An MIT-led team of planetary scientists has found that the southern pole of Mars contains the largest deposit of frozen water in the inner solar system, outside of Earth. The new results show that water, not carbon dioxide, is the predominant frozen liquid found in the southern polar region of Mars, said Maria Zuber, MIT professor of geophysics.

Zuber said scientists have suspected that the southern polar cap of Mars is comprised of a thin veneer of carbon dioxide that rests atop a layer of dust and ice. However, scientists have also observed a surrounding area much larger than the polar cap that is dark and smooth, and it was uncertain whether that region was also composed of dust or ice—or both.

“What we found is that water ice is the dominant constituent beneath a thin dust veneer,” said Zuber, lead author of a paper on the work that appeared in the Sept. 21 issue of Science.

Ever since carved channels were first observed on the surface of Mars, scientists have suspected that water once flowed across the surface.

Scientists also wondered whether the Martian poles held large reserves of water. However, because the Mars atmosphere is 95 percent carbon dioxide with only trace amounts of water, some researchers theorized that the polar caps were frozen carbon dioxide, or dry ice.

Zuber’s team identified the composition of the southern polar cap by calculating its density. Their results show the density of the polar cap as well as the surrounding smooth layered deposit region is about 1,250 kilograms per cubic meter, which indicates that it is made of mostly water, with about 15 percent silicate dust mixed in.

“The density of water ice is 1,000 kilograms per cubic meter, and the density of dry ice is 1,600 kilograms per cubic meter,” said Zuber, who is head of MIT’s Department of Earth, Atmospheric and Planetary Sciences.

Zuber and her colleagues used topographical and gravitational data gathered by three Mars orbiters to find the volume and mass of the ice cap, allowing them to calculate its density.

“It’s a very simple experiment but you have to measure things very precisely,” said Zuber, who is head of MIT’s Department of Earth, Atmospheric and Planetary Sciences.

Although she loved MIT’s writing program, she eventually switched her degree to mechanical engineering. She stayed in the department for 12 years, and earlier this month she became the first black American woman to earn a Ph.D. from MIT in that field.

She is now doing a six-month internship at BMW in Munich, but she hopes to eventually use her degree to develop technologies to improve the cleanliness of power generation, particularly in developing nations.

“As developed nations, we have a responsibility to help developing nations to make sure their power generation is clean,” she said.

In March, she will start her new job at GE, where she will be working on biofuel technology. Hardy’s master’s thesis focused on improving the efficiency of large-scale hydrogen and methane power plants, which could be useful in industrializing nations that now burn a lot of coal, such as China and India.

Hardy says she enjoyed her time at the Institute even though she wasn’t sure she wanted to attend MIT in the first place. As a high school student in Philadelphia, where she attended public schools, Hardy won numerous math and science awards and was recruited by many colleges.

“I applied to every possible school I could,” she said. In the end she had 14 offers and couldn’t decide which one to accept. Her older brother, Cordell, encouraged her to attend MIT.

Alicia Jillian Hardy entered MIT in the fall of 1995 as one of the handful of freshmen who come to the Institute planning to major in the humanities.
Sheffi named director of Engineering Systems Division

Professor Yossi Sheffi has been appointed director of the Engineering Systems Division, effective Nov. 15, Dean of Engineering Suhrita Sarker announced this week.

Sheffi received his B.Sc. from Technion in Israel in 1973, a Ph.D. from MIT in 1977, and his Ph.D. from MIT in 1978; he holds faculty appointments in the Engineering Systems Division and the Department of Civil and Environmental Engineering. An expert in systems engineering, risk analysis and supply chain management, Sheffi serves on the MIT Campus Center for Transportation and Logistics, a position he will continue to hold as ESD director. Under his leadership, the center has experienced substantial growth, launching more educational, research and industry/government outreach programs.

Sheffi is the author of numerous research articles and two books, including the bestselling "The Resilient Enterprise: Overcoming Vulnerability for Competitive Advantage," published by the MIT Press in 2005. It received rave reviews from The New York Times, Wall Street Journal and The Economist, as well as dozens of trade publications: The Financial Times chose it as one of the best business books of 2005; and it was awarded the "2005 Book of the Year" in the category of Business and Economics by Forbes Magazine.

Since 1998, Sheffi has served as the director of MIT's Master of Engineering in Logistics degree, a program he founded. The program grew from 17 applications at its inception to hundreds of applications today and has inspired the creation of dozens of similar programs worldwide.

In 2003, Sheffi founded and has since led the MIT-Zaragoza International Logistics Program, an international collaboration among academia, industry and government. This program has grown from three teams in Aragon and MIT in 2003 to more than 15 in Aragon, and in 2006, he received the Aragon's presidential award for "the most substantial contribution to the regional economy."

Outside the university, Sheffi has consulted with numerous governments and leading manufacturing, retail and transportation enterprises around the world. He is also an active entrepreneur, having founded five successful companies, and is a sought-after speaker for corporate and professional events.

Sheffi has been recognized with numerous awards and honors in academic and industry forums and was on the cover of Purchasing Magazine, Logistics and Transportation and Distribution Magazine. In 1997 he won the Distinguished Service Award, the highest honor given by the Council of Supply Chain Management Professionals. He is also a life fellow of Cambridge University's Clare Hall College.

Griffith is a member of the MIT community who has won MacArthur Fellowships and the 2005 Technology Review's Invention of the Year. His projects have been recognized with several awards, including the National Inventors Hall of Fame, the MacArthur Foundation’s "Genius" awards and the National Academy of Engineering’s "Frontiers of Engineering" award. Griffith has been named to disruption 100, a list of the world's most innovative people.

Griffith received his B.S. in aeronautics and astronautics from MIT in 1994 and his Ph.D. in aeronautics and astronautics from MIT in 2000. He is currently a professor of mechanical engineering and a member of the MIT Department of Mechanical Engineering.

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MIT appoints 23 faculty to named professorships

Twenty-three MIT faculty members have been appointed to named professorships. All are effective July 1, 2007.

Professor Edward H. Adelson of brain and cognitive sciences will hold a five-year John and Dorothy Wilson Professorship in 2007. He is a life member of the MIT Corporation, established in 1958, who facilitates their work—and who support staff. By receiving the award I myself often work with mostly faculty colleagues were able to shine the light on extraordinary staff like Deveau. “Part of our standards MIT is known to foster,” said Anne Deveau. Her colleagues adore her. Not surprisingly, her peers in the Working Group then selected her to be a co-

ь Professor of Electrical Engineering and Computer Science will hold a five-year W.M. Keck Professorship for a three-year term. The Keck Foundation established the professorship.

Professor John Macela of the MIT Media Lab was selected as a Class of 1990 Fellow for a two-year term; he won a Class of 1990 Innovation in Education Award. Associate Professor of Biology will hold a five-year John and Dorothy Wilson Professorship, established in 1948 by the Class of 1948 Career Development Professorship, established by the Class in celebration of its 40th reunion.

Assistant Professor Markus J. Buehler of civil and environmental engineering will hold an Esther and Harold E. Edgerton Career Development Professorship for a three-year term. The Edgerton professorships were established in 1973 by the MIT Corporation to honor the Edgertons.

Professor Ian Conordry of the School of Humanities, Arts, and Social Sciences will be the next holder of the three-year Mitsui Career Development Professorship. The Mitsui Group established the professorship.

Assistant Professor Vivek Goyal of electrical engineering and computer science will hold an Esther and Harold E. Edgerton Career Development Professorship for a three-year term. The Edgerton professorships were established in 1973 by the MIT Corporation to honor the Edgertons.

Assistant Professor Michael Hemm of biology will hold the three-year Class of 1947 Career Development Professorship, established by the Class in celebration of its 40th reunion.

Assistant Professor Manolis Kellis of electrical engineering and computer science is the next holder of the three-year Van Derheck Career Development Professorship. Van Tassel, a member of the Class of 1925, established the chair in 1989.

Assistant Professor Katherine C. Kellogg of MIT Sloan will hold the Class of 1954 Career Development Professorship for a three-year term. The Class established this chair in celebration of its 60th reunion.

Assistant Professor Michael T. Laub of biology will be the Whitehead Career Development Professor for a three-year term.

Professor Richard Locke of MIT Sloan was selected as a Class of 1980 Fellow for a two-year term; he won a Class of 1980 Innovation in Education Award.

Professor Donca Steriade of biology will hold the W.M. Keck Professorship of Energy for a five-year term. The Keck Foundation established the professorship.

Professor Sanae Shokri of biological engineering will hold the five-year Underwood-Prescott Professorship of Toxicology, established in 1972 by a gift from the Underwood Company.

Assistant Professor Jakob Sorensen of the School of Humanities, Arts, and Social Sciences will hold the three-year Class of 1958 Career Development Professorship, established by the Class of 1958 in celebration of its 25th reunion.

Assistant Professor Gabriella Scoll of physics will hold the Cecil and Ida Green Career Development Professorship for a three-year term. Curtis, a member of the Class of 1927, and Ida Green established the professorship.

Assistant Professor Giuditta Stacchi of mathematics will hold the five-year Class of 1947 Career Development Professorship, established by the Class in celebration of its 40th reunion.

Assistant Professor Collin Stultz of electrical engineering and computer science will hold the W.M. Keck Professorship for a three-year term. The Keck Foundation established the professorship.

Assistant Professor Katrin Wahl of mathematics will hold the Rockwell International Career Development Professorship for a three-year term. The Rockwell International Corporate Trust endowed the Rockwell Professorship in 1985.
MIT model could improve some drugs’ effectiveness

Anne Trafton
MIT News Office

MIT researchers have developed a computer modeling approach that could improve a class of drugs based on antibodies, molecules key to the immune system. The model can predict structural changes in an antibody that will improve its effectiveness.

The team has also used the model to create a new version of cetuximab, a drug commonly used to treat colorectal cancer that binds to its target with 10 times greater affinity than the original molecule.

The work, which appeared Sept. 25 in an advance publication of Nature Biotechnology, results from a collaboration using both laboratory experiments and computer simulations between MIT Professors Dane Wittrup and Bruce Tidor.

New and better methods for improving antibody development represent critical technologies for medicine and biotechnology,” said Wittrup, who holds appointments in MIT’s Department of Biological Engineering and Department of Chemical Engineering. Tidor holds appointments in biological engineering and the Department of Electrical Engineering and Computer Science.

Antibodies, which are part of nature’s own defense system against pathogens, are often used for diagnostics and therapeutics. Starting with a specific antibody, the MIT model looks at many possible amino-acid substitutions that could occur in the antibody. It then calculates which substitutions would result in a structure that would form a stronger interaction with the target.

“Combining information about protein (antibody) structure with calculations that address the underlying atomic interactions allows us to make rational choices about which changes should be made to a protein to improve its function,” said Shaun Lipow, lead author of the Nature Biotechnology paper.

“Protein modeling can reduce the cost of developing antibody-based drugs,” Lipow added, “as well as enable the design of additional protein-based products such as enzymes for the conversion of biomass to fuel.” Lipow conducted the research as part of his thesis work in chemical engineering at MIT and is now a member of the protein engineering group at Codon Devices in Cambridge.

Making drugs out of huge, complicated molecules like antibodies is incredibly hard,” said Janna Welsh, who oversees computational biology grants at the National Institute of General Medical Sciences, which partially supported the research. “Dr. Tidor’s new computational method can predict which changes in an antibody make it work better, allowing chemists to focus their efforts on the most promising candidates. This is a perfect example of how modern computing can be harnessed to speed up the development of new drugs.”

Traditionally, researchers have developed antibody-based drugs using an evolutionary approach. They remove antibodies from mice and further evolve them in the laboratory, screening for improved efficacy. This can lead to improved binding affinities but the process is time-consuming, and it restricts the control that researchers have over the design of antibodies.

In contrast, the MIT computational approach can quickly calculate a huge number of possible antibody variants and conformations and predict the molecules’ binding affinity for their targets based on the interactions that occur between atoms.

Using the new approach, researchers can predict the effectiveness of mutations that might never arise by natural evolution.

“The work demonstrates that by building on the physics underlying biological molecules, you can engineer improvements in a very precise way,” said Tidor.

The team also used the model with an antilysozyme antibody called D44.L, and they were able to achieve a 140-fold improvement in its binding affinity. The authors expect the model will be useful with other antibodies as well.

The research was funded by the National Science Foundation and the National Institutes of Health. Wittrup and Tidor also co-teach a class focusing on connecting fundamental molecular and cellular events to biological function through the use of mathematical models and computer simulations.

Joining the crowd

GRAPHIC COURTESY / JAMES GRAHAM AND THADDEUS JUSCZYK

MIT architecture graduate students James Graham and Thaddeus Jusczyk received global media attention over the summer after the MIT News Office publicized their idea for the mechanical energy of human footsteps into a source of electricity. The duo’s proposed “crowd farm,” as shown in this model, was featured in more than 40 media outlets, including The Boston Globe, The Chronicle of Higher Education, The Times of London and MSNBC.

BP, MIT form research partnership

Global energy giant BP and MIT have announced a major research partnership around energy conversion technologies. The program will explore the conversion of low-value carbon feedstocks such as petcoke and coal to high-value products such as electricity, liquid fuels and chemicals while minimizing carbon dioxide emissions.

In establishing this partnership, BP also becomes the inaugural founding member of the MIT Energy Initiative (MITEI), which was created in 2006 to address global energy issues.

In announcing the partnership, MIT President Susan Hockfield praised the collaboration: “This exciting partnership between MIT and BP epitomizes what the MIT Energy Initiative is designed to accomplish: the pairing of innovative MIT researchers across the entire campus with results-oriented scientists, engineers and planners in industry, working together to transform the world’s energy marketplace.”

The BP-MIT MITEI Advanced Conversion Research Project, which includes several interfaced research thrusts including advanced simulation of processes for feedstock conversion and decarbonization and multiscalar simulation of gasification. BP America Chair and President Bob Malone said: “Conversion technologies will play a critical role in regional energy security and will provide access to clean energy sources in both the developed and developing world. The BP-MIT Advanced Conversion Research Project is a natural research extension to our successful executive development programs at MIT.”

As the founding member, BP will also support MITEI’s Energy Research Seed Fund program. This program will fund novel energy research concepts generated from an annual campus-wide solicitation. In addition, BP will support 10 BP-MIT energy fellows at the Institute each year of its five-year commitment.

Professor Ernest J. Moniz, director of MITEI, also applauded BP’s commitment to energy research and education. “This will help transform how the world uses its abundant coal resources and demonstrates a strong commitment to developing the next generation of energy technologists, supporting 50 energy fellowships over the length of the collaboration.”

Total funding for the BP Advanced Conversion Research Program and for the associated MITEI commitments will be at least $5 million per year for five years.
21st-century pack mule: MIT’s ‘exoskeleton’ lightens the load

Researchers in the MIT Media Lab’s Biomechatronics Group have created a device to lighten the burden for soldiers and others who carry heavy packs and equipment.

Their invention, known as an exoskeleton, can support much of the weight of a heavy backpack and transfer that weight directly to the ground, effectively taking a load off the back of the person wearing the device.

In the September issue of the International Journal of Humanoid Robotics, the researchers report that their prototype can successfully take on 80 percent of an 80-pound load carried on a person’s back, but there’s one catch: The current model impedes the natural walking gait of the person wearing it.

“You can definitely tell it’s affecting your gait,” said Conor Walsh, a graduate student who worked on the project, but “you do feel it taking the load off and you definitely feel less stress on your upper body.”

The research team was led by Hugh Herr, principal investigator of the Biomechatronics Group and associate professor in the MIT Media Lab. Earlier this summer, Herr and his colleagues unveiled the world’s first robotic ankle for lower-limb amputees.

Eventually Herr hopes to create assistive leg devices that can be useful for anyone. Herr said he envisions leg exoskeletons that could help people run without breathing hard, as well as help to carry heavy loads.

“Our dream is that 20 years from now, people won’t go to bike racks—they’ll go to leg racks,” he said.

Exoskeleton devices could boost the weight that a person can carry, lessen the likelihood of leg or back injury and reduce the perceived level of difficulty of carrying a heavy load.

“The person wearing the exoskeleton places his or her feet in boots attached to a series of tubes that run up the leg to the backpack, transferring the weight of the backpack to the ground. Springs at the ankle and hip and a damping device at the knee allow the device to approximate the walking motion of a human leg, with a very small external power input (one watt).”

When the MIT researchers tested their device, they found that although it helped to lighten the load, the user had to consume 10 percent more oxygen than normal, because of the extra effort to compensate for the gait interference.

“This is the first time that it has been tested,” he said. “We didn’t know what to expect.”

Other Biomechatronics Group members who contributed to the project were Daniel Paluska, Ken Pasch, Andrew Valentie and William Grand. The research was funded by the Defense Advanced Research Projects Agency.

Using a tether system devised by MIT researchers, astronauts could one day stroll across the surface of small asteroids, collecting samples and otherwise exploring these rocks in space without floating away.

The ability to visit asteroids could also be invaluable for testing equipment for a mission to Mars by humans. Further, knowing how to tether an asteroid could be helpful if we need to tow one away from a potential collision course with Earth, says Christopher Carr, a postdoctoral associate in MIT’s Department of Earth, Atospheric and Planetary Sciences.

Carr and Ian Garrick-Bethell, a graduate student in the department, describe their system in an upcoming issue of the journal Acta Astronautica.

Walking on an asteroid is much more difficult than walking on a planet because asteroids have so little gravity. An astronaut who tried to step onto one would likely fly off or hover above the surface.

An asteroid’s gravity varies depending on its density and size, which can range from a speck of dust to something hundreds of kilometers in diameter. On an asteroid that has a diameter larger than eight kilometers, an astronaut who jumps will probably come back to the surface, Carr said. But if the asteroid is smaller than that, the astronaut may float away.

Even if an asteroid has enough gravity to keep an astronaut on the surface, it would be difficult to move around or collect samples. “You couldn’t touch anything without sending yourself on a new trajectory or spinning yourself around,” said Garrick-Bethell, who is the first author of the Acta Astronautica paper.

Some people have suggested that astronauts could hold themselves directly to the asteroid, but the granular material covering the asteroids could prevent this.

“It would be like trying to bolt yourself to a pile of gravel or sand,” Garrick-Bethell said.

The MIT researchers envision deploying their system with an astronaut or a remote-controlled rocket that unwinds a spool of rope while flying around the asteroid. When the craft reaches the starting point, a loop is formed and tightened. Astronauts could then be held to the asteroid using one or more ropes, permitting them to work on the surface.

One unknown is whether the rope would cut into the asteroid’s crust, which is only a few inches thick in some places.

The team hopes to revise the design so the exoskeleton more closely mimics the movement of a human leg, allowing for more normal walking motion. The most important result of this study, says Walsh, is that the team’s spring-based, low-energy design shows promise.

“An asteroid’s gravity varies so much that effective and inexpensive ways to move or collect materials will be necessary to allow people to do useful work near objects on which you cannot ‘land,’ but only ‘dock.’”

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Astroid 243 Ida, a heavily cratered, irregularly shaped space rock in the main asteroid belt between Mars and Jupiter, is shown here with its moon in an image transmitted to Earth from NASA’s Galileo spacecraft. MIT researchers say a tether system could one day allow astronauts to stroll across the surface of asteroids without floating away.
The MIT Libraries’ book sale will be held Oct. 2 from 10 a.m. to 3 p.m. in the Stata Student Center. The sale offers a selection of material from diverse areas including biology, chemistry, computer science, engineering, fiction, history, linguistics, management, and music. Some free materials will be available. Proceeds will benefit the Libraries’ Support Fund. The sale is open to the MIT community only. For more information, contact Charlene Follett or Betsy Granese at x50693 or gibsslib@mit.edu.

The MIT Hosts to International Students Program (5-133) hosts new international students with their transition to life in the United States by pairing them with faculty, staff, alumni/ae and friends of MIT, including singles, families with children and retirees. The program is looking for new hosts and host families to offer hospitality and friendship to incoming students. Many hosts invite their students to share holiday dinners, and students generally love the chance to participate in such events. Hosts might answer questions about puzzling phenomena such as decorating laws in December with plastic reindeer sporting illuminated red noses, or carving faces in pumpkins in October. Depending on their interests, hosts and students might enjoy local excursions or share common interests such as going to the movies, playing soccer, or watching movies.

To find more information about this MIT vol unteer program, visit http://www.mit.edu/resources/host_program. Potential hosts should contact Janka Moss at janks@mit.edu, call x3-5795, or visit the International Student Office in Room 5-133.
NSF fellow to appear on ‘Dancing with the Stars’

Rhonda Jordan

MIT Ph.D. student and NSF fellow Rhonda Jordan, whose passions include engineering and rhythm tap, is scheduled to perform Sept. 26 with accomplished tap dancer and choreographer Savion Glover on ABC’s “Dancing with the Stars.” Jordan will appear during the final day of the program’s three-day season kick-off.

Jordan has been studying dance since age 6 and has formal training in ballet, jazz, lyrical and tap. When she was just 9, she became the youngest dancer selected to participate in the Dance Theater of Harlem residency program in classical ballet, co-sponsored with the John F. Kennedy Center for the Performing Arts in Washington. She has performed in various venues across the U.S. and around the world and has taught dance to elementary and middle-school children in inner-city schools.

However, dance isn’t Jordan’s only love. In 2006 she was 16 she entered the Fu Foundation School of Engineering and Applied Science at Columbia University to major in electrical engineering. She graduated magna cum laude from Columbia with a Bachelor of Science in Electrical Engineering and a Master of Science in Electrical Engineering, with a concentration in fiber optics and lightwave communications.

Jordan was named a National Science Foundation fellow and was awarded a full fellowship to pursue her doctoral studies. She is now a Ph.D. student in MIT’s Engineering Systems Division, where she will pursue research interests that include applying systems thinking to address complex societal problems.

Jordan’s advisor, Professor Richard Larson, described her as a “hard-core electrical engineer” who decided a couple of years ago that traditional engineering was too narrow and technocratic. She took a hiatus from graduate school to teach inner-city children in New York City, which she energized that she sought out MIT’s Engineering Systems Division as a place to develop her diverse skills and broadening interests.

“Because this is her first year at ESD, it’s too early to say exactly what her ultimate research interest may be. However, she seems to be leaning towards education systems, focusing on technology-enabled education systems that can multiply by orders of magnitude the number of children in poor communities who can benefit from excellent teachers,” Larson said. “We welcome Rhonda’s intellect, energy and enthusiasm and wish her well on network TV!”

MIT Museum expands with new gallery

Grand opening of new addition this weekend

The MIT Museum will celebrate the grand opening of its new 5,000-square-foot addition with a Sept. 29 ribbon-cutting, new exhibits and events, and free admission for all visitors to the museum Sept. 29 and Sept. 30.

The $3 million addition will house the Mark Epstein (B.B. 1968, S.M. 1984) Innovation Gallery, MIT 360, a media-rich program and activity area, a new museum store and a new street-level entryway. With this major expansion, the Museum will establish a bold public presence on lower Massachusetts Avenue. For the first time, we’ll have enough space to feature highlights of some of the most current research and innovation at MIT,” said John Durant, MIT Museum director.

One of the museum’s goals for the addition, which converted offices into exhibition spaces, was to permit visitors easier access to the museum as well as to provide “vivid examples of the ways in which MIT researchers are continuing to invent the future,” said Durant.

The celebration starts with a ribbon cutting at 10:10 a.m. Sept. 29 and launches a weekend full of exciting activities.

Exhibits in the ground floor gallery will change on a six-month rotation of MIT science and technology research. These include:

The MIT Media Laboratory City Car

This lightweight, intelligent electric vehicle radically reduces urban energy consumption and carbon footprints. It’s not only completely electric, but also stacks for easy parking.
Students help MITEI ‘walk the talk’ on energy

Dan Wesolowski looked out from the second floor of MIT’s Building E25, watching in dismay as students and faculty alike ignored signs to use the revolving door below him and save energy. Person after person coming from the nearby Kendall Square subway walked through the swing door to the side of the revolving door.

“A single person walking through a revolving door in February saves enough energy to light a 60-watt light bulb for 23 minutes,” said Wesolowski, a fourth-year Ph.D. candidate in materials science and engineering. If everyone used the revolving door, MIT would save about $7,500 in a month and gas a year in E25 alone, which has two of the 29 revolving doors on campus.

The MIT Energy Initiative (MITEI) is now supporting a student plan to encourage that behavior.

Wesolowski and three classmates started their Revolving Door Campaign a couple years ago as part of a project for a class in sustainability and planning in the Department of Urban Studies and Planning. In tests around campus, their 11- x 17-inch signs saying “Help Conserve Energy, Please Use the Revolving Door” improved revolving door use by 65 percent from the previous year. Based on those results, MITEI is providing funds for printing and installing pedestal-mounted signs at five revolving doors across campus.

“I didn’t set out to be a revolving-door activist,” Wesolowski admitted. “But once I crunched the numbers I saw an opportunity to save energy. Every time you feel a breeze, a student’s energy blowing out the door.” The energy savings have gone to good use: transferring power prevents the on-campus backup power system from running too often.

The project was one of seven selected earlier this year by the Undergraduate Students’ Activities Review (USAR) at MIT for the Fund for Excellence in Education. The fund makes money available twice yearly to students who propose projects that will make a measurable change on campus and to motivate and empower students to undertake projects in line with the Energy Initiative’s goals (see graphic).

USAR oversees and funds more than 100 student groups. Participating students learned about sustainability in and around MIT’s buildings.

“MITEI is a campus entity that focuses on energy, environment and sustainability issues on MIT’s campus,” said Steven Lanou, deputy director of MIT’s sustainability Community and a graduate of MIT’s Materials Science and Engineering Department. “The fund aims to widen awareness and conversation about climate change and to motivate and empower students to undertake projects in line with the Energy Initiative’s goals.” The fund was seeded by MITEI with $25,000 in 2004.

The wind Turbine Design Competition will be run for the third year by the Student Activities Review Office (USAR). Students will have an opportunity to design and build a wind turbine capable of harvesting electrical energy from the wind.

“The MIT Energy Initiative is a campus entity that focuses on energy, environment and sustainability issues on MIT’s campus,” said Steven Lanou, deputy director of MIT’s sustainability Community and a graduate of MIT’s Materials Science and Engineering Department. "This is relaxing," he said. "There are so many different projects going on that it is hard for people to grasp. The booklet is a great opportunity for them to find their niche among sustainability efforts on campus." Lanou is the current MIT USAR director. The project was one of seven selected earlier this year by the Undergraduate Students’ Activities Review (USAR) at MIT for the Fund for Excellence in Education. The fund makes money available twice yearly to students who propose projects that will make a measurable change on campus and to motivate and empower students to undertake projects in line with the Energy Initiative’s goals (see graphic).

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