MIT publicly launched its Campaign for Students on Oct. 3 with a goal of raising $500 million or more for undergraduate scholarships, graduate fellowships, curriculum innovation and student life. The campaign highlights MIT students’ brilliance, creativity, drive and passion — human factors that will power solutions to the world’s most challenging problems.

“The Campaign for Students will help sustain the excellence of MIT’s living and learning experience and increase our ability to attract and challenge the young innovators who will be crucial to this country’s global competitiveness,” said MIT President Susan Hockfield.

The campaign also addresses the dual strains of rising costs and declining federal support for students in higher education. Approximately 17 percent of MIT undergraduates come from families with incomes below $45,000, and about 90 percent of undergraduates receive aid in some form, with 60 percent receiving scholarship aid from MIT. U.S. News & World Report recently ranked MIT as one of the top five most economically diverse universities in America.

The Campaign for Students will greatly enhance our ability to offer an MIT education to the most qualified students regardless of their families’ ability to pay,” Hockfield said.

Recently, MIT increased financial aid to cover tuition and fees for a larger fraction of students. Under the new plan, families earning less than $75,000 a year will have all tuition covered. Edward Linde ’62 and his wife, Joyce announced last week that the Linde Family Foundation will make a $25 million gift, one of the largest pledges to undergraduate financial aid in the Institute’s history. The Linde Family Foundation supports educational opportunities, particularly in the areas of mathematics and science, and the arts. The foundation has benefited MIT students in the past by supporting graduate students in various departments who are members of the prestigious Society of Presidential Fellows program, as well as students in the Department of Civil and Environmental Engineering who are also members of that program.

“The trustees of the Linde Family Foundation believe very deeply in MIT’s dual policy of need-blind admissions and need-based financial aid,” said Edward Linde. “We want to help worthy students receive the rigorous educational experience MIT offers.”

See photos from the launch celebration.

Polling questions

MIT’s Adam Berinsky breaks down the surveys

A. Polling has been around in one form or another since the 19th century. In the 1930s, a number of firms started conducting the random sample polls we see today. Over time, the technology has changed. In the 1930s, all polls were conducted through face-to-face methods. In the 1970s, telephone polling emerged as the dominant method. And today we see Internet polls. One thing that

Q: Has the election process become too dominated by polling?

Campaigns debate energy

Representatives of the McCain and Obama presidential campaigns discussed power at MIT.
Obituaries

Kenneth Hoffman, former math department head, 77

Former Department of Mathematics Head Kenneth Hoffman, who spent more than 40 years on MIT’s faculty and made significant contributions to U.S. education and science policy, died Sept. 29 following a heart attack. He was 77.

Hoffman, who led the math department from 1971 to 1979, was integral in addressing mathematics in U.S. public policy. After stepping down as head of the mathematics department, he moved to Washington, where he directed the David Committee on the Support of Mathematical Research from 1984 to 1986. He established and ran the math community’s first Washington Office for Governmental and Public Affairs from 1984 to 1995. During that time, media coverage of mathematics increased dramatically, according to the American Mathematical Society. Hoffman, who lived in Long Beach, Calif., earned a bachelor’s degree in mathematics from Occidental College in 1952. He later earned an MA and PhD in mathematics from UCLA.

Hoffman joined the MIT Department of Mathematics as an instructor in 1956. He became a full professor in 1964 and served as chair of the Pure Mathematics Committee from 1968 to 1969. From 1969 to 1971, he directed the Commission on MIT Education, appointed by MIT President Howard Johnson to conduct a comprehensive review of education, research and governance at MIT. He retired in 1996.

Hoffman’s area of research specialization was functional analysis. Along with Richard Arens, he made fundamental contributions to both complex and abstract analysis. Among them was a paper (with Singer) that answered many of the questions on commutative Banach algebras raised by I. M. Gelfand.

In 1986, the Joint Policy Board for Mathematics awarded Hoffman the first Public Service Award “for his distinguished and effective initiation of the planning and the implementation of a national mathematical science policy.” In 1990, Hoffman also received the first Award for Distinguished Public Service of the American Mathematical Society. Its citation, in part, “Through his efforts, the awareness of the importance of the mathematics and the support of mathematical research has been significantly heightened in the general public, among makers of science policy in the government, and among university administrators.

Hoffman was also a leader in national K-12 education. At the National Academy of Sciences/National Research Council he launched a series of initiatives with national impact. These included the creation both of the Mathematics, Science and Engineering Board and the National Science Education Standards project. In 1961, Hoffman wrote an undergraduate linear algebra textbook, co-authored with Ray Kunze, that was used for many

COUNCIL: MIT creates Environmental Research Council

Continued from Page 1

by February 15, 2009, for an Institute-wide Environment Council to help frame and advance a focused research strategy to the way the development of our understanding, Restoring and Managing the Environment,” can be found at http://basecaseniro/.

As the financial crunch takes new turns, MIT will be holding several events to discuss the issues surrounding the crisis and possible solutions. Currently scheduled events include:

• Today, “The U.S. Financial Crisis: What Happened? What’s Next?” speakers include Prof. Ricardo Caballero (Economics), Dr. Andrew Mason (Economics), and Prof. Andrew Lo (MIT Sloan), will be held from noon to 1 p.m. in 3-390.

• Oct. 15, subprime mortgage lecture. Speaker: Rachel Bratt. Time and place to be announced.


• Ongoing, Simon Johnson, Ronald A. Kurtz (1954) Professor of Entrepreneurship, has launched a new weekly series on the global crisis. Tentatively entitled “Real Time Deep Dive into the Global Crisis as it Evolves,” the class will kick off in October and will draw on Johnson’s experience at the IMF and his considerable contacts in Washington. He will also have a blog at http://basecaseniro/.

• For alumni, the Alumni Association has posted a career transition forum at http://alum.mit.edu/news/AlumniNews/Archive/careerdevelopment with advice on how to weather the economic storm.

More events may be scheduled as the semester progresses, and dates and times are subject to change. Check the events calendar at web.mit.edu/events for more details.
Conference to take hard look at Electoral College

As election nears, experts to debate controversial system

Stephanie Schorow
News Office correspondent

MIT is well known for a “fix-it” approach to problems, be it in engineering, software or in 2004, Oct. 17, a group of experts will convene at MIT to examine what may be the most vexing issue in the American electoral process — the Electoral College.

Some may argue for change; others may conclude that this is one “problem” that needs no fixing.

The day-long conference “To Keep or Not to Keep the Electoral College” will be chaired by Arnold I. Barnett, the George Eastman Professor of Management Science in the MIT Sloan School of Management. The chair of the conference’s Steering Committee is Alexander S. Belenky, visiting scholar in the Center for Engineering Systems Fundamentals. A group of 11 experts will present their views, debate the issue and engage in extended dialogue with the audience looking at the issue, because they may be able to shape the compromises in future debates, Barnett said. He noted that three of the MIT participants in the conference — himself, Belenky and Alexander Natapoff, research scientist in the Department of Aeronautics and Astronautics — will each propose a new set of election rules that might largely meet the concerns of both the “preservationists” and the advocates of a “one person/one vote” election rule.

For more information, visit the conference web site at http://ceed.mit.edu/electoral/conference.htm

CAMPANY: MIT launches its $500 million Campaign for Students

Continued from Page 1

producing leaders in math, science, engineering and business who will, quite literally, change the world.”

The quiet phase of the Campaign for Students, which began in December 2006, has already raised more than half of the $500 million goal. Major supporters of the campaign during the quiet phase have included Rebecca and Arthur Samberg ’62; Virginia and Richard Simmons ’53; Sophia and Bernard Gordon ’48, SM ’49; Pamela and Atanas Choumaya ’84; Joan and Irwin M. Jacobs ’57, ScD ’59; and Muriel and Norman B. Leventhal ’38.

Friday’s launch brought hundreds of MIT supporters to campus for a full day of symposia highlighting the accomplishments of under- graduate and graduate students for whom scholarships and fellowships have been crucial. A reception and dinner capped the day’s events.

Chancellor Philip L. Clay PhD ’75 leads the campaign, working closely with Vice President for Resource Development Jeffrey L. Newton and Director of the Campaign for Students Philip Murphy.

Campaign co-chairs are Lawrence Fish, Thomas Gerrity, ’63, SM ’64, PhD ’70; Mark Gorenberg ’76; Martin Tang ’72; and Barrie Zeigler HM.

Institute leaders for the campaign are Dean for Student Life Costantino “Chris” Colombo; Dean for Undergraduate Education Daniel Hastings, SM ’78, PhD ’80; Associate Provost Philip Khoury HM ’89; Vice Chancellor and Dean for Graduate Education Steven Lerman ’72, SM ’73; PhD ’77.

The Campaign for Students will conclude in 2011, to coincide with celebration of the 150th anniversary of MIT’s founding.

For more information about the Campaign for Students, visit http://thumanfactor.mit.edu

Events at MIT

October 8, 2008

Today

• The Fire Safety Investigation of the World Trade Center Disaster. Speaker: Dr. S. Shyam Sunder, Director Building and Fire Research Laboratory, National Institute of Standards and Technology, United States Department of Commerce. 4-5:30 p.m. 1-270.

Thursday, Oct. 9

• MIT Libraries’ Booksale. 10 a.m.-3 p.m. in 15-105. Selection of materials including biology, computer science, economics, earth science, engineering, history, philosophy, miscellaneous science, political science and social science. Proceeds benefit the Libraries’ Preservation Fund. Open to the MIT community only; dealers and their representatives by appointment only.

• MIT Sloan Dean’s Innovative Leader Series. Speaker: Ron Williams SM ’84, Chairman and CEO, Aetna. Noon-1 p.m. in E51-Wong Auditorium.

• Lecture on Honda’s FCX Clarity Hydrogen fuel cell vehicle. Speaker: Ryan Harris and David Can from Honda R&D America. 7-8 p.m. E51-315.

Friday, Oct. 10

• MIT Energy Night 2008. 5-10 p.m. NT1, MIT Museum. The MIT Energy Night is the MIT Energy Club’s flagship event for the fall and it seeks to showcase the most exciting energy research, education and entrepreneurship at MIT. The event will be held at the MIT Museum and will include drinks, hors d’oeuvres and live music.

Three MIT scientists share Buckley prize

Three MIT scientists from the Francis Bitter Magnet Laboratory (FBML) have been awarded the 2009 Oliver E. Buckley Condensed Matter Prize from the American Physical Society. Jagadeesh Moodera, a senior research scientist, Paul Tedrow, a retired scientist; and Robert Meservey, a visiting scientist at the FBML, will share the $10,000 prize with Terezobu Miyazaki from Tohoku University in Japan. The four were cited for “pioneering work in the field of spin-dependent tunneling and for the application of these phenomena to the field of magnetoelectronics.”

The prize was endowed in 1952 to recognize and encourage outstanding theoretical or experimental contributions to condensed matter physics. It is named in memory of Oliver E. Buckley, an influential president of Bell Labs.

Robert Meservey
Jagadeesh Moodera

Paul Tedrow

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...and a full day of symposia highlighting the accomplishments of MIT supporters to campus for...
CarTel personalizes commutes by using WiFi to network cars

On-board sensors aim to reduce drive times, detect engine woes

Elizabeth Thomson
News Office

Dozens of cars in the Boston area are testing the latest generation of an MIT mobile-sensor network for traffic analysis that could help drivers cut their commuting time, alert them to potential engine problems and more.

In the CarTel project, Professor Hari Balakrishnan and Associate Professor Samuel Madden of MIT’s Department of Electrical Engineering and Computer Science use automobiles to monitor their environment by sending data from an onboard computer — which is about the size of a cell phone — to a web server where the data can be visualized and browsed. They do so via pre-existing WiFi networks passed during a trip.

The resulting data, accessible from the web or a cell phone, not only helps a driver track conditions specific to their own car, but when combined with everyone else’s can indicate historical and real-time traffic conditions at different times of the day. “Everybody’s data is contributing to collective views of what congestion looks like,” Madden said.

“Our goal,” Balakrishnan said, “is to make the data behind CarTel available to help you plan and organize your commute and drives. We want to minimize the amount of time spent in your car.”

For example, the current system, deployed since January on 50 Boston-area cars — including 40 taxis — tracks traffic by monitoring each vehicle’s speed at different points during a trip. Unlike other route-planning systems, “CarTel understands where traffic delays are and recommends routes to avoid them,” Madden said.

The system has already cut Balakrishnan’s commute to MIT by 25 percent. It recommended a new route that, although a few miles longer than the approach suggested by some mapping web sites, is considerably faster in practice. CarTel is also linked to a vehicle’s onboard diagnostics system (available in all cars sold since 1996), so a driver can check various parameters key to maintenance and be alerted to potential problems.

There are two principal research efforts behind the system. First, Balakrishnan, Madden and Jacob Eriksson (now at the University of Illinois, Chicago) developed a way to connect to WiFi networks that is 35 times faster than other systems. “It can take about 15 seconds to connect using a regular system, so in a car you are already past the WiFi location by the time you get the signal,” Madden explained. QuickWiFi can connect in 360 milliseconds.”It’s the difference between whether you can use WiFi with a car or not.”

The majority of the work, however, is focused on managing the huge amounts of data key to the system. Depending on the sensors in use, CarTel can receive more than 600 data points a second. So the team has developed two generations of software “to synthesize all that data into interesting uses,” Madden said.

One such use is new algorithms for traffic-aware routing, or choosing directions between two locations that take historical and current traffic conditions into account. Balakrishnan and Madden have developed these algorithms with graduate student Sejoon Lim and Professor Daniela Rus, both of the Department of Electrical Engineering and Computer Science.

“CarTel makes it easy to collect, process, deliver and visualize data from a collection of remote, mobile and intermittently connected nodes,” the researchers concluded in one of several technical articles and conference presentations on the work. Most recently, they described the research at the Association for Computing Machinery’s Conference on Mobile Computing and Networking (MobiCom) in September 2008.

This work is funded by the National Science Foundation and the T-Party Project, a joint research program between MIT and Quanta Computer Inc. For more information visit cartel.csail.mit.edu.

MIT’s energy projects on display

Museum event showcases the cream of the energy crop

MIT Energy Night, to be held 5:30-8 p.m. on Friday, Oct. 10, at the MIT Museum, will highlight more than 40 projects, groups and start-up businesses in and around MIT at the cutting edge of energy research.

The annual event, organized by the MIT Energy Club and the Sloan Energy and Environment Club, is an informal way to get a quick overview of the range of work going on around the campus while munching on hors d’oeuvres and listening to live music.

Representatives for student groups including the MIT Electric Vehicle Team, BioDiesel@MIT and the Solar Decathlon will be on hand, as well as representatives for faculty-directed research on such topics as spinach-powered solar cells, advanced nuclear reactors, ultracapacitors based on nanotubes and alternative fuels for transportation. Other presenters are from companies that originated from MIT research, including A123 Systems (battery technology), C3 BioEnergy (making propane from plants) and GreenFuel Technologies (making fuel from algae).

Energy Club co-president Lara Pierpoint says Energy Night is “a chance for people from all over campus to look across disciplines and see what’s going on in research, in student organizations, and in emergent MIT spinoff companies. It’s about talking, engaging and, most importantly, it’s about partying and celebrating the achievements we’ve made and the enthusiasm we have for tackling the challenges ahead.”

The MIT Museum is in Building N22 at 265 Mass. Ave. More details on Energy Night can be found at www.mitenergycub.org/flagship-events/energy-night.
Debating the U.S. energy future

McCain favors states’ control, Obama calls for federal investment

David Chandler
News Office

In a spirited but friendly debate Monday night in a packed Kresge Auditorium, representatives of the John McCain and Barack Obama presidential campaigns detailed the differences between their candidates’ approaches to solving the nation’s energy problems.

Although they agreed on some key points, the debaters delineated clear distinctions between the candidates’ plans, most notably that McCain favors leaving most decisions on energy choices up to the states, while Obama backs federal regulations and investment in research at the federal level.

The 90-minute debate, organized by the student-run MIT Energy Club and the MIT Energy Initiative, featured James Woolsey, former CIA director and an advisor on energy to Republican candidate McCain, and Jason Grumet, head of the National Institute of Public Administration and an advisor on energy to Obama. Tom Ashbrook, host of the NPR program, “On Point,” was the moderator; questions were asked by two journalists and a panel of four MIT students.

The two campaign representatives made it clear at the outset that they have been longtime friends and have worked together on energy projects, setting an amicable and even po脸上 for the debate in which they clearly outlined their candidates’ views.

Woolsey stressed that McCain favors an emphasis on local control over energy choices, rather than too much federal control over “picking and choosing” the winners and losers among the many proposed energy alternatives. He also stressed McCain’s willingness to take the lead in opening up offshore oil reserves.

Grumet said that Obama believes it

Report debunks China energy myth

The problem isn’t in the technology, it’s the operations

David Chandler
News Office

A detailed analysis of power plants in China by MIT researchers debunks the widespread notion that outdated energy technology or the utter absence of government regulation is to blame for that country’s notorious air-pollution problems.

The real issue, the study found, involves complicated interactions between market forces, new commercial pressures and new types of governmental regulations.

China’s power sector has been expanding at a rate roughly equivalent to three to four new coal-fired, 500 megawatt plants coming on line every week, said Edward S. Steinfeld, associate professor of political science at MIT.

After detailed survey and field research involving managers at 85 power plants across 14 Chinese provinces, Steinfeld and his co-authors, Richard Lester (professor, nuclear science and engineering and director of the MIT Industrial Performance Center) and Edward Cunningham (doctoral candidate, political science), found that in fact most of the new plants have been built to very high technical standards, using some of the most modern technologies available. The problem has to do with the way energy infrastructure is being operated and the types of coals being burned.

New market pressures encourage plant managers to buy the cheapest, lowest-quality and most-polluting coal available, while at the same time keep idle expensive-to-operate smokestack scrubbers or other cleanup technologies. The physical infrastructure is advanced, but the emissions performance ends up decidedly retrograde.

Understanding the realities of how energy infrastructure and management is crucial, Steinfeld said, for gaining leverage over the whole gamut of global energy-related challenges. China’s electric power system is vast — second only to America’s in size — and globally unparalleled in terms of the speed of its growth. “To a significant degree, our planet’s energy and environmental future is now being written in China,” he said.

The researchers analyzed platinum and cobalt nanoparticles that were either treated with acid, or treated with acid then subjected to high heat. Nanoparticles produced both ways are known to be more active than platinum alone. Shao-Horn and colleagues found that, in turn, also had slightly different surface structures.

For example, in the nanoparticles subjected to heat treatments, the platinum and cobalt atoms formed a “sandwich-like” structure. Platinum atoms were on the surface, while the next layer down was composed primarily of cobalt. Successive layers contained mixtures of the two.

The team proposed that these particu-
lar nanoparticles are up to four times more active than platinum alone because the platinum atoms on the surface are constrained by the cobalt atoms underneath. “This modi-
fies the interatomic distances between the platinum atoms on the surface,” they wrote, “making them more effective in driving the rate reactions key to fuel cells, Shao-Horn said.

The work was reported in the Sept. 24 online issue of the Journal of the American Chemical Society.

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News in brief

Bustani seminars focus on Mideast

The Emile Bustani Middle East Seminar at MIT will celebrate its 23rd anniversary with this fall’s contemporary Middle Eastern affairs. On Oct. 21, Dr. Nilsur Göle, professor of sociology at the Ecole des Hautes Etudes en Sciences Sociales, Paris, will give a lecture on “Sons and Daughters in Europe: The Changing Face of Public Culture.” On Nov. 4, Dalia Mogahed, senior analyst and executive director of the Gallup Center for Muslim Studies, will discuss “Who Speaks for Islam?”

The seminar is funded by the Bustani family of Beirut, Lebanon, in memory of the late Emile M. Bustani ’33.

The sessions begin at 4 p.m. on E51-069 at 70 Memorial Drive. Both sessions are open to the public. For further information on the Bustani Middle East Seminar, contact Pardis Parsa at 617-253-1888.

MITSeaGrantsymposiumtofocusonendangeredwhales

What can North Atlantic whales tell us about our oceans and climate? How can science, law, government and policy help protect these endangered mammals?

A two-day symposium, co-hosted by the MIT Sea Grant Program and the Boston College Law Review, will address these questions on Oct. 15-16.

Just in time for October’s Halloween festivities, MITSO will present the Jets’ “Pumpkin Night,” a work he says refers to a “hallowe’en-like custom in parts of England.” According to Child, the music is wrought with “‘goolies” … wailing, cavorting and carrying on.”

Serna, a senior studying brain and cognitive science, will be the featured guest soloist for Prokofiev’s Piano Concerto No. 3. The evening will culminate with a performance of Joaquin Turina’s masterpiece Sinfonia Sevillana. The final movement of this work, the Gran Vals, was composed in 1920 entitled Fandango en San Juan de Aznalfarache, is an explosion of colorful harmonies and rhythms that will usher in MITSo’s new season with a bang.

The concert is open to the public, and admission is $5 at the door.

MITconference on systems thinking to be held Oct. 23-24

Global industry leaders and MIT faculty will speak on the importance of thinking about systems to solving complex problems, such as sustainability and the environment, product design and technology strategy, at MIT’s Systems Thinking conference. The conference will focus on the System Design and Management (SDM) program, will be held on the MIT campus Oct. 23-24.

Senior executives will offer insights into best practices for applying systems thinking to their companies, which may include Microsoft, IDEO, Herman Miller, Agilent, eClinicalWorks, Cappeleni and HostSpot. MIcT experts Yossi Sheffi, Peter Senge, Nancy Leveson, Olivier de Weck, Annulais Weigel and Patrick Hale will provide information on the emerging field of engineering and the tools and how to apply several new methodologies to address complex challenges.

This conference is open to all. Registration information is at http://admit.mit.edu/conf.

Revised patient site goes live

The redesigned site contains guides for specific health education topics. Accordingly, the new site has a prominent section called “How Do I...?” and searched by name, clinical service and health topic.

Patient audiences, including international students, or making an appointment, as well as easy-to-find information on the MIT health plans, billing and search by name, clinical service and health topic.

The site is Patient Online, which lets patients view their medication records and some of their health history (immunizations, past appointments, allergies, insurance, etc.), order prescription refills, make appointments on a wide variety of health and wellness topics offered by MIT Medical’s health educators and mental-health clinicians.

Another service offered on the MIT Medical web site is Patient Online, which lets patients view their medication records and some of their health history (immunizations, past appointments, allergies, insurance, etc.), order prescription refills, make appointment requests, and exchange secure e-mail with their health care providers.

“It’s easier to find what you’re looking for on our new web site, which is an important part of our commitment to the health and wellness of all members of the MIT community,” Ketylle said.

MIT Medical launches new, upgraded web site

The MIT Medical Department has relaunched its web site with a new address — http://medweb.mit.edu — as well as clearer navigation, patient-specific tabular and an improved clinician directory.

Research showed that users wanted clear steps for completing specific tasks such as finding a clinician or making an appointment, as well as easy-to-find information on the MIT health plans, billing and order prescription refills, make appoint-
ments on a wide variety of health and wellness topics offered by MIT Medical’s health educators and mental-health clinicians.

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“It’s easier to find what you’re looking for on our new web site, which is an important part of our commitment to the health and wellness of all members of the MIT community,” Ketylle said.

National Academy of Engineering welcomes two from MIT

Two MIT faculty are among the 65 new members of the National Academy of Engineering. This year the NAE also installed alumnus Irwin Jacobs, ’57 MS, ’59 S.D., as the new chairman of the academy. Chancellor and MIT President Charles Vest, who has been president of the NAE since 2007.

The new members are: Auvard, the Johnson Professor of Computer Science and Engineering and a member of the Computer Science and Artificial Intelligence Laboratory, who is being recognized for “contributions to data flow and multi-thread computing and the development of tools for the high-level synthesis of hardware.”

Robert Armstrong, the Chevron Professor of Chemical Engineering and the deputy director of the MIT Energy Initiative, for “conducting outstanding research on non-Newtonian fluid mechanics, co-authoring landmark textbooks, and providing leadership in chemical engineering education.”

“I am delighted to welcome Arvind and Bob to the highly accomplished cohort of MIT colleagues who belong to the National Academy of Engineer- ing,” said Subra Suresh, dean of engineering and an NAE member since 2002. The two were inducted at a ceremony in Washington, D.C., on Oct. 5.

Election to the NAE is among the highest distinctions accorded to engineers. Academy membership honors those who have made outstanding contributions to “engineering research, practice or education, including, where appropriate, significant contributions to the engineering literature,” and to "the pioneering of new and developing fields of technology, making major advancements in traditional fields of engineering or developing/ implementing new engineering education.”

MIT has had deep connections with the NAE since its inception in 1964. Of the Academy’s original 25 founding members, nearly a third were trained at the Institute. They include MIT’s eleventh president, Julian Stratton, and Thomas Scourto, dean of engineering from 1946 to 1972.

The Institution’s relationship with the NAE has persisted. In each of the last 36 consecutive years, at least one member of the faculty or research staff has been elected to the NAE, and MIT has more NAE members among its faculty than any other institution in the world. Since 1964, MIT has seen 151 of its faculty, researchers, instructors and associates elected to the NAE’s ranks. Of those, 109 remain actively engaged in the intellectual life of MIT today.

MIT has also had a strong presence among the winners of the NAE’s Charles Stark Draper Prize. Named for one of MIT’s most prolific and cele-
brated engineers, and widely regarded as the most distinguished award in engineering, the $500,000 prize has been awarded 14 times and had 31 recipi-
ents – seven of them with strong MIT connections, including Institute Professor Robert Langer, J.C. Comm Founders Professor of Engineering Tim Berners-
Lee, and Leonard Kleinrock, MIT PhD ’61.

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DEBATE: Representatives from Obama, McCain camps lay out energy policies

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is essential “to have comprehensive energy policies,” and compared his candidate’s very detailed proposals to what he called McCain’s “two-and-a-half-page memo” on energy policy that is really just “an enumeration of slogans.” And he chastised McCain for saying he would put vice-presidential candidate Sarah Palin in charge of energy policy, saying that by contrast Obama “will make this a personal priority.”

Both debaters agreed on the importance of reducing the nation’s dependence on imported oil, but emphasized differences on how to achieve that goal. In addition to increasing domestic production, Woolsey said, McCain favors strong development of alternative fuels, but without prescribing which fuels or technologies should get support, leaving the market to pick the best options. Grumet said Obama’s plan emphasizes a strong federal policy of requiring improvements in the fuel efficiency of cars and trucks, something he said Obama has already pushed hard for, helping to pass the first increases in federal mileage standards in 30 years.

Moving toward technology for capturing and storing the carbon emissions from power plants is an approach that both candidates favor, the debaters said. Grumet called developing such technologies a crucial need, saying that if a cost-effective system could be developed that could be retrofitted on existing fossil-fuel power plants “that would be the most important breakthrough we could have.” To achieve that, he said, Obama has committed to spending $15 billion a year for 10 years on research on such technologies.

Woolsey agreed on the importance of the technology, saying McCain supports an initial $2 billion a year commitment, which would grow over time using revenues from selling licenses under a proposed cap-and-trade system. The latter could generate “something in the ballpark of $10 to $20 billion a year,” much of which could be used for such research.

The two also differed on plans for nuclear power. Woolsey said McCain supports a federal push to build 45 new nuclear plants over the next 20 years, because in terms of baseline power production that produces no operating carbon emissions, “it’s about the only thing we’ve got going for us.” Grumet responded by citing an MIT study of nuclear power’s potential that found it was “not cost effective” without large federal subsidies, but added that Obama had voted for funding research that would “keep the door open” for new nuclear power, which McCain had opposed.

Grumet said that while the two candidates’ energy plans are “theoretically quite similar,” it’s important to look at their voting records, which show that Sen. McCain “voted 20 times against renewable energy and efficiency standards.”

Woolsey responded that McCain has a “strong aversion to mandating specific choices” in energy systems, and instead “is in favor ofgeneric encouragement of new technologies.”

POLLS: MIT weighs in on the election

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has changed is that it is easier and cheaper today to conduct polls than ever before, so we have seen a proliferation of polls. So there may be more polls today, but polls — and the dominance of polls as a means of predicting elections — have been around for a while.

Q: How can the general public better understand polling? What questions should we ask ourselves when we look at a poll?

A: You want to look at a few things. First, look at how the poll was conducted. Some pollsters — most notably Zogby — use Internet panels where people choose to respond to surveys. This is a poor way to conduct Internet surveys, and the Zogby polling shows it. Polls in which people “self-select” into surveys completely subvert the process. Look at the basis that pollsters are giving. These polls are essentially like the call-in polls you sometimes see on TV. People who are interested in a topic respond and they may be very different than the average American. I should note, however, that some Internet polls can be useful.

You also want to look at who is being surveyed. Now that we are close to the election, many firms are surveying “likely voters” — those people they think are most likely to turn out — rather than the full population. Since every firm uses a different standard to determine “likely voters,” some of the polls are different. But the important thing is to contrast the results to those of the full public, or “registered voters.”

Finally, take a look at how pollsters word their questions. The general presidential choice question is straightforward, but once you start asking about issues or characteristics of the candidates, small differences in the wording of questions can have large effects on the answers you get.

Q: Does polling indicate that negative campaigning works in terms of how the electorate will actually vote?

A: The research evidence on this is mixed. Some say that negative campaigns turn off voters, but others have argued that negative campaigns help mobilize a candidate’s supporters. The jury is still out.

Q: Since the system of the Electoral College determines the president, do national polls have real significance? Shouldn’t state-by-state polls be considered more significant?

A: The nice thing about the 2000 election is that it showed us that presidential elections turn on state-level results. So there has been a lot of state-level polling conducted in the last two presidential elections. True state polls matter most, but often these polls have smaller sample sizes and are conducted less often than national-level polls.

The national polls can give us a sense of the larger dynamics in the race. After this year’s Republican convention, for example, McCain had a large bump in the national polls. The different states respond somewhat differently — some traditionally Republican states have become more pro-McCain and some traditionally Democratic states held steady — but in general, McCain’s bounce was felt across the nation. The national polls gave us a window into the overall change in the race rather than the state-level polls. So it’s important to look at both sets of polls.

Q: Why are polls sometimes wrong? A: Well, they are right more than they are wrong. There are two issues here. First, any individual poll could be wrong and sometimes a host of polls is wrong (in the New Hampshire Democratic primary this year, for example) but often if we look at the results of a number of polls together, we get the right answer. Pollster.com and realclearpolitics.com both present the full range of polls with averages. In 2004 and 2006, the average of the polls was right the majority of the time. On second, the polls today tell us how people would vote if the election were today, but they’re not voting until November. Once we get closer to Election Day, after the candidates have finished their debates and the campaign has played out, the polls will be more predictive. But just because polls taken in August and September sometimes failed to predict the winner doesn’t mean they are wrong; they still give us a sense of where the race stands today.
MIT marks 25 years of international initiatives at MISTI

The Institute celebrated 25 years of international engagement through the MIT International Science and Technology Initiatives (MISTI) at an Oct. 2 dinner hosted by Dana Mead, chairman of the MIT Corporation, and Deborah Fitzgerald, Kenan Sahin Dean of the School of Humanities, Arts, and Social Sciences.

MISTI’s largest international program, MISTI is a pioneer in the field of applied international studies. It prepares students to participate in the global economy by connecting them to hands-on professional internships and research opportunities across the globe.

MISTI began in the early 1980s with the creation of the MIT-Japan Program. By 1991, more than 60 MIT interns each year were working in Japan. Today, MISTI is a key method of communication in college dorms.

“I came to MIT wanting to do something international and business-related and exciting and new — and thanks to MISTI, I have found that something,” said MIT alumna Wendi Zhang, who researched mobile-gaming trends and investment opportunities during her internship last summer with a U.S.-China joint venture capital firm in Shanghai. “This was my first close look at the intersection between technology and international business and I found it absolutely fascinating,” Zhang said. “I really hope that MISTI will become a significant and stimulating part of every MIT student’s experience, as it has been for me.”

MIT alumnus Jake Seid (’96, MEng ’98), now managing director of Lightspeed Venture Partners, described how vital the ability to connect to innovation around the world has become. In the past, he said, “start-ups happened when a group of people set up shop in a garage. That’s not the case anymore. A friend and fellow MIT alum has a two-person start-up; one founder is in China and one is in the U.S. The garage is virtual now.”

MISTI has partnered with MIT’s Department of Electrical Engineering and Computer Science (EECS) to increase global opportunities for EECS students. Eric Grimson, Bernard Gordon Professor of Medical Engineering and head of EECS, underscored the importance of international experience: “Current students understand that to compete in today’s world, they also have to appreciate global perspectives: global markets, different cultures, national priorities, nuances of communication in different languages, even the impact of social and religious norms on commercial and technological behavior. MISTI has been the leader in this meta-education of our students.”

MISTI aspires to be a part of the MIT experience for every student. The program has created new initiatives such as the OpenCourseWare/Highlights for High Schools projects, and student workshops abroad with leading international companies. This fall, MISTI launched the MISTI Global Seed Funds to help MIT faculty begin new projects anywhere in the world, with additional funds to involve students. MISTI also plans to expand to more countries around the world.

Potential new host countries include Brazil, South Africa and the United Kingdom.

Analyzing the ‘sponge’

Book details Simmons Hall competition

Carlo Ratti, Associate Professor of the Practice in the Department of Urban Studies and Planning, has been living in the building for about a year when a student resident approached him about the problems. Instead of tackling them on his own, from his perspective as an architect Ratti proposed that the students themselves address them in the form of a competition.

“The great thing is to have input and feedback from users,” Ratti said of the competition. “Letting students speak out was an important part of the dialogue.”

The competition, chaired by Robert Campbell, the Pulitzer Prize-winning architecture critic for the Boston Globe, had a jury of students, faculty and administration. Ten teams of various sizes participated. The teams were to address the problems of terrace use and building communications, but could also suggest other changes to the building or its furnishings.

The results ranged from practical to outrageous. One team proposed that the level 8 terrace be converted into a glassed-in movie theatre with stadium seating. Another simply proposed building a “clone” of Simmons across the street so that students would not be disturbed by visiting architects.

Although it’s not yet certain whether the students’ suggestions will be implemented in the building itself, their results were so unique and interesting that they were put on display at an exhibition organized by the Canadian Center for Architecture in Montreal. Further, “Inside the Sponge: Students Take On MIT Simmons Hall,” a book documenting the competition and its results, was published this month by the Canadian Center for Architecture.