming with energy

Experts, industry leaders, students convene at annual energy conference

David Chandler
News Office

“Scale” was the keyword as hundreds of people gathered this past weekend for the fourth annual MIT Energy Conference. The event, organized entirely by student groups, has evolved “essentially from a standing start to become one of the premier energy events,” said President Susan Hockfield at the meeting’s opening.

While there has been rapidly growing enthusiasm in recent years about a variety of approaches to improving the world’s energy systems, “no matter how bright many of these new technologies seem, most of them wither around questions of scale,” Hockfield said.

The magnitude of the world’s dependence on fossil fuels, and of the problems associated with those fuels, makes it difficult for any new approach to make a significant impact.

Thus, the conference’s title, “Solutions that Scale,” addressed the often-overlooked heart of the matter. And while the dozens of talks, panel discussions and exhibits in the two-day conference and exhibit acknowledged the daunting nature of the challenge, a sense of shining but realistic optimism pervaded the event.

The sheer magnitude of the problems can translate into an equally vast opportunity, said John Doerr, a pioneer venture capitalist whose firm bankrolled some of the biggest winners in the computer and Internet boom, including Sun, Google, Compaq and Symantec.

In his opening keynote address, Doerr predicted that “the market for energy technology is larger, maybe 10 times larger,” than the Internet boom that preceded it. “We’re at the beginning of a green technology boom.”

In order to kick-start that process, there is a need for much greater investment in research, he said. Today, the total annual research and development budget for new energy technology is about equal to just one day’s profits from a single fossil-energy

> Please see ENERGY, PAGE 5

MIT class tracks carbon footprint of different lifestyles; finds even the smallest U.S. footprints are relatively large

Whether you live in a cardboard box or a luxurious mansion, whether you subsist on homegrown vegetables or wolf down imported steaks, whether you’re a jet-setter or a sedentary retiree, anyone who lives in the U.S. contributes more than twice as much greenhouse gas to the atmosphere as the global average, an MIT class has estimated.

The class studied the carbon emissions of Americans in a wide variety of lifestyles—from the homeless to multimillionaires, from Buddhist monks to soccer moms—and compared them to those of other nations. The somewhat disquieting bottom line is that in the United States, even people with the lowest energy usage—account for, on average, more than double the global per-capita carbon emission. And those emissions rise steeply from that minimum as people’s income increases.

“Regardless of income, there is a certain floor below which the individual carbon footprint of a person in the U.S. will not drop,” says Timothy Gutowski, professor of mechanical engineering, who taught the class that calculated the rates of carbon emissions. The results will be presented this May at the IEEE International Symposium on Electronics and the Environment in San Francisco.

While it may seem surprising that even people whose lifestyles don’t appear extravagant—the homeless, monks, children—are responsible for significant greenhouse gas emissions.

> Please see FOOTPRINT, PAGE 4

LEAVING OUR MARK

Massachusetts Gov. Deval Patrick will speak at MIT on Earth Day.

> PAGE 5

MIT helps to develop a carbon-neutral community in Abu Dhabi.

> PAGE 4-5

FOCUSING ON ENERGY

A representation of different estimated annual carbon footprints. Government services were a major reason for the relatively large U.S. average, according to an MIT class led by Professor Timothy Gutowski of mechanical engineering.

PEOPLE

Jacks named AACR president

Tyler Jacks, director of the David H. Koch Institute for Integrative Cancer Research at MIT, has been named president of the American Association for Cancer Research.

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RESEARCH

Meet Nexi

The Media Lab’s newest robot becomes an Internet star after preliminary video appears on YouTube.

> PAGE 3

NEWS

Sustaining our future

The formation of the MIT-Fraunhofer Center for Sustainable Energy Systems is announced during Saturday’s energy conference.

> PAGE 4
Jacks named president of American Association for Cancer Research

Tyrrell F. Jacks, director of the David H. Koch Institute for Integrative Cancer Research at MIT, has been named president-elect of the American Association for Cancer Research (AACR), the world’s largest scientific organization dedicated to preventing and curing cancer worldwide. Jacks, also the David H. Koch Professor of Biology at MIT and an investigator with the Howard Hughes Medical Institute, took over the position on Monday, April 14, at the AACR Annual Meeting in San Diego.

Jacks’ research interests are in the gene regulatory mechanisms that contribute to the development of cancer. His laboratory has engineered a series of novel mutant mouse strains that accurately mimic human cancer and thus serve as animal models for exploring the cellular pathways regulated by cancer-associated genes. “We are experiencing an unprecedented and truly remarkable pace of discovery in cancer research today,” Jacks said. “As the leading cancer research organization in the world, the AACR plays a vital role in promoting the flow of information from these discoveries between scientists and clinicians which ultimately impacts on the lives of people with cancer.” Jacks has served in several leadership positions for the AACR, including the Board of Directors and the Nominating Committee. He serves on the editorial board of Molecular Cancer Therapeutics and was a senior editor of Molecular Cancer Research. Jacks has co-chaired several AACR Special Conferences, was a co-chair of the 2003 AACR Annual Meeting and served as faculty for the “Molecular Biology in Oncology” Educational Workshop. Jacks has also received several awards recognizing his scientific accomplishments, including the AACR Award for Outstanding Achievement in Cancer Research.

Three MIT faculty named Guggenheim fellows

Three MIT professors were named Guggenheim fellows for their “stellar achievement and exceptional promise for continued accomplishment,” the John Simon Guggenheim Memorial Foundation announced. Robert Kandel, professor of science writing; Susan S. Silbey, the Department of Anthropology head; and Alexander van Oudenaarden, an associate professor of physics, were named as fellows.

Kandel’s fellowship will be focused on his upcoming book, set on the Blasket Islands in the west of Ireland. Silbey’s focus will be on trust and surveillance in the cultures of science; and van Oudenaarden will study stochastic gene expression in development.

The Guggenheim foundation named a total of 190 fellows at 81 different academic institutions for 2008. Each fellow receives different grants based on need, with more than $6 million awarded this year for an average grant of $41,120.

MIT’s Makan wins prestigious Rome Prize

Sarah H. Wright

MIT professor Keeril Makan, a musician and composer acclaimed for his technique of layering recorded and live sounds, has been awarded a prestigious Rome Prize by the American Academy in Rome for 2008-2009.

The prize, announced Thurs-
day, April 10, in New York, carries a stipend of $24,000 and work and living accommodations for 11 months at the academy.

“Keeril Makan has emerged as an exciting and inspiring young composer, with compositions from the Kronos Quartet, Bang on a Can's all-stars, Carnegie Hall, and many other prestigious venues,” said Thomas A. Loxley, manager of the academy’s Rome Prize. “I am delighted to see his tremendous achievements recognized in this way,” said Deborah Fitzgerald, Kenan Sahin Dean of the School of Humanities, Arts, and Social Sciences. Makan, assistant professor of music, originally trained as a violinist. He describes his music as an outgrowth of the Western classical tradition, using familiar instruments and other musical traditions in new ways.

Makan’s music moves fluidly among disparate sounds, weaving them into intricate and engaging textures that range from small chamber ensembles to works for orchestra. Innovative and exploratory, it has required the composer to develop humorous-like notations for musicians performing his work. In a saxophone piece, “Voice Within Voice,” for example, a row of jagged markings that look like shark's teeth means “put your teeth on the red and gray.”

But notation is not where the process of composing starts for Makan, a 16-year-old native of New Jersey. “I write by physically interacting with the instrument I'm composer for,” he said. “If I'm writing for the oboe, I'll play it in as many ways as I can imagine,” he says. “As I work, musical possibilities develop. This is how I get the raw materials for a piece. I record myself, then I figure out how I'll work with the material.”

Makan will divide the 11-month residency in Rome to working on three major pieces, he says. One project will be to compose “Tracker,” a five-part chamber opera in which technological instruments of the past, such as 19th-century contraptions for measuring pulse and motion, are linked thematically to current technologies and to the impact of technology on the imagination and emotional experience.

Sketches for “Tracker” are now being made in five volumes that are sent to Makan’s MIT office, a small room packed with books and musical gear. Photographs by 19th-century scientist Etienne-Jules Marey top each column; poem-shaped segments of Jena Osman’s libretto spill downward like adding machine paper. There are no visible musical notes.

In addition to the opera, Makan’s plan for Rome is to complete a work for electric guitar and orchestra, commissioned by the American Composers Orchestra, to be premiered this November. He will also finish a trio for flute, viola and harp, commissioned by the Harvard Musical Association, for violin and MIT professor Marcus Thompson.

A total of 11 months, but Makan, who owns neither a car nor a television, finds that he is able to work.

“Rome is the heart of the world,” he says.

The Rome Prize is awarded annually to 15 emerging artists in various fields.
Meet Nexi: the Media Lab’s newest robot star

The many faces of Nexi, the Media Lab’s newest robot, which can make a wide range of expressions.

David Chandler News Office

A new experimental robot from the MIT Media Lab can slant its eyebrows in anger, or raise them in surprise, and show a wide assortment of facial expressions to communicate with people in human-centric terms. Called Nexi, it is aimed at a range of applications for personal robots and human-robot teamwork.

Nexi has become something of an Internet celebrity after a preliminary video demonstration of its facial expressions using prescribed movements was posted this month on YouTube. The spot has been accessed more than 110,000 times, and viewers have reacted with comments ranging from awe and bemusement (“This robot seems more humane than most humans” to shock and alarm (“Creepy. Very creepy”).

Created by a group headed by Media Lab’s Cynthia Breazeal, known for earlier expressive robots such as Kismet, the new product is known as an MDS (mobile, dextrous, social) robot. Unlike Kismet, which consisted only of a robotic head, the Nexi MDS is a complete mobile manipulator robot augmented with rich expressive abilities. It is designed to ultimately ride on self-balancing wheels like the Segway transporter, but it currently uses an additional set of supportive wheels to operate as a statically stable platform in its early stage of development. It has hands to manipulate objects, eyes (video cameras), ears (an array of microphones), and a 3-D infrared camera and laser rangefinder to support real-time tracking of objects, people and voices as well as indoor navigation.

The development of Nexi was led by the MIT Media Lab’s Personal Robots Group in collaboration with Professor Rod Grupen at the University of Massachusetts-Amherst and two MIT robotic spin-off companies. The project was originally funded by an Office of Naval Research Defense University Research Instrumentation Program (DURIP) award to develop a novel class of robots that can engage in sophisticated forms of peer-to-peer teamwork with humans in uncertain environments. A recent ONR Multidisciplinary University Research Initiative (MURI) award, for which Breazeal is the PI, aims at developing technologies and demonstrations for teams comprised of humans and autonomous aerial robots in addition to the MDS robots. Several MIT faculty are part of the MURI effort (Nick Roy and Jon How in aero-astro, and Deb Roy at the Media Lab); in addition to collaboration at Stanford, Vanderbilt, UMass-Amherst and University of Washington.

Second annual Cambridge Science Festival kicks off April 26

The second annual Cambridge Science Festival, an annual citywide celebration of science and technology, will take place Saturday, April 26, through Sunday, May 4. The festival will feature more than 200 events ranging from lunch with a different Nobel laureate each weekday, to building and launching your own rocket, to theatrical and opera performances.

The festival kicks off with a free Science Carnival at Cambridge City Hall from noon until 4 p.m. on April 26. The Cambridge Science Festival showcases Cambridge as an internationally recognized leader in science and technology. A multifaceted, multicultural event modeled on music, arts and movie festivals, the event promises to make science accessible, interactive and fun, highlighting the impact of science and technology in all our lives.

This year’s festival—spanning nine days—will include more than 200 events open to the public and held at different venues throughout the city of Cambridge. Festivalgoers can participate in workshops, behind-the-scenes tours, talks, performances, debates and film festivals. Many of the events are interactive and geared to kids and their families. But there will also be adult-focused events, such as exploring whether neuronal enhancements could or should be used to make you smarter, with neuroscientist and Harvard Provost Steve Hyman, Pioneer Institute Director Mark Beaudet and MIT Neuropharmaceuticals Professor Richard Wurtman.

Some MIT-centric events during the festival include “A Hack’s How-To: MIT Museum Family Day” all day on Sunday, April 27, featuring hands-on fun family activities centered on news stories from Science Museum on Thursday, May 1, and the Energy Night Mixers on Friday night, May 2—both at the MIT museum and free for the MIT community.

Last year the event drew an estimated 15,000 people from across New England. “The festival aims to make world-class science and technology—and the people who do it—directly accessible to the community,” said festival Executive Director and MIT Museum Director John Durant. “Science is relevant to absolutely everyone, but we hope that in particular our festival will inspire curious young minds to explore the world about them in new ways.”

The Cambridge Science Festival is a collaboration among MIT, Harvard University, the City of Cambridge, Cambridge Public Schools, Cambridge Public Library, WGBH and the Museum of Science. The festival is generously supported by MIT, the Massachusetts Cultural Council, the City of Cambridge, Larry and Diane Bock, Weyer Science Research, Biogen Idec, Harvard University, Novartis, Genzyme, Merck, Millennium, Pfizer, Vertex, Azyanlan, Alexandria Real Estate Equities, Boston Properties, Dragway, Massachusetts Institute of Technology, the MIT Community Foundation, CDM, Calise and Cherington Plough.

For a complete schedule of events, visit http://www.cambridgesciencefestival.org.

Student conference targets global poverty

Former senator and presidential candidate John Edwards will be among the speakers at an MIT conference this weekend involving more than 1,000 students from around the country dedicated to fighting the problems of extreme poverty in the world.

The inaugural Millennium Campus Conference, organized by a coalition of student groups including MIT’s Global Poverty Initiative, will feature talks and discussions about international development and steps toward developing sustainable strategies against poverty. The group was founded with a goal of furthering the United Nations’ Millennium Development Goals.

Edwards is scheduled to deliver an opening keynote speech at 10 a.m. Friday in Kresge Auditorium. Other scheduled speakers during the three-day conference include economist Jeffrey Sachs and Paul Farmer and economists Jeffrey Sachs and Paul Romer.

Henrietta H. Fore, administrator of the United States Agency for International Development and director of United States Foreign Assistance, will also be participating in the meeting’s opening ceremonies.

The conference will feature a variety of luncheons, workshops and exhibits to promote networking among college campus organizations. Other major programming activities include the Millennium Campus Concert, hosted by Brad Corrigan of Dispatch, which will take place on April 19 at the Roxy; and the Millennium Campus Cup—a soccer tournament to benefit Grassroots Soccer HIV/AIDS education in Zimbabwe.

For more info, visit http://www.mcnpartners.org or http://gpi.mit.edu.

Second annual Cambridge Science Festival kicks off April 26
MIT and Fraunhofer announce
for sustainable energy systems

A BLUEPRINT
for no carbon footprint

MIT and Fraunhofer announce for sustainable energy systems

Center aims to significantly reduce cost of solar energy over next five years

MIT and Fraunhofer, a German research organization, have signed an agreement to establish a research center in Massachusetts aimed at significantly reducing the cost of solar energy over the next five years. The MIT-Fraunhofer Center for Sustainable Energy Systems will develop cutting-edge technologies and materials for designing and producing better solar modules.

Located adjacent to the MIT campus, the center will be active in other areas of sustainable energy research as well, including developing new technologies to substantially reduce the energy consumption of new and retrofitted structures by adapting state-of-the-art building technology. The center also aims to develop a portfolio of new efficiency and solar technologies that maximize MIT’s world-class capabilities in advanced materials research, development and computer simulation.

Professors Ernest Moniz, director of the MIT Energy Initiative, and Eckehard Weber, director of the Fraunhofer Institute for Solar Energy Systems, announced the agreement that will lead to the creation of the new center on Saturday, April 12, at the MIT Energy Conference. Also participating in the ceremony were Dr. Tim Brandt, Germany’s foreign minister, and Karl Weiss, chair of the board of the Massachusetts Technology Collaborative, the secretary of energy and environmental affairs, and Larry Leir with National Grid.

“This partnership will pair the outstanding basic energy research capabilities at MIT with the world-class research and development capabilities of Fraunhofer Institute,” said Moniz, the Cecil and Ida Green Professor of Physics. “The research focusing on solar energy and on building efficiency address extremely important technologies for both long- and short-term responses to global energy challenges. Also, the strong support of the Commonwealth, the Massachusetts Technology Collaborative and National Grid represents the kind of public-private partnership that we will need to succeed.”

Start-up costs of the center will be funded with $5 million from the Massachusetts Technology Collaborative: National Grid, the principal member of the Center’s Partnership with Industry, also committed to support the center with a pledge of $1 million over five years.

“The Fraunhofer Institute for Solar Energy Systems has been highly successful over 25 years in developing technologies in the areas of renewable energy and energy efficiency, and transferring these innovations to industry,” Weber said. “I expect that our new Center for Sustainable Energy Systems at MIT will be as successful here in Massachusetts and help achieve the state’s goals in clean energy.

Nolan Bowles, MIT alumnus and founder of the MIT Energy Club, and Arto Nurmia, the center’s managing director. In addition, Tino Buonassisi, assistant professor of mechanical engineering at MIT, and the center’s planned scientific director, is one of the leading solar technologists in the United States today. Roland Schindler, the center’s executive director, is a 24-year Fraunhofer veteran who will serve as a liaison between the MIT team and Germany, ensuring that activities are aligned. Four out of the nine members of the board of advisors are MIT professors.

FOOTPRINT: MIT research discovers that in the United States, even the smallest carbon footprints can be active in other areas of sustainable energy research as well, including developing new technologies to substantially reduce the energy consumption of new and retrofitted structures by adapting state-of-the-art building technology. The center also aims to develop a portfolio of new efficiency and solar technologies that maximize MIT’s world-class capabilities in advanced materials research, development and computer simulation.

The students conducted detailed interviews or made detailed estimates of the energy consumption of 18 lifestyles, spanning the gamut from a vegetarian college student and a 5-year-old up to the ultralux—Oprah Winfrey and Bill Gates. The energy impact for the rich was estimated from published sources, while all the others were based on direct interviews. The average annual carbon dioxide emissions per person, they found, was 20 metric tons, compared to a world average of four tons.

But the “floor” below which nobody in the U.S. can reach, no matter a person’s energy choices, turned out to be 8.5 tons, the class found. That was the emissions calculated for a homeless person who are in soup kitchens and sleep in homeless shelters. The analysis was carried out by Gutowski and 21 students in his 2007 class. “Environmentally benign design and manufacturing,” they derived a system for making such comparisons, which they call ELSA—environmental life-style analysis.

Unlike some other attempts to quantify carbon-emission rates, Gutowski and his students took great care to account for often overlooked factors, such as the “rebound effect.” That’s when someone makes a particular choice—for example, buying a hybrid car instead of a gas-guzzler—but then uses the money saved from their reduced gasoline costs to do something else, such as taking a long trip by airplane. The net impact, in such a case, may actually be an overall increase in carbon emissions.

“When you save energy, you save money,” Gutowski explains. “The question is, how are you going to spend that money?”

The students looked at the factors within each person’s control that might lead to a reduction in carbon output. They found that achieving significant reductions for the most part required drastic changes that would likely be unacceptable to most people. As a result, they said, “this all suggests to us very significant limits to voluntary actions to reduce impacts, both at a personal level and at a national level.”

In a continuation of this class the following semester, another group of students are exploring the question in more detail, looking at other kinds of things people really can do to limit their environmental impact. The question they are addressing, Gutowski says, is “What are the average Americans tighten their belts” in a way that would make a significant difference? Once again, the class will be interviewing people living in a wide variety of ways, including an Amish farming lifestyle. Then, they’ll be analyzing the results and possible changes, they will go back to the same people and ask them what they would do differently.

In general, spending money on travel or on goods that have substantial energy costs in their manufacture and delivery adds to...
FOOTPRINT:

MIT research discovers that in the United States, even the smallest carbon footprints can be relatively large in their manufacture and delivery adds to a on goods that have substantial energy costs ing an Amish farming lifestyle. Then, after people living in a wide variety of ways, includ-ing their environmental impact. The question kinds of things people really can do to limit question in more detail, looking at just what another group of students are exploring this impacts, both at a personal level and at a

In general, spending money on travel or

be determined, Cooney says, once it is up and running,

and its setting. But while the program is modeled on

research," he says. "That style of education is very much

innovative energy production and use.

did the principal design work, is taking the lead.

man, professor of building technology and mechanical

evaluation of proposals for the architecture," he says, but

man, professor of building technology and mechanical

Institute, whose faculty will spend a year here before

People underestimate how difficult it is to get everything
good to do experiments around the system as a whole.

quite unique."

They're not typically all going on in the same place at

globe in the way of future energy projects—alternative

approach to energy efficiency and sustainability, Cooney

education and for research on a full-scale, integrated

member of the Masdar Initiative's executive committee.

And that will provide a unique opportunity both for

the nation's carbon emissions.

actions, he says, it is important to study "what

way you get people's carbon use down is to

swallow—politicians don't like to step up" to

the climate-change panel. Emanuel had

the Media." He also spoke at the "Communicating

the MIT Museum. The opening panel
titled, "Forging a Clean Energy

Future," at 3:30 p.m. Friday, April 25,
in the Lanyon Auditorium (Room 32-133).

Sen. Bingaman has represented New Mexico since 1982. Among other responsibilities, he is the chair of the U.S. Senate Committee on Energy and Natural Resources, which has jurisdiction over national energy policy and the public lands of the nation. He led the Congressional effort to develop a comprehensive climate change strategy in 2007 and is author of one of the most discussed climate-change "cap-and-trade" bills. In addition, he was the Senate leader in passing the American Clean Energy Act last fall that calls for major new investments in federal research and development and in state-level projects.

The Karl Taylor Compton Lecture Series was established in 1957 to honor the late Karl T. Compton, who served as president of MIT from 1930 to 1947 and as president of the Corporation from 1948 to 1954. The purpose is to give the MIT commu-nity direct contact with the important ideas of our times.

This event in the series is spon-sored by the Mitre Corporation and the Office of the President.

Sen. Bingaman’s talk is open to members of the MIT community.

MIT in the world

person’s carbon footprint, while expenditures on locally based labor-intensive services— whether it’s going to a therapist, taking an art class, or getting a massage—leads to a smaller footprint, according to Cooney.

But the biggest factors in most people’s lives were the obvious energy users: hous-es and cars. "These are extremely energy inefficient," Cooney said.

The simple way you get people’s carbon use down is to make some significant changes in the way you use resources and how you use those resources," Cooney said.

Making the right choices on energy, he said, can not only prevent devastating damage to the planet and the dangers of unreliable regimes around the world, it can create jobs and profits at the same time, contrary to claims that it will have great costs. "You can make money, instead of losing it, by doing things envi-

NEWS YOU CAN Ooze

David Chandler

News Office

The slow, incremental unfolding of the evidence for global climate change is one reason it has been such a difficult subject for journalists to cover, and for the scientists who try to explain it. To put it another way: "This is a story that doesn’t break; it oozes," said Boyce Rensberger, director of the Knight Science Journalism Fellowships at MIT.

Rensberger’s remark came in the intro-

duction to the first of four panel discus-
sions that made up last week’s "Disrup-
tive Environments" conference held at the MIT Museum. The opening panel tackled the topic of "Communicating Climate Change" to the public and the Media.

MIT’s Kerry Emanuel, professor of atmospheric science, spoke as part of the climate-change panel. Emanuel had attributed some recent hurricanes to "global warming" and climate change;

The other relationships in this class were between the numbers of the child and the way the child was doing the work. For example, the third semester of the class was a whole new project. The students really got into it, Gouwinski says. "It raised everybody’s awareness about the issues."

The million-square-foot facility, planners were asked to spend up to an additional 10 percent of the building’s cost, in order to achieve up to 15 percent energy savings in energy costs. In fact, they were able to achieve a 28 percent energy improvement, at a cost increase of just 4 percent. Truth be told, McCowan said.

Surveys showed that managed resources can reduce the costs of efficiency, and underscore the benefits. That’s an error that businesses, or nations, can all afford, he said.

John Holdren, professor of environment policy at Harvard, agreed with that assessment, saying that “the easiest, fastest, cheapest leverage is to be found on the demand side”—that is, by improvements in efficiency.

But thinking about the changes that are needed will require a major shift in national priorities, said James Wooley, dean of the School of Engineering and Applied Sciences at the CIA. The oil industry, he pointed out, currently provides $1 trillion a year in subsidies—despite the fact that it is enjoying all-time record highs. “We need to pay atten-
tion to the existing subsidies,” he said, “but when you do you will realize subsidies are a lot closer than people think.

Making the right choices on energy, he said, can not only prevent devastating damage to the planet and the dangers of unreliable regimes around the world, it can create jobs and profits at the same time, contrary to claims that it will have great costs. "You can make money, instead of losing it, by doing things envi-

EARTH DAY 2008

U.S. Sen. Bingaman is a 76-year-old New Mexico Democrat who served as the Senate Committee on Energy and Natural Resources during the Obama administration in the 112th Congress. He is known for his expertise on energy and climate change policy.

Gov. Patrick's talk is open to the MIT community.

Gov. Patrick will elaborate on these and other major initiatives of his administration during his address at MIT on Earth Day.

MIT Sloan's green future

Once it is completed in 2010, the new MIT Sloan building (E62, pictured in the artist rendering) should be the greenest building on campus. The six-story structure will incorporate a number of environmentally friendly features including daylighting, chilled beams and radiant ceiling panels.

U.S. Sen. Bingaman to deliver energy talk

U.S. Sen. Jeff Bingaman, D-N.M., will deliver a Newcomen lecture titled, "Forging a Clean Energy Future," at 3:30 p.m. Friday, April 25, in Kirsch Auditorium (Room 32-133).

Sen. Bingaman has represented New Mexico since 1982. Among other responsibilities, he is the chair of the U.S. Senate Committee on Energy and Natural Resources, which has jurisdiction over national energy policy and the public lands of the nation. He led the Congressional effort to develop a comprehensive climate change strategy in 2007 and is author of one of the most discussed climate-change "cap-and-trade" bills. In addition, he was the Senate leader in passing the American Clean Energy Act last fall that calls for major new investments in federal research and development and in state-level projects.

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Sen. Bingaman’s talk is open to members of the MIT community.
MIT Retirement Benefits Seminar – Supplemental

401(k) Plan

Mark your calendars for Wednesday, April 23, from noon until 1 p.m. Representatives from MIT's Retirement Benefits office and Fidelity Investments will be in the Bush Room (Building 10-105) for a presentation titled, "Investing in Uncertain Markets." This presentation reviews strategies for investing in light of the current market volatility.

Libraries’ book sale April 30

MIT Libraries’ book sale will be held from 10 a.m. to 3 p.m. April 30 in the Bush Room (10-105). The sale offers a selection of material from MIT's areas including aero-astro, art, architecture, engineering, fiction, math, management, music, physics, political science, and social science. Proceeds benefit the Libraries’ Preservation Fund. Open to the community.

For more info, contact Charlene Follett or Betsy Granoze at 617-253-5693 or e-mail gifts.lib@mit.edu.

Langer a finalist for Millennium prize

MIT alumnus Viterbi also in the running

MIT Institute Professor Robert Langer has been chosen as a finalist for the Millennium Technology Prize, the world’s largest prize for technology innovation.

Langer was chosen "for his inventions and development of innovative biomaterials for controlled drug release and tissue regeneration that have improved and saved the lives of millions of people," according to the Technology Academy Finland, which gives the award every other year.

The award goes to developers of a technology that "significantly improves the quality of human life, today and in the future."

The year's winner will be announced June 11. Winners receive 800,000 euros (approximately $1.2 million), and the other finalists each receive 115,000 euros (approximately $180,000).

Andrew Viterbi ’56, SM ’57, founder of Qualcomm, is also a finalist. He was honored for creating an algorithm that became “the key building element in modern wireless and digital communications systems, touching lives of people everywhere,” according to the Technology Academy Finland.

The other finalists are Alex Jefferys, who developed DNA fingerprinting techniques, and a trio of scientists who developed a medical amplifier that transformed telecommunications. David Payne, Emmanuel Desurvire and Randy Giles.

Previous winners include Tim Berners-Lee, creator of hypertext and the World Wide Web, and Andrew Viterbi, who is a founding member of the Computer Science and Artificial Intelligence Laboratory, coached the MIT team, which netted a gold medal for its performance.

A team was faced with solving 11 computer-programming problems modeled on real-world business scenarios. Students were challenged to develop software code to determine the length of a city skyline, the size and capacity of a new building design and provide support for an embedded neural network for cell phones.

More than 6,700 teams, representing 1,821 universities from 83 countries, competed in the fall regional competition this year, compared to 840 teams who competed in 1997 when IBM first sponsored it.

The first place winner overall, from Russia’s St. Petersburg University Mechanics and Optics of IT, took home IBM prizes, scholarships and bragging rights to being the “world’s smartest.”

This year’s top 12 teams that received medals are:

1. St. Petersburg University of IT, Mechanics and Optics (Gold, world champion)
2. Massachusetts Institute of Technology (Gold, 2nd place)
3. Izhevsk State Technical University (Gold, 3rd place)
4. Lviv National University (Gold, 4th place)
5. Moscow State University (Silver, 5th place)
6. Tsinghua University, (Silver, 6th place)
7. Stanford University, (Silver, 7th place)
8. University of Zagreb, (Silver, 8th place)
9. University of Waterloo (Bronze, 9th place)
10. Petrozavodsk State University, (Bronze, 10th place)
11. St. Petersburg University, (Bronze, 11th place)
12. Belarusian State University, (Bronze, 12th place)

DAPER worker’s rare cancer spurs fundraiser

MIT Recreational Sports and the Department of Athletics, Physical Education and Recreation (DAPER) are sponsoring an April 26 fundraiser to benefit R.J. Lipsky, a DAPER employee who is fighting a rare form of cancer.

Lipsky, 29, was diagnosed last November with desmoplastic small round cell tumor (DSRCT), a form of cancer that strikes young adults and children, usually males.

Lipsky’s medical and living expenses are covered by insurance. However, there are additional expenses. The cost for the fundraiser is $21.50 per person, free for children under 12. There will be food and drinks, a raffle and silent auction. Proceeds from the fund-raiser will be held from 1 to 5 p.m. on Saturday, April 26, at Union Street Grill in Newton, will go toward Lipsky's DSRCT wristbands will be available to purchase. For more information, or to make a donation online, visit http://www.rjlipsky.com.

Want to Learn More?

For more information, visit web.mit.edu/ist/topics/voip. You can contact the MITvoip Transition Team at voip-transition-team@mit.edu.

A new era for telephones on campus: MITvoip rollout begins

Voice over Internet Protocol (VoIP) technology enables telephones to use networks such as MITnet to transmit calls. VoIP supports standard telephone features while providing advanced, soft-functional ability to bring the benefits of this technology to campus. Information Services and Technology (IST) has created the MITvoip service, which will be generally available for departments, labs and centers (DLCs) and is intended to replace MIT’s traditional telephone service.

IST&T engaged the MIT community in both the design and transition planning process for MITvoip. This past fall, IST&T offered a series of outreach events and demonstrations and created a VoIP Advisory Board to provide input on the service and the campus deployment.

IST&T will transition the MIT community to MITvoip in a phased rollout that will include each of the 320 buildings and 21000 phones. The transition began in early 2008 with the Sloan School of Management and MIT Resource Development. The complete transition will include Human Resources, the Libraries, the Publishing Services Bureau and the Transition team.

Students’ Transition Team at voip-transition-team@mit.edu.

Transition Process

IST&T has designed a process to ensure an efficient, smooth transition with little or no service interruptions. Each DLC will partner with IST&T to create its own transition plan to ensure that the implementation meets both business and technical requirements. IST&T will review the plan with the DLC in detail and work collaboratively to address any concerns before the new phones are installed.

The Telephone Network Service Center (TNSC) will cover the cost of the transition. After a DLC has been provisioned, it will be responsible for the cost of installing new VoIP phones or network jacks, or activating existing network jacks. This is similar to the existing model.

Just-in-time training and on-site support will be available to each DLC as part of the transition. IST&T will also provide online documentation and MITvoip Telephone Quick Start Guides.

Additional training sessions can be scheduled as needed.

Want to Learn More?

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DIGITAL: Where it’s at
Harbison’s ‘Symphony No. 5’ to premiere

The Boston Symphony Orchestra will present the world premiere of “Symphony No. 5” by MIT composer John Harbison on April 17 and 18 at Symphony Hall. James Levine will conduct.

“Symphony No. 5,” commissioned by the Boston Symphony, is Harbison’s sixth BSO commission. Winner of a 1987 Pulitzer Prize and a 1989 MacAr- thur “genius” Award, Harbison is renowned among critics and colleagues for his resourceful, accessible style as well as his love of the voice and the instrument.

Created for mezzo-soprano, baritone and orchestra, “Symphony No. 5” sets texts from three poems based on the tragic tale of Orpheus, a brilliant musician who tries to rescue his lover, Eurydice, from the underworld. “The dominant theme of the narrative is how a survivor of trusting and arduous events can live and find pleasure in the world,” said Harbison, an Institute Professor.

Harbison says he knew the work’s musical theme—the symphony’s “spine”—early in his composing process. But the fullest expressive journey required both deepening and lightening the tale of two lovers’ grief, so Harbi- son used three different texts in the symphony’s final version.

This weekend’s BSO audiences will hear Nobel laureate Czeslaw Milosz’s poem, “Orpheus and Eurydice,” setting the symphony’s dark opening mood, with Orpheus bereft in love. Louise Gluck’s poem, “Relic,” sets the focus to Eurydice, providing a woman’s voice and a boost out of the abyss. Rainer Maria Rilke’s “Sonnet to Orpheus II” will offer an affirming, if ambiguous, close.

The premiere of “Symphony No. 5” concludes a week of musical appear- ances for Harbison. He conducted Bach’s “B Minor Mass” and attended premieres of two of his own compositions, “Cortège” and the chamber version of “Milsou Songs.”

MIT Libraries unveil new exhibit空间

A once-bank wall outside the Institute Archives, in Building 34’s first-floor corridor, has been transformed into a literal window into MIT’s remarkable special collections. Construction is complete on the Mahagoni Haus—a secure, climate-controlled space that will showcase some of the extraordinary items from the MIT Libraries’ collections. The first exhibit, A Celebration of Gifts, opens Friday, April 18, with a community celebration beginning at 1 p.m.

The exhibit will feature rare and unique items donated to the Libraries by MIT alumni, faculty and friends. Among the treasures that will be exhibited to the public for the first time are items from the collection of the Institute’s founder, William Barton Rogers. These include his personal copy of the 1713 edition of Sir Isaac Newton’s Principia Mathematica, an album print of a trilobite discovered by Rogers in Braintree, Mass., and his map of The Geol- ogy of Virginia, which was well used in the Department of Geology & Geophysics and Lindgren Library before being transferred to the special collections.

The exhibit will highlight two examples from the many collec- tions of faculty papers that can be found in the Institute Archives: an original notebook belonging to Harold “Dix” Edgerton with a large-scale reproduction of the 1918 stereoscopic photo- graph of golfer Bobby Jones; and publications and research tapes of indigenous languages by linguist Kenneth Hale.

The exhibit will include milestones in the history of science and American literature as well. Several rare books contributed by L. Austin Kelly, second, including a first edition of Whitman’s Leaves of Grass and a book of illustra- tions from the 1373 volume Historia animantium by Konrad Gesner, founder of ornithological zoology, will be shown. Also featured in the exhibition are examples from the personal library of architect Charles Balthas, balloon prints from the Vail Collection, books by architect Santiago Calatrava with origi- nal artwork, and examples from the Aga Khan Program for Islamic Architecture.

MIT grad student’s study challenges notion of ‘pandemic’ flu

The widespread assumption that pandemic influenza is an exceptionally deadly form of seasonal, or nonpandemic, influenza is hard to support, according to a new study in the May issue of the American Journal of Public Health.

The study’s lead author, Peter Doshi, a MIT grad student’s study challenges notion of ‘pandemic’ flu, based his study on an analysis of more than a century of influ-enza mortality data. He found that the peak monthly death rates in the 1917-1918 and 1968-1969 pandemic seasons were no higher than those for severe nonpandemic seasons.

Doshi says the pandemic-equals-extreme-mortality concept appears to be a combination of a single data point from the 1918 pandemic season, in which “doctors lacked intensive-care units, respiratory assist devices, and antibiotics.” He argues that, “had no other aspect of modern medicine but antibiotics been available in 1918, there seems good reason to believe that the severity of this pandemic would have been far reduced.”

As may be expected given improvements in living conditions, nutrition and other public health measures, influenza death rates substantially declined throughout the 20th century. Doshi calculates an 18-fold decrease in influenza deaths between the 1940s and 1990s, a trend that began far before the introduction of antibiotics.

Noting the gap between evidence and fear, Doshi identifies public health measures, such as vaccination and social distancing, as a role in inflating the perceived impact of pandemics. With public policies such as universal vaccination being discussed more than ever, several billion of federal money spent on preparing for the next pandemic, the study raises many questions for the public policy.

“If the trends observed over the 20th century continue to hold in the 21st, the next influenza pandemic may be far from a catastrophic event,” he concludes.

CLASSIFIED ADS

Members of the MIT community may submit one ad each issue. Ads must be legible. $15 per line. Maximum: 40 words. Each additional word $1.50. Deadline is noon Wednesday the week before publication.

FOR SALE

New violets: Donny & Bobby Doodle purse, white, $80. Fully lined interior, full length zip pocket, cell phone pocket, toggle clip key hook on leather strap, social number inside. Vanatta leather trim, spring, back straps. Photos avail. u.d-5587 forevermedia- gals. 2003 Harley Davidson FLHRC Road King Mint! About $2,500 in extras. Low miles. 100th anniversar- y silver and black, awesome blast! $10950.00 con- tact Jim 617-394-4590 or stpaly@avans.mit.edu.

4 Rod Stewart Tickets For Sale. Tweetie Center August 15 at 8:00 pm. $148.00 per ticket seats are near stage. 5 tickets left. Anybody who wants please respond by July 20. O/A 617-258-4694.

Sears 24194 drop spreadsers, 100# cap. $36.00 10" 137" nozzle. 137" spreader. Pre owned. $25.00. Photos avail. x2-5687 forsale@media.mit.edu.

RENTALS

Belmont-Large elegant four bedroom, two baths (with separate laundry room), floors, dishwasher, dis- posal, washer, dryer. Parking. Convenient public transportation. 3 miles from hospital, 2 miles from MIT. $3500/month. Contact please respond by June 1. Line 617-492-3478.


Ocean front summer cabin, Mount Desert Island, ME. 250/18BA w/loft/shiplap kitchen; picture win- dows, deck overlooking water, starlight, beach. Mins from Acadia National Park, Bar Harbor. $1,000/ week June/Sept. Steve at 253-7717 or charow@com- cast.net.

Cape Cod Beach. Cape Cod. 3 bath, fully furn- ished home. 5 miles to beach. Weeks available June and Sept. $1400/week. Incluc free parking at nearby beachable beaches. Debbie at 978-726-0158 or dhanly@com- cast.net.

Help wanted:

Interview with the dean: Deborah Fitzgerald of SHASS

Over the course of the spring semester, Tech Talk has brought readers a series of interviews with each of MIT's five school deans. The third in this series features Dean DA Fitzgerald, dean of the School of Humanities, Arts, and Social Sciences. In the following interview with Sarah B. Wright of the MIT News Office, Fitzgerald discusses SHASS's impact on the international-education aspect of MIT and the school's future. A longer version of this interview can be found online at http://tech.mit.edu/newsoffice.

Q: Could you give us a glimpse of your major goals for the school?
A: We are focusing on a cluster of goals, all of which strengthen our critical contributions to MIT education and research. Several goals I'm focusing on are international education, interdisciplinary research and teaching, strengthening our graduate programs and public understanding of science and technology. And no set of goals would be complete without mentioning the need for facilities that match the excellence of our faculty and curriculum.

Q: What role does SHASS play in MIT's approach to international education?
A: All of us at MIT, and all our peer institutions around the country, are alive to the demands of the globalizing economy and knowledge systems. Giving MIT students deep knowledge about languages and cultures of other countries, and engaging students in international opportunities is a vital part of a 21st-century education and critical to the Institute's leadership position. SHASS has a central role in this mission as much of MIT's international education is housed in our school. The great majority of MIT faculty involved in international education—SHASS, the school is home to Foreign Languages and Literatures, where students become fluent in the languages and cultures they need to be global citizens. All of the SHASS disciplines have an international flavor and many of our faculty have deep relationships abroad. They spend substantial research time in other countries, in libraries and archives, and interact closely with their international colleagues. So, SHASS brings enormous depth and breadth of expertise and international experience to MIT students.

MISTI (MIT International Science and Technology Initiative) is our standard-bearer, a hugely successful program and one of the principal ways MIT students gain the cultural understandings that prepare them to be global citizens. In the MISTI program, students first become “country literate,” developing language skills and cultural knowledge before they embark on wonderful in-country internships, and then learn through professional experiences—great opportunities for students to engage with the world. Through MISTI, we can match the passion of students with the excitement of our international partners and with alumni who know how important it is for students to understand what's going on in the countries where they will live and work.

Q: Is this the hobby question?
A: No, we actually are interested in understanding what kind of initiatives are you envisioning?

Q: You have great leadership enthusiasm for MIT students. Can you say more about your goals for MIT students in the world?
A: We want to sustain and strengthen our distinguished graduate programs, and we are focusing on providing incredible opportunity in our undergraduates as well as interdisciplinary classes. We want to support our PhD and special master's students to be technically superior, scientifically and globally competitive and also world leaders in inventing ways to incorporate language, history and culture, the “Visualizing Cultures” project, and the Shakespeare Electronic Literature project. We think that MIT is the very best for training tomorrow's scientifically and technically superior, hands down. We also want to help our students understand the ways they are poised to be leaders in many fields.

We emphasize the importance of language as well as interdisciplinary classes. We stress the importance of teaching and learning about languages, cultures of SHASS as valuable for our students to understand what's going on in the world doing transformative research on poverty alleviation, health and healthcare. Recently, The New York Times surveyed leading economists to identify who is doing the most important econometric work to help solve human problems. The "runaway winner," as the Times put it, is our IT-PAL team, which is identifying ways to ensure that development aid goes to policies and programs that most improve people's lives. This is a powerful example of the global reach of SHASS-based programs. MIT students want to make a positive difference in the world, and our international programs help them discover how to do that. We also acknowledge the wonderful, specialized programs that deepen students' capacities to operate effectively all over the world. There are several month-long IAP programs, to mention just a few—a three-week trip to France; envision how an end-user will use a product or France; envision how an end-user will use a product, the "country literate," developing language and cultural literacy, with respect for other cultures. MIT students are leaders in inventing ways to incorporate language, history and culture, the "Visualizing Cultures" project, and the Shakespeare Electronic Literature project. We think that MIT is the very best for training tomorrow's scientifically and technically superior, hands down. We also want to help our students understand the ways they are poised to be leaders in many fields.

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Q: You have great leadership enthusiasm for MIT students. Can you say more about your goals for MIT students in the world?
A: On the academic side, the SHASS faculty has been teaching with colleagues in Science, Engineering, Sloan, and Architecture for decades. Now, we want to take that effort to the next level, expanding the number of classes, research collaborations, and colloquia. And often it's the informal, friendly connections that lead to great things. You know one of the things that surprised me a bit when I first arrived is how much the different parts of the School are really little neighborhoods. And we don't get out of our own neighborhoods enough often! So, I've taken a cue from Jay Kaiser, and last year, began to hold a series of random faculty dinners, just the faculty from SHASS. The dinners are very interesting and great, and we'll go on hosting them as one way to spurs more cross-discipline endeavors.

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