

A film made from phage and biosynthesized nanoparticles is one material produced by viruses in the Belcher lab. Image courtesy Angela Belcher

Viruses can be made to churn out high-tech nanomaterials

Viruses subvert their hosts to pump out masses of new viruses. In an unusual twist, an MIT researcher reports in the May 3 issue of *Science* that she used genetically engineered viruses that are noninfectious to humans to mass produce tiny materials for next-generation optical, electronic and magnetic devices.

"We've been looking at using genetic tools to grow semiconductor materials," said author Angela M. Belcher, associate professor of materials science and engineering and biological engineering. "In this case, we took advantage of the viruses' ge-

netic makeup and physical shape to not only grow the material but also to help them assemble themselves into liquid crystal structures that are several centimeters long."

Belcher and colleagues at the University of Texas at Austin are interested in using the processes by which nature makes materials to design new biological-electronic hybrid materials that could be used to assemble electronic materials at the nanoscale. Her research brings together inorganic chemistry, materials chemistry, biochemistry, molecular biology and electrical engineering. She will join

the MIT Department of Material Science and Engineering and the Center for Biological Engineering in September.

Belcher's approach is to use systems such as viruses that evolved over millions of years to work perfectly at the nanoscale, but to convince the viruses to work on technologically important materials. Belcher's research team can evolve the viruses to work on the materials of interest over a period of months.

Building self-assembling and defect-free two- and three-dimensional (continued on page 12)

Breast cancer treatment looks promising in phase 2 clinical trials

By Elizabeth A. Thomson
News Office

Breast cancer treatment based on MIT radar research continues to move through clinical trials, with further promising results reported April 27 at the third annual American Society of Breast Surgeons meeting in Boston and in the May issue of the *Annals of Surgical Oncology*.

In the treatment, microwave radiation is focused externally on the breast, heating and killing tumor cells within. On April 27 Dr. Robert A. Gardner presented results for the first stage in a phase II clinical trial of the treatment. In this stage the thermal dose was increased gradually for 15 patients with early-stage breast can-

cer to determine which dose kills the most in cancer cells. The remaining patients in the phase II trial will now be treated at this dose.

"A majority of the patients being treated in this dose-escalation study are having their cancerous tumors significantly damaged by microwave heat therapy prior to lumpectomy," said Gardner, a breast surgeon at Columbia Hospital's Center for Breast Care in West Palm Beach, Fla., one of five hospitals currently approved to participate in the trials.

The phase II trial should be completed by the end of September. Twenty patients have been treated to date. The remaining 23 women will be treated at Columbia Hospital, the University of Oklahoma (OU), Harbor-UCLA Medical Center, Martin Luther University in Halle, Germany and at Comprehensive Breast Center in Coral Springs, Fla.

The goal of the phase II study is to demonstrate the potential benefits of destroying the cancer prior to breast conservation therapy (lumpectomy and radiation therapy). If this 30- to 40-minute heat treatment pro-

cedure can sufficiently damage breast tumors, the need for surgery or radiation therapy potentially can be reduced or eliminated.

The technology itself was invented by Dr. Alan J. Fenn, a senior staff member in the Sensor Systems Division at MIT Lincoln Laboratory. Fenn realized that the same focused microwave technology he'd used for missile detection could, in theory, be used to treat cancer cells.

The resulting treatment, he said, "uses externally focused microwave energy to target and destroy cancer cells in the primary cancer and in the margins." Celsion Corporation of Columbia, Md. exclusively licenses the technology from MIT. The company has developed the clinical thermotherapy system and is funding the clinical studies.

Results of a prior phase I study in 10 women with breast cancer showed significant tumor cell kill with focused microwave thermotherapy prior to surgery. That study, by Gardner and other phase I investigators, is being published in the May issue of the *Annals of Surgical Oncology*. (continued on page 12)

Novartis is opening research center in Tech Square

By Deborah Halber
and Kenneth D. Campbell
News Office

Swiss-based pharmaceutical giant Novartis—drawn like "a magnet" to Cambridge's confluence of brainpower, academic and medical institutions, biotech companies, and congenial political and economic policies—is creating a worldwide drug discovery center on MIT commercial property in Technology Square.

"Why Cambridge?" asked Dr. Daniel Vasella, chairman and CEO of Novartis AG in a Monday news conference at MIT. "Analysis shows that it is more and more difficult to attract and retain scientific talent, so we have to go where the talent is. Cambridge is a pool of scientific talent not found elsewhere in the world."

Novartis will invest \$250 million in the center, which it will lease from MIT. The new building, at the junction of Main and Fulkerson streets, is slated to open by July next year.

In welcoming Novartis to Massachusetts, "the biotechnology state," U.S. Sen. Edward Kennedy (D-Mass.) said, "Novartis' strong desire to be in Cambridge further strengthens Kendall Square as being the epicenter of the biotech world. The high quality of research here is the best in the world."

Cambridge is home to MIT, Harvard, the Whitehead Institute, the Whitehead Institute/MIT Center for Genome Research and 60 biotech and pharmaceutical companies. Fifty-two of the firms are located in the Central Square, Kendall Square and East Cambridge areas within a mile of the MIT (continued on page 4)



Annalisa Weigel and her husband, Myles Walton, both defended their Ph.D. theses Monday. Photo by Donna Coveney

A couple of doctorates are now in the house

By Robert J. Sales
News Office

Myles A. Walton and Annalisa L. Weigel, husband and wife, successfully defended their Ph.D. theses in separate morning and afternoon sessions Monday.

Walton donned a dress shirt and tie and mounted his defense of "Managing Space System Design Uncertainty Using Portfolio Theory" in Room 33-206 at 8:15 a.m. About seven hours later, Weigel toted her lucky water bottle and straw to the podium to defend "Bringing Policy Into Space Systems Conceptual Design: Qualitative and Quantitative Methods."

By dusk, they were celebrating in a Central Square pub.

"It was tremendously supportive to go through it together," said Weigel, who received the S.B. from MIT in 1994 in aeronautics and astronautics,

the S.B. in science, technology and society a year later, and the S.M. in aeronautics and astronautics in 2000. "We got a fair amount of insight and counseling from each other." Her Ph.D. from the Engineering Systems Division (ESD) is in technology, management and policy.

"We'd challenge each other's assumptions," said Walton, a Worcester Polytechnic Institute graduate (B.S. in mechanical engineering, 1997) who received the S.M. in aeronautics and astronautics from MIT in 1999. His Ph.D. is in aeronautics and astronautics.

"We'd do it in a collegial way," said Weigel, who also has an M.A. in science, technology and public policy from George Washington University. "We're not confrontational people."

"Somebody said our household must have been tremendously tense (continued on page 4)

Walter A. Rosenblith, a pioneer in the use of computers to study the brain, is dead at age 88. See story on page 8. Obituaries for Felix Villars and Edward Cohen are on pages 8 and 9.

Coding competition makes good spectator sport

■ By Darren J. Clarke
and Denise Brehm
News Office

With \$100,000 on the line, three computer programmers sat behind white screens on a platform, their lines of code appearing in real time on monitors set up around the room. Their friends read the code, joking quietly and expressing admiration.

Despite the stakes, a spirit of good-natured play prevailed at the April 19-20 finals of the TopCoder Collegiate Challenge, a national computer programming competition. Months of qualifying contests had narrowed a field of hundreds down to 16 semi-finalists, who competed for the big purse at the University Park Hotel.

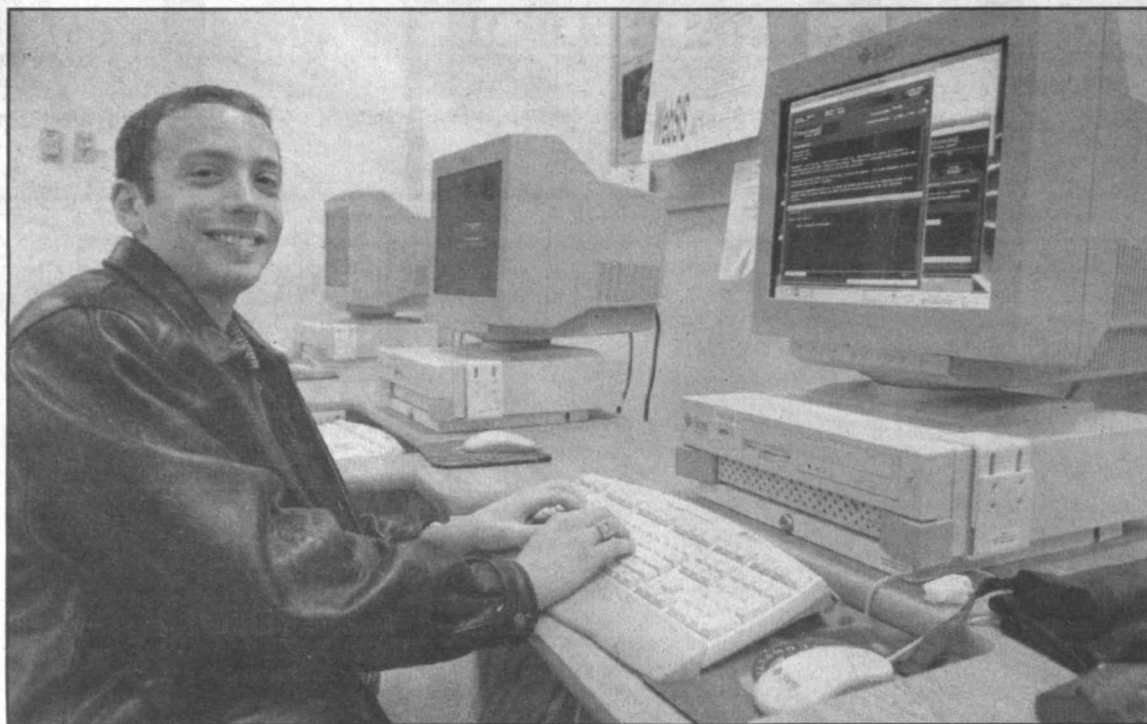
Two of the semi-finalists had MIT ties. Jon Salz (S.B. in computer science and engineering, 2001), now an MIT graduate student, was seeded sixth. Dan Adkins (S.B. in computer science and engineering, 2001), a graduate student at the University of California at Berkeley, was ranked fourth. Neither made the finals. Dan Wright of Stanford won the \$100,000.

"Milhouse," as Salz is known during competitions, had plenty of support from friends and fraternity brothers, who claim credit for his nickname (based on a character from "The Simpsons" TV show). Many of the onlookers, graduate students who belong to Zeta Psi, have been friends with Salz since freshman year.

"Jon was ridiculously good at coding when he got to MIT. He was the kind of guy who could help you with your problem set even if he wasn't in the class," said Rich Hanna, an MIT graduate student in mechanical engineering who has known Salz since 1997. "All my friends are good at coding, but they're all good in different ways. I've never seen anyone who codes as fast or as accurately as Jon. And he's very self-deprecating about the whole thing. It's funny, because there's a lot of money to be won here."

Salz, aware of the nerdy reputation of programmers, suspects that his old, oversized eyeglasses may be to blame for his nickname. "Let's face it, I'm in a programming competition," he said. "I do have a few geeky tendencies." Appearances aside, his wit is anything but dull, exemplified by his comments in the competition's program book.

All contestants answered the same



Jon Salz was a semi-finalist in the TopCoder Collegiate Championship.

Photo by Donna Coveney

questions. Asked "What do you most enjoy about coding?" Salz said: "The chicks. The wind in my hair. The rush of adrenaline when I hit the 'submit' button."

WRITE CODE, THEN CHALLENGE

During the semi-final round, he and the other three competitors wrote solutions to three problems of increasing difficulty in Java or C++. Salz did well with his code, finishing work on two of the three problems before time ran out. During the next part of the competition, the coders challenged one another's code.

Salz quickly saw that one competitor had written flawless code and would clearly win the round. So he launched into a game of computer Solitaire that brought cheers from the crowd, who showed the same zeal for Solitaire as they had for his code.

Salz won \$11,450 during his year of competition, and plans to continue.

"I'm looking forward to 'extreme coding' becoming a sport in the 2003 X Games, but until then I'll have to content myself with jumping out of planes," said Salz, who is a member of the MIT Skydiving Club, the Sport Taekwondo at MIT and plays clarinet in the MIT Symphony Orchestra.

The first TopCoder competition last year was won by MIT graduate student Jason Woolever (S.B. 2000 in electrical engineering and mathematics, M.Eng. 2001), who earned the \$100,000 prize in the TopCoder Collegiate Challenge in San Francisco.

A number of MIT students, fac-

ulty and researchers are among the 12,000 members of the TopCoder Collegiate Challenge organization (<http://www.topcoder.com>), which organizes and hosts online and onsite programming competitions throughout the year. The contest was sponsored by Sun Microsystems.

Seth Lloyd to give Sigma Xi lecture Monday in La Sala

Seth Lloyd, associate professor of mechanical engineering, will present this year's Sigma Xi lecture, "Computational Capacity of the Universe" Monday, May 13 at 8:30 p.m. in the Student Center's La Sala de Puerto Rico. The talk is open to the MIT community.

His lecture will be preceded by the annual initiation dinner for newly elected members of the MIT chapter of Sigma Xi, founded in 1886 as a scientific-research counterpart to honor societies such as Phi Beta Kappa. Anyone wishing to join Lloyd and the new members for the dinner beforehand should contact Professor Linn Hobbs,

MIT chapter president, at x3-6835 or hobbs@mit.edu. The cost is \$17.50.

CopyTech offers cheap copy day

The Copy Technology Centers will offer 2-Cent Copy Day to students on Thursday, May 9. Self-service copying on white paper will cost 2 cents per copy in rooms 11-004, E52-045 and at the CopyTech Express in the Stratton Student Center.

Student Notices

* Open to public
** Open to MIT community only

INSTRUCTIONS: Listings for Student Notices should be submitted using the form at <http://web.mit.edu/newsoffice/tt/calform.html>. If you have questions, please contact ttcalendar@mit.edu or x3-1683.

May 8 - 19

RELIGIOUS ACTIVITIES

The Chapel is open for private meditation 7am-11pm daily.

Baptist Campus Ministry**—Wkly events: Sundays, 6pm, Westgate Lounge, Bldg W85 bsmnt. Home-cooked meal followed by Christian discussion. Tuesdays sm group Bible study, 12:30pm, Westgate Lounge. Thursdays International Student English classes, 1-3pm, Bldg W11 board rm. Chaplain Michael Dean. More info: x3-2328 or mdean@mit.edu.

Campus Crusade for Christ**—Wkly mtg Tuesdays, 8pm, PDR 3, Student Ctr. More info: x5-6245 or gnelson@mit.edu.

Chi Alpha Christian Fellowship**—Wkly worship, Bible teaching, discussion. Tuesdays, 7:30-9pm, W11-080. More info: x3-2327, cacf@mit.edu, <http://www.mit.edu/activities/xa/main.html>.

Communitas-Life Together**—Protestant worship, Sundays, 11am. Sponsored by Amer Baptist Church, United Church of Christ, United Methodist Church, Presbyterian Church. Chaplain John Wuestneck, x2-1780 or chaplain@mit.edu.

Graduate Christian Fellowship**—Wkly mtgs Fridays, 6pm. Also wkly Bible studies, prayer and volleyball. More info: <http://web.mit.edu/mitgcf/> or mit-gcf-info@mit.edu.

Lincoln Lab Bible Study*—Mondays, 12-12:30pm, in the Group 73 conference rm, D-382. More info: Sharon Frigon at 181-7730 or frigon@ll.mit.edu.

Lutheran-Episcopal Ministry at MIT*—Worship, Wednesdays, 5:10pm, followed by dinner and program in the Bldg W11 dining rm. Tuesdays, Bible study and pizza, 6-7:15pm, Bldg W11. More info: x3-0108.

Meditation and Discourse on the Bhagavad Gita*—MIT chaplain Swami Tyagananda, monk of the Ramakrishna Mission of India. Fridays, 5:15pm, MIT Chapel. Sponsored by the MIT Vedanta Society. More info: 617-661-2011 or mehta@cyclot.com.

MIT Hillel**—Hebrew lessons: Mondays 5pm beg Hebrew, 6pm adv beg Hebrew. W11 board rm. Mondays, 5:30-6:30pm, "Conservative Discussions" led by Rabbi Winick, W11 board rm. Wednesdays, noon, Hebrew conversation table in Walker caf. Also at noon, Taste of Torah. Wednesdays, 7pm, Haftorah class, W11 board rm. Fridays, 6pm, Egalitarian Chavurah services, Orthodox Minyan services and reform services. Fridays, 7pm, Shabbat dinner. Saturdays, 9am, Orthodox Minyan services; 12:30pm Shabbat lunch. More info: x3-2982.

MIT Muslim Students Association*—Five daily prayers, Bldg W11; also Friday congregation 1:10-1:45pm, Rm W11-110. More info: x8-9285.

MIT Orthodox Christian Fellowship**—Wednesdays at 5:30pm in West Lounge 2nd floor of Student Ctr, dinner followed

by Chapel Vespers. More info: orthodox-acl@mit.edu.

Protestant Eucharist/Holy Communion*—Wednesdays, 5:10pm in Bldg W11. Sponsored by the Lutheran-Episcopal Ministry at MIT. More info: x3-2325 or lutheran@mit.edu.

Tech Catholic Community**—Sunday Mass 9:30am, 1pm and 5pm. Mass Tuesday and Friday at noon in chapel, when classes are in session. More info: x3-2981 or catholic@mit.edu.

United Christian Fellowship (UCF)**—Lg group mtgs, Fridays, 7:15pm, 3rd flr Student Ctr. Wkly dorm-based Bible studies on and off campus. More info: mitucf-request@mit.edu or <http://web.mit.edu/ucf/www>.

STUDENT JOBS

For other job listings and more information about the following listings, go to the Student Employment Office, Rm 11-120 or <http://web.mit.edu/seo>. The MIT Student Employment Office functions much like the classified section of a local newspaper, and does not screen potential employers or employees.

On-Campus Non-Technical. Student needed to work in Division of Biological Engineering during summer, starting May 20. Duties include filing, copying, running errands and library work. \$10/hr. Contact Marcia Weir, x3-4363.

Off-Campus Technical. Web/database developer needed to create attendee registration website that links w/Webex platform, auto-generates email ticklers and follow-ups, has "Request Info" forms. \$15/hr. Contact Joseph

Pusztai, 781-729-3577 or joseph.pusztai@stratutor.com.

Off-Campus Technical: Tutors and teachers needed for in-home and classroom SAT prep programs. Applicants should have a car and familiarity w/standardized tests. Flexible schedule. \$18/hr. Contact Jeff Callahan, 617-926-8541 or jcallahan@mytutor.com.

The following positions are for students with Federal Work-Study Eligibility.

Community Service (Summer). Parents Forum, a Cambridge non-profit working to create a service network for parents, needs two students to refurbish its database. Flexible hrs (4hr sessions, 1-2times/wk), on T, paid travel. \$12/hr. More info: <http://www.parentsforum.org>. Contact Eve Sullivan, x3-7182 or annals@mit.edu.

Community Service. Amigos School needs tutors interested in helping elementary school students w/math (pre-algebra, algebra and geometry). Spanish skills a plus. After school program is from 2-3:30pm, nr Kendall. \$14/hr. Contact Michal-Ann Golay, 781-862-6819 or magolay@hotmail.com.

Community Service (Summer). MATCH Summer Academy seeks English and math tutors to help reverse underachievement in inner-city teens. Academy will run 5 wks beg July 15 w/training prior to start. Mon-Thurs weekly, \$17/hr. More info: <http://www.matcheschool.org>. Contact Bob Hill, 978-371-7266 or rdhmass@aol.com.

Off-Campus Technical. Two to three students needed for short term statistical applications project. Involves adapting SPSS software to an Internet educational pilot program. Knowledge and background in multivariate analysis important. Contact David Singer, x3-5795 or brainbasedschool@aol.com.

Seniors encouraged to use web site

The MIT Alumni Association has launched a new web site designed to introduce 2002 graduates to the programs and services they will enjoy as alumni. Entitled "You Made It!" the site offers June graduates a chance to sign up for an alumni e-mail account and vote in Class of 2002 alumni officer elections.

Launched on May 1, the web site (<http://web.mit.edu/youmadeit>) offers services of interest to both graduates and undergraduates. A link to the Institute Career Assistance Network (ICAN) offers new graduates a place to network online with fellow alumni in particular regions, professions or industries. A link to alumni clubs provides a chance to join a regional MIT club—often at reduced or no cost for the first year. Both features are designed to help alumni stay connected with one another after they leave campus.

Members of the Class of 2002 can vote for alumni class officers on the site until May 16. Results will be posted shortly thereafter. And they can use the site to register for the Infinite Connection, MIT's suite of online services for alumni. The account is free and includes access to the online alumni directory.

The site will remain available to 2002 graduates at least through July.

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Printed on Recycled Paper

Flight risk of Airbus' A300-600 jet needs closer inspection, says prof

(A version of this article by Professor James H. Williams Jr. appeared in the Baltimore Sun on Monday, May 6. Williams is the School of Engineering Professor of Teaching Excellence, the Charles F. Hopewell Faculty Fellow, and Professor of Writing and Humanistic Studies at MIT.)

Like many of my generation, I recall where I was and what I was doing when I heard the news of the assassinations of J.F.K., M.L.K. and R.F.K. Unlike many of my generation, I also recall where I was and what I was doing when I heard the news from Orly, France in March 1974, Tenerife, Spain in March 1977, Chicago in

May 1979, Mount Otsuka, Japan in Aug. 1985, Lockerbie, U.K. in Dec. 1988 and New York in July 1996: all major crashes of commercial airliners.

On Nov. 12, 2001, as I worked in front of a muted TV set tuned to cable news, I witnessed early broadcasts of the crash of American Airlines Flight 587, an Airbus Industrie's A300-600, in Belle Harbor, Queens, about 103 seconds after takeoff from J.F.K. International Airport. All 251 passengers, a crew of nine and five persons on the ground were killed.

Much of the investigation of the accident has focused on the aircraft's vertical stabilizer, a state-of-the-art, approximately 28-foot-tall complex structure that has been implicated in the crash. The vertical stabilizer on Flight 587 snapped off—a unique occurrence in modern commercial aviation—and landed in Jamaica Bay, away from the fuselage crash site.

For 30 years, the bulk of my research has been dedicated to the mechanics, design, fabrication and non-destructive evaluation (NDE) of non-metallic fiber-reinforced composite materials, the type used to make the Airbus A300-600 vertical stabilizer. I have thought about Flight 587 every day since the crash.

In essence, Airbus's NDE policy for its A300-600 composite vertical

stabilizer is that damage that cannot be seen with the unaided eye will not compromise its structural integrity. This policy is lamentably naive. It is analogous to assessing whether a woman has breast cancer by looking at her family portrait.

Although Airbus has attempted to defend its NDE policy, the vertical stabilizer on at least one other A300-600, which displayed no damage to the unaided eye, upon closer inspection contained a significant structural flaw. Airbus has stated that, even with such damage, the aircraft was safe to fly.

The Federal Aviation Administration (FAA), in conjunction with the National Transportation Safety Board (NTSB), appears to be moving towards a more rational NDE policy that would ground all A300-600s that experience lateral forces exceeding 35 percent of the force of gravity. Lesser requirements would be imposed on aircraft experiencing lesser, though high, lateral forces. Airbus's input would be sought regarding subsequent inspection of each such aircraft, though I believe Airbus's potential advice has been compromised by its dubious policies.

Dozens of American Airlines A300-600 pilots feel they have been stonewalled in their requests for strong corporate and regulatory actions, and although they believe the inspection policies for this aircraft are inadequate, they continue to fly, as the investigation proceeds at a sluggish pace. Although the NTSB and the FAA have been slow in this investigation, it is my hope that, with NASA's technical support, they will ultimately fulfill their missions concerning Flight 587. Even so, that would be just the beginning. Several unvoiced issues remain, two of which are the aging and the repair of nonmetallic fiber-reinforced composites.

By aging, I mean the deterioration that occurs during long-term in-service mechanical and environmental

loading, in the absence of an overloading or catastrophic event. When subjected to the loading histories of aircraft, composites lose both strength and stiffness. Furthermore, studies of the long-term effects of exposure to aircraft environments of moisture, pressure and temperature remain to be conducted for many composite materials. Since such deterioration may be monitored nondestructively, we observe another rationale for long-term NDE monitoring.

Reportedly, the vertical stabilizer on Flight 587 had been repaired with metal rivets and additional materials. Such repairs of structural damage in composites are frequently unreliable, especially for joints and attachments involving primary (load-bearing) structures. The rupture of the vertical stabilizer on Flight 587 occurred in the vicinity of repairs, adjacent to an attachment point. Therefore, the FAA must carefully establish and articulate a policy for the repair of primary composite structures.

Finally, Airbus's extensive design and testing programs for the A300-600 composite vertical stabilizer may be deficient if they were based on outmoded or flawed engineering assumptions or an inadequate certification process. No amount of analysis can overcome faulty assumptions or insufficient requirements.

The specific cause(s) of the crash of Flight 587 remains uncertain; uncommanded rudder inputs, wake turbulence and structural failure—perhaps in combination—are the prime candidates. Several issues concerning primary composite aircraft structures are not under contention; paramount among these are the requirements for more effective implementation of their NDE and a better understanding of their aging and repair. With thousands of commercial aircraft containing structures made of composite materials, the safety and comfort of our families, friends and the dedicated crews who serve us demand that these issues be addressed. Out of respect for those directly affected by Flight 587, the sooner, the better.

Viewpoint

Six elected to Academy of Arts and Sciences

Six MIT affiliates were elected as fellows of the American Academy of Arts and Sciences on April 30.

The new MIT Fellows are **Michael J. Hopkins**, professor of mathematics; **James G. Fujimoto**, professor of electrical engineering and computer science; **Alice Petry Gast**, vice president for research and associate provost; senior research scientist **David D. Clark**; **Joshua Cohen**, head of the Department of Political Science and a professor of philosophy; and **Philip S. Khoury**, dean of the School of Humanities, Arts and Social Sciences. They will be inducted at a ceremony scheduled for Oct. 5.

This year's class of 177 fellows

and 30 foreign honorary members included four college presidents, three Nobel Prize winners, six Pulitzer Prize winners, three MacArthur Fellows and six Guggenheim fellows. Senator Edward M. Kennedy, former Senator Warren Rudman, violinist Itzhak Perlman, Academy Award winner Anjelica Huston and author Oliver Sacks are among them.

Members are nominated and elected by current members of the Academy and divided into five classes: mathematics and physics, biological sciences, social sciences, humanities and arts, and public affairs and business.

The Academy was founded in 1780 by John Adams, James Bowdoin, John

Hancock and other scholar-patriots "to cultivate every art and science which may tend to advance the interest, honor, dignity and happiness of a free, independent and virtuous people." The Academy has elected as members some of the finest minds and most influential leaders of each generation, including George Washington and Ben Franklin in the 18th century, Daniel Webster and Ralph Waldo Emerson in the 19th and Albert Einstein and Winston Churchill in the 20th.

Drawing on the wide-ranging expertise of its membership, the Academy conducts non-partisan studies on international security, social policy, education and the humanities.

Vest urges Congress to invest in science ed

President Charles M. Vest and two undergraduate students went before Congressional leaders and staff May 1 to emphasize the vital importance of a national investment in science and technology education.

Vest spoke on the issue of continued federal support for a national investment in science, engineering and mathematics education, emphasizing the importance of instilling enthusiasm for these fields in children.

To underscore his emphasis on the relationship between a young student's enthusiasm and consequent achievement in science, Vest introduced two outstanding MIT students, Daniel San-

doval and Tricia Um.

Sandoval is a senior majoring in mechanical engineering from El Paso, Tex. He is a first-generation United States citizen who became interested in engineering and science when he attended the MITE²S summer program at MIT in 1997.

Sandoval received the 2001 Hispanic Engineer National Achievement Awards Corporation's Student Leadership Award. He plans to attend graduate school at Stanford University.

Um is a sophomore with a double major in management and electrical engineering and computer science. She was born in Yorba Linda, Calif.

and was named a Gates Millennium Scholar in high school.

Um works with Professor Eric Klopfer to integrate computers into K-12 math and science classrooms. She was attracted to engineering and science through a high school teacher's use of innovative software in her Advanced Placement chemistry class.

The Office of Science and Technology Policy and the American Chemical Society, in partnership with the U.S. Department of Commerce and the House Science Committee, sponsored the luncheon on the theme of "Science and Technology: Serving our Global Community."

Shadowy walk



A sunny day makes for a shadow-filled walk. Photo by Laura Wulf

Faculty meeting scheduled

A regular meeting of the faculty will take place Wednesday, May 15 at 3:30 p.m. in Room 10-250. The agenda will include:

- Vote on the sense of the faculty resolution on the importance of undergraduate mentoring, by Professor Hodges
- Vote to change the date of Commencement in 2006, by Professor Graves
- Vote on the report of the Committee on Nominations, by Professor

Toomre

- Vote to disband the Committee on Corporate Relations, by Professor Baggeroer
- Update from the Committee on Access to and Disclosure of Scientific Information, by Professor Chan
- Recognition of retiring faculty members, by Professor Graves
- Election of the members of the Faculty Ex Officiis, by Professor Graves
- Report of the Killian Committee, by Professor Hausman.

Nightingale appointed co-director of Lean Aerospace Initiative

■ By Nancy DuVergne Smith
CTPID Communications Director

The new co-director of the Lean Aerospace Initiative hopes to spread lean principles and practices to the entire aerospace industry through the group's new book, a summer course for executives and a new research focus.

Deborah S. Nightingale, professor of the practice in the Department of Aeronautics and Astronautics, will promote an enterprise approach—working with a corporation and its associated suppliers to improve the design, fabrication and delivery process of a product—in “Lean Enterprise Value: Insights from MIT’s Lean Aerospace Initiative,” (Palgrave, 2002). The book, based on nine years of research, was written by a 13-member team led by long-time Lean Aerospace Initiative co-director Earl Murman, professor of aeronautics and astronautics. Nightingale will promote industry-wide change with an executive short course on campus June 19-21.



Nightingale

“We see a huge opportunity to impact the whole enterprise,” said Nightingale. “We need leadership involvement for this level of change and we are seeing it—more senior executives are involved, both on the industry and government side.”

Nightingale joined the Lean Aerospace Initiative, a research program of the Center for Technology, Policy and Industrial Development, in 1997 with a Ph.D. in industrial and systems engineering from Ohio State University. She was head of strategic plan-

ning and business development for AlliedSignal and a senior research engineer at Wright-Patterson Air Force Base’s Human Engineering Lab before joining the MIT faculty.

The Lean Aerospace Initiative engages 17 faculty and researchers from aeronautics and astronautics and the Sloan School of Management in seven collaborative research teams that involve hundreds of people in more than 50 corporations and governmental agencies. It was founded in 1993 by the United States Air Force, MIT, labor unions and defense aerospace businesses to revolutionize the industry based on the lean philosophy.

“Lean” means adding value by eliminating waste, being responsive to change, focusing on quality and enhancing the effectiveness of the workforce. Research by the consortium has resulted in cost and time savings and quality improvements. For instance, it cut in half the delivery time for the GE Lynn aircraft engine.

Nightingale, co-head of the Lean Enterprise Team, directed the creation of the Lean Enterprise Self-Assessment Tool, released April 22, and other large-scale products.

Nightingale and co-directors Thomas Allen, the Howard W. Johnson Professor of Management, and an industry representative to be appointed will jointly lead the consortium. They will work with the Sloan and engineering schools, as well as the Engineering Systems Division, to recruit students, faculty and researchers who take a holistic view of large-scale systems and want to transform industries. The partnership between engineering and management will be even more important in this phase, she believes.

“It’s the people, not just the processes or technology or products, that really determine whether you’re going to have value,” said Nightingale.

Wife and husband defend Ph.D. theses on same day

(continued from page 1) the last few weeks,” said Walton. “Actually, it wasn’t tense at all. We were never home.”

“And now,” said Weigel, “we get to go out and celebrate together.”

After the June 6 hooding ceremony, the couple is headed for Wall Street to do equity research on space-related companies, Weigel at Lehman Brothers and Walton for Morgan Stanley.

They met when both were assigned to the same laboratory group as research assistants at the Lean Aerospace Initiative in 1998. When friends asked Walton, a drummer, to play piano at their wedding, he turned to Weigel, who is an accomplished pianist.

She loaned her keyboard and amplifier to Walton and helped him master Wagner and Mendelssohn. Nor-

mal laboratory camaraderie blossomed into a closer relationship. “He did really well,” said Weigel, who did not attend the wedding. “If I were there, it probably would have made him nervous.”

They got engaged in 1999 and married on Aug. 26, 2000.

“They got married when they both worked for me,” said Professor Daniel Hastings of aeronautics and astronautics and engineering systems, who was advisor to both. “When they started working for me, they were engaged. It did not make any difference to me since I treated and saw them individually.”

Hastings joked that MIT saved the cost of one hotel room when Walton and Weigel attended conferences or met with sponsors. “I also found that I could pass things on to one of them and the other would get it,” he said.

Their peers in the Department of Aeronautics and Astronautics and the Engineering Systems Division program packed the room for their presentations, joined by faculty and students from allied disciplines. Despite lack of sleep, each handled pointed questions with poise.

“It was a pleasure working with both of them because they are first-rate students, which is the best reason to be at MIT,” said Hastings, who also is associate director of the Engineering Systems Division. “In both cases, their work has really impressed the sponsors.”

The admiration was mutual.

“We were lucky to have advisors and research groups who didn’t see the fact that we are married as a distraction,” said Walton.



At Monday’s press conference announcing Novartis’ new research center in Tech Square, the remarks of Cambridge Mayor Michael Sullivan amused (left to right) Cambridge City manager Robert Healy, MIT President Charles M. Vest, U.S. Senator Edward Kennedy and Novartis chairman and CEO, Dr. Daniel Vasella.

Photo by Donna Coveney

Novartis’ drug research center will be located in Technology Square

(continued from page 1) campus. Across the Charles River are Boston’s famed hospitals.

Novartis will organize its worldwide research activities under the umbrella of the Novartis Institute for Biomedical Research (NIBR). The new research facility at 100 Technology Square will encompass the building’s entire 255,000 square feet of laboratory and office space, with room for 400 scientists and technology experts.

Eventually, under a 10-year expansion plan that also includes space in adjacent buildings, 900 scientists will be based here.

“We at MIT are absolutely delighted that this great company has selected Technology Square” as a nucleus for future biomedical development, said MIT President Charles M. Vest, who hosted the news conference in the MIT President’s House, now known as the Gray House in honor of former President Paul E. Gray and Priscilla K. Gray.

Cambridge Mayor Michael Sullivan said the 2 percent vacancy rate in biotech space allowed Cambridge to thrive despite its 27 percent vacancy rate in commercial space. “Not only are you providing jobs, you are providing life-saving drugs that will help our people,” said Sullivan, noting Novartis makes drugs for diabetes, a disease that affects members of his family.

Novartis’ research activities in Europe, the United States and Japan will be led out of Cambridge by its new

head, Dr. Mark Fishman, who was introduced at the conference. He is currently chief of cardiology and director of cardiovascular research at Massachusetts General Hospital and professor of medicine at Harvard Medical School.

“Our establishment of NIBR in Cambridge, in the midst of one of the world’s most impressive pools of scientific talent and academic institutions, will help attract the best researchers and increase research productivity by capitalizing on the vast increase in therapeutic targets stemming from the sequencing of the human genome,” Vasella said.

Among Novartis’ drugs is Glivec/Gleevec, an FDA-approved leukemia drug. Basic research at MIT’s Center for Cancer Research (<http://web.mit.edu/newsoffice/nr/2001/gist.html>) led to the experimental use of Glivec for some patients with Gastrointestinal Stromal Tumor (GIST), a rare and otherwise incurable cancer. Results so far have been promising.

One of the participants in the news conference was Norman Scherzer, head of the Life Raft GIST patient group, an Internet support group for GIST patients and their families. Scherzer lauded Vasella for developing a drug “for a very few patients.” He said he expected his wife to die of the disease a year ago, but she took the drug and recovered. He introduced her at the event, to spontaneous applause.

Vasella said that science policy in the United States, particularly the \$20 billion research budget of the National Institutes of Health, was a key factor in the decision to locate the center in the United States. European investment in such research is only \$1.8 billion, he said. The United States also has 30 percent more Ph.D.s per capita than Europe. The various factors create a magnet for drug research in Cambridge, he said.

The Novartis “research campus” will focus on the discovery of new drugs for diabetes, cardiovascular and infectious diseases.

The Novartis building is in front of 200 Technology Square, the home of the MIT Lab for Computer Science and the Artificial Intelligence Lab. Technology Square was originally developed by MIT three decades ago. MIT sold it in 1973, but last February, MIT purchased the property and the new buildings under construction there for \$278.8 million. The property is in the investment portfolio of MIT, which is Cambridge’s largest taxpayer at \$15 million a year.

Novartis AG, a company formed in 1996 out of the merger of Sandoz AG and Ciba Geigy AG, produces pharmaceuticals, consumer health products, generic drugs, eye care and animal health products. Headquartered in Basel, Switzerland, Novartis Group companies employ about 72,600 people and operates in more than 140 countries.

Cambridge, MIT are magnets for biotech

The decision of pharmaceutical giant Novartis to move its research center into Technology Square in Cambridge, Mass., is confirmation of the status of this small city of 101,000 as a world magnet for biotechnology and pharmaceutical companies. The heart of the biotech/pharmaceutical area is the circle of development around MIT. Up the Charles River is Harvard University; across the river are Boston’s famed hospitals.

● Of the top 25 biotechnology research and development firms in Massachusetts, 14 are in Cambridge, according to the 2002 Boston Business Journal Book of Lists.

● Thirteen of those firms have bought or leased space within a mile of MIT and affiliated institutions, such as the Whitehead Institute and the MIT-Whitehead Human Genome Center. Those 13 firms account for two-thirds—or \$1.175 billion—of R&D spending by the top 25 biotechnology firms.

● Altogether, Cambridge has 60

biotech/pharmaceutical companies that are members of the Massachusetts Biotechnology Council.

● Fifty-two of these cutting-edge Cambridge firms have settled within a mile of MIT—36 firms near Central Square, 13 in the Kendall Square area and two in East Cambridge.

● At least 21 of the 60 Cambridge firms have licensed technology from MIT or were founded by MIT alumni or faculty. These firms include Biogen, Millennium Pharmaceuticals, Ariad Pharmaceuticals, Genzyme, Alkermes and Biopure, all of which were included in the Boston Business Journal’s top 25 R&D biotech firms list.

MIT AND TECHNOLOGY SQUARE

Technology Square, the future home of the Novartis Institute for Biomedical Research, played a key role in Cambridge’s high-tech development. In the 1960s, MIT and the real estate firm Cabot, Cabot and Forbes responded to the request of Mayor Edward A. Crane and used private money to convert a former soap factory into

Technology Square, one of Cambridge’s first large-scale commercial real estate developments. MIT sold its interest in 1973 and repurchased it in 2001. It is again part of MIT’s investment portfolio.

NATIONAL IMPACT OF MIT ENTREPRENEURS

Nationally, MIT has been important in generating entrepreneurial scientists, engineers and managers who have founded biotech companies. A 1996 MIT study of the biotech industry (<http://web.mit.edu/newsoffice/nr/1996/41667.html>) found that nine of the 10 best-selling biotech drugs in 1994 were developed by companies that were founded or co-founded by MIT alumni or faculty. The drugs developed by Amgen, Biogen and Genentech treat heart attacks, cancer, leukemia, viruses, infections from chemotherapy, infectious diseases, AZT treatment of AIDS, anemia, diabetes, hepatitis, growth hormone deficiency, Kaposi’s sarcoma and other diseases.

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Awards & Honors

■ The Jewish National Fund honored Institute Professor **John Deutch** recently at a gala event attended by hundreds of political and communal leaders. Deutch is past director of the CIA and former Deputy Secretary of Defense. At the event, Israel's ambassador to the United States, David Ivry, said that Deutch can take pride in his years of commitment to making the world a better place.

■ A company founded by several people with MIT affiliations won the \$25,000 grand prize in a nationwide business plan competition that promotes the creation of social ventures, or businesses with both financial and social returns on investment. The business plans were judged on the basis of the feasibility of their business concepts and potential impacts of the ventures' stated social and/or environmental goals.

The winning company, Wilson TurboPower, Inc. develops equipment for distributed power generation based on MIT technology that makes it possible for microturbines to be competitive on both cost and efficiency with big central power plants. WTPI was one of 77 companies entered in last month's National Social Venture Competition.

The WTPI team includes MIT Professor Emeritus **David Gordon Wilson** of mechanical engineering, and alumni **Richard McRay** (S.B. 1961, S.M.), **John Wasserlein** (S.B. 1963), **Bruce Anderson** (S.B. 1970, M.Arc.) and **Douglas Zingale** (S.B. 1973). Cambridge-MIT Institute exchange student **Peter Eckley**, a junior in physics, and **Joern Kallmeyer**, a graduate student in management, represented the student body in this team.

Also among the contest's finalists was a second MIT team, *VasculaRegenesis*, led by **Simon Chiavarini**, an M.B.A. student at Sloan. His company aims to revolutionize pediatric heart surgery by using a tissue-engineering approach to develop heart valves.

■ **John Dower**, the Elting Morison Professor of History, was honored at the Boston Public Library's 14th Literary Lights dinner April 14. Dower is author of "War Without Mercy," "Empire and Aftermath" and the Pulitzer Prize-winning "Embracing Defeat." The Literary Lights dinner was founded to celebrate New England authors and raise awareness of the library's re-



Members of Wilson TurboPower Inc. won the \$25,000 grand prize from the Social Ventures business plan competition. Pictured (left to right) are: Richard McRay (S.B. 1961, S.M.); Professor Emeritus David Gordon Wilson of mechanical engineering; John Wasserlein (S.B. 1963); Joern Kallmeyer, a graduate student in management; Fredric Young (S.M. 1960), a friend of the team; and Bruce Anderson (S.B. 1970, M.Arc.).

sources. Author and literary critic Harold Bloom gave the keynote address.

■ A team of M.B.A. students from the Sloan School of Management placed second at the annual Digital Strategy Case Competition at Carnegie Mellon University in February. **Shuman Ghosemajumder**, **Niall Corrigan**, **Keelan Yang** and **Michael Banks**, all class of 2002, and **Ernesto Borbon**, class of 2003, made recommendations on a competitive strategy for a health care system and won a cash prize as runners-up.

■ Professor **Richard Larson** has just returned from Hong Kong University, where for two weeks he served as the Sir Edward Youde Memorial Fund Visiting Professor. The Youde Professorship, awarded annually, was established in 1995 to provide more opportunities for education and cultural exchanges between Hong Kong and the global academic community.

Faculty who receive the professorship conduct lectures locally and explore the possibility of undertaking research with local tertiary institutions. Larson, a professor of electrical engineering and director of the Center for Advanced Educational Services, delivered a public lecture on "Beyond the Physics of Queuing." During his stay he also gave several lectures in the fields of operations research and

distance learning.

■ **Alla Grishok**, a postdoctoral fellow at the Center for Cancer Research, was one of 17 recipients of the 2002 Weintraub Graduate Student Award. The award is presented by the Fred Hutchinson Cancer Research Center in Seattle and recognizes excellence in the biological sciences. Grishok was invited to participate in a symposium with the other winners May 3 and 4.

Grishok also won a three-year Damon Runyon Cancer Research Foundation postdoctoral fellowship. The fellowship goes to young scientists whose theoretical and experimental research focuses on cancer prevention and therapies.

■ The Deloitte Foundation awarded Sloan School doctoral candidate **Xu Li** \$25,000 in March as part of its doctoral fellowship program. The foundation is funded by Deloitte & Touche, a professional services firm, and encourages individuals to "advance both the theory and practice of accounting."

■ **Henry Jenkins**, director of the Comparative Media Studies Program, will deliver the commencement address at The New England Institute of Art and Communications on May 11. The school grants degrees in au-

dio production, broadcasting, graphic design, internet communications and multimedia and web design. Jenkins' work has focused on subjects such as media violence and video games.

■ Three members of the MIT community have won 2002 Guggenheim Fellowships. **Stephen Alter**, writer-in-residence; **Gang Chen**, associate professor of mechanical engineering; and **Andrew W. Lo**, the Harris & Harris Group Professor and director of the Laboratory for Financial Engineering were among the 184 artists, scholars and scientists who will share \$6.75 million in awards. Past recipients included Ansel Adams, Aaron Copland, Langston Hughes, Vladimir Nabokov and Paul Samuelson.

■ Eta Kappa Nu, the electrical and computer engineering honor society, has presented MIT Beta Theta Chapter faculty adviser **John Tucker** with the Eminent Member Award. The award is given to "the most outstanding leaders of the electrical and computer engineering profession, who are considered benefactors of mankind."

■ The Alfred P. Sloan Foundation has selected 104 young scientists and economists to be Sloan Research Fellows, including nine from MIT. They are **Peter H. Seeberger** and **Andrei Tomakoff** of the chemistry depart-

ment; **Hari Balakrishnan**, **Tommi Jaakkola** and **Santosh S. Vempala** of electrical engineering and computer science; **Esther C. Duflo** of the economics department; **Andras Vasy** of mathematics; **James DiCarlo** of brain and cognitive sciences; and **Todadri Senthil** of the physics department. Fellows will receive \$40,000 to further their current research and pursue new lines of inquiry.

■ **Eric S. Lander**, professor of biology and director of the Whitehead Center for Genome Research, is one of eight winners of the 2002 Gairdner International Award, which recognizes outstanding achievements in genomic research. Lander won for his "major seminal contributions to sequencing of human and other genomes." He will accept the \$30,000 award on Oct. 24 in Toronto.

■ **David Altshuler**, director of the Medical and Population Genetics Program at the Whitehead Center for Genome Research, recently won a trio of awards for his work, which applies genomics to the dissection of diseases like diabetes. He is one of four winners of a Charles E. Culpeper Scholarship providing \$100,000 a year for three years.

Altshuler also was named a Burroughs Wellcome Fund Clinical Scholar in Translational Research. The award supplies \$150,000 a year for five years to "physician-scientists whose work bridges the gap between basic research and patient care." And, the Department of Medicine at Massachusetts General Hospital gave Altshuler the Stephen Crane Award. The recipient receives \$1,000 and gives an honorary lecture at MGH.

■ **Dominik Rabiej**, a sophomore in electrical engineering and computer science, is one of 16 United States undergraduates to be named a Goldman Sachs Global Leader. Rabiej has done artificial intelligence research in the Media Lab and has helped construct community web sites such as *teenhealthnet.com*. A ceremony was held on April 25 to honor the winners, each of whom received \$2,000.

■ **Yukie Tanino**, a junior in environmental engineering, has been selected as a 2002-2003 Tau Beta Pi Scholar, the national engineering honor society. Tanino will receive \$2,000 toward future engineering study.

Whitehead Institute to make 96 percent of mouse genome available to public

International scientists from the Whitehead/MIT Center for Genome Research and other institutions announced Monday that more than 96 percent of the genetic blueprint for the mouse, the most important animal model in biomedical research, has been deposited into public databases.

The International Mouse Genome Sequencing Consortium said it had assembled and published an advanced draft sequence of the mouse genome, which has roughly the same number of genes as the human genome.

The sequence is posted on the Internet where it is freely available to all scientists. The mouse genome was previously sequenced privately by Celera Genomics but is available only to their subscribers, The New York Times reported.

The mouse genome is contained in 20 chromosome pairs and the current results suggest that it is about 2.7 billion base pairs in size, or about 15 percent smaller than the human genome. The human genome is 3.1 billion base pairs spread out over 23 pairs of chromosomes (22 autosomes and the X and Y sex chromosomes). Analysis

of the genome assembly so far has found more than 22,500 high quality gene predictions, with additional predictions expected to take the total to about 30,000.

The draft sequence was assembled by the Mouse Genome Sequencing Consortium, an international team of researchers from the Whitehead Institute, Washington University in St. Louis, and the Wellcome Trust Sanger Institute and European Bioinformatics Institute in England, with funding from the National Human Genome Research Institute of the National Institutes of Health, and the Wellcome Trust in the U.K.

The results from this analysis can be found at several websites, including <http://mouse.ensembl.org> at the European Bioinformatics Institute, <http://www.ncbi.nlm.nih.gov/genome/guide/mouse> at the National Center for Biotechnology Information at the National Library of Medicine and <http://genome.ucsc.edu> at the University of California at Santa Cruz. A comparison between the mouse sequence and the human sequence can be found at all three sites.

"The mouse sequence provides a

very important chapter from evolution's lab notebook," said Eric Lander director of the Whitehead/MIT Center for Genome Research and MIT professor of biology. "Being able to read evolution's notebook and compare genomic information across species will allow us to glean important information about ourselves. That's because evolution preserves the most important genetic information across species. If specific DNA sequences have been preserved by evolution over hundreds of millions of years, then they must be functionally important."

Francis S. Collins, director of the National Human Genome Research Institute, commented, "The mouse sequence is much further along in the process than the human sequence was at the draft stage. Methods for efficient sequencing of large genomes continue to advance dramatically, and the sophistication of the team that accomplished this goal is truly impressive. This sets a new standard for speed, accuracy and public accessibility."

The achievement represents a major milestone for the Human Genome Project because it provides a key tool

needed by scientists around the world to interpret the human sequence, a draft version of which was published last year. This information will allow researchers to gain insights into the function of many human genes because the mouse carries virtually the same set of genes as the human, but can be used in laboratory research.

The draft sequence shows the order of the DNA chemical bases A, T, C and G along the 20 mouse chromosomes. It includes more than 96 percent of the mouse genome with long, continuous stretches of DNA and represents a seven-fold coverage of the genome. This means that the location of every base, or DNA letter, in the mouse genome was determined an average of seven times, a frequency that ensures a high degree of accuracy.

The quality of the working draft sequence far exceeds the consortium's original expectations for this stage and was completed much sooner than initially expected, reflecting the tremendous efficiencies gained in sequencing and computational technologies in the past few years.

This milestone concludes the sec-

ond phase of the consortium's mouse sequencing effort: the production of a draft sequence by whole-genome shotgun method. In Phase III, the consortium will produce a finished version with the remaining gaps filled in and errors resolved. This phase will proceed using the publicly available mouse genome clone map.

MIT E-NEWS

A monthly e-mail update of MIT news is now offered by the News Office.

MITE-NEWS includes campus and research news, profiles, and a selection of upcoming events and newsclips.

For more information and to subscribe, go to <http://web.mit.edu/newsoffice/en>, or send a message to listserv@listserv.mit.edu. In the message area, type SUBSCRIBE MITNEWS followed by your full name.

MIT HUMAN RESOURCES

MIT Human Resources is located at 400 Main Street (Building E19, Room 215) in Cambridge, Massachusetts. Our mailing address is MIT Human Resources, P.O. Box 391229, Cambridge, MA 02139-0013. Our World Wide Web address is <<http://web.mit.edu/personnel/www/>>.

EMPLOYMENT POLICY

MIT is an equal opportunity/affirmative action employer.

The Massachusetts Institute of Technology does not discriminate against any employee or applicant for employment on the basis of race, color, gender, sexual orientation, religion, disability, veteran status, age, or national or ethnic origin in the administration of its employment policies and practices.

ABOUT POSITIONS AVAILABLE

Positions Available includes non-faculty jobs. A more comprehensive list can be found in the Human Resources reception area (Building E19-215) and on the web at <<http://web.mit.edu/jobs/>>.

- o Job numbers are listed at the end of each position and should be referenced when inquiring about positions.
- o The one or two letter code which appears at the end of job numbers refers to the position's salary range. If no code appears, the salary range for the position will depend upon experience. Salary ranges are available on our web site <<http://web.mit.edu/personnel/www/compensation/salarybands.htm>>.
- o New job postings are listed first in each of their respective sections.
- o Support staff positions are separated according to level of experience necessary.
- o Part-time positions (of all types) can be found in a separate section at the end of the listings.

APPLYING FOR A POSITION

For information about applying for available positions, including our on-line process, see Page 7 of this publication.

MIT employees should contact their human resources officer to apply for positions for which they feel qualified.

If you are an applicant with a disability and need **special assistance or accommodation** to complete your application form, take a typing test, interview, or perform any other part of the employment application process, please notify Human Resources in person, by calling (617) 253-4251, or by writing to Human Resources in advance so that arrangements can be made.

HR OFFICERS

Brian Chenery	452-3700	Lianne Shields	253-8381
Che Eagle	253-5990	Etaine Smith	258-9406
Lucy Lui	253-1594	Jennifer Walsh	253-4275
Robert Muti	253-5885		

SMOKING PROHIBITED BY LAW

In conjunction with the City of Cambridge Ordinance #1046, effective March 7, 1987: Smoking is prohibited in all MIT academic and service buildings located in the City of Cambridge.

WHERE TO FIND IT

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Other Administrative	4
Academic Staff	5
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NEXT ISSUE: May 22, 2002
(deadline: May 15, 2002)

SUPPORT STAFF

ADMINISTRATIVE SECRETARY/ASSISTANT

These positions require a minimum of 4.5 years of experience.

COMMUNICATIONS CONSOLE OPERATOR, Facilities, to receive and respond promptly to telephone calls, e-mail, voice mail, and WWW reports of fire trouble, maintenance requests, and other related issues. Will monitor the Institute's fire alarm system and operate the Facilities Control System including the diagnosis of heating and cooling problems and implementation of appropriate corrective action; maintain daily computerized log of all calls and alarms, indicating action taken; issue work orders; dispatch personnel to investigate problems; operate various pieces of communications equipment, e.g., paging system, radio network, telephones, etc.; and perform other duties as needed. **REQUIREMENTS:** experience in a customer service, facilities management environment. HVAC experience desired. Excellent organizational skills and ability to interact productively with others, meet strict deadlines, and manage multiple priorities essential. Ability to work well both independently and as part of a team important. Discretion and good judgment required. This is a three shift operation. Schedule to be determined. **02-0303GD**

ADMINISTRATIVE ASSISTANT, Harvard/MIT Division of Health Sciences and Technology, to support the activities of three professors and one senior research scientist. Will maintain financial records and prepare monthly budgets; serve as a primary source of information about policies and procedures; interact with representatives from outside agencies; keep supervisor informed of policy changes; organize, write, and prepare data and reports; maintain supervisor's calendar and aid in scheduling meetings, appointments, and travel; independently prepare and compose correspondence; and handle other duties as requested. Will also monitor lab operating expenses and reconcile monthly accounting statements, prepare proposal forms for grants in conjunction with headquarters' staff, provide orientation to new lab members, and have signatory authority for invoices. Office management functions will include answering telephones and redirecting calls, assisting with research group activities, maintaining office supplies and equipment, providing secretarial support as needed, and managing office files. **REQUIREMENTS:** proficiency in the use of electronic mail, Microsoft Word, Excel, and database and calendar programs; excellent proofreading, editing, and writing skills; good judgment; and ability to work both independently with minimal supervision and as part of a team. Excellent interpersonal skills and ability to interact with a diverse group of researchers, students, corporate sponsors, and administrators needed. Flexibility and ability to adapt to fast moving and evolving research environment important. Bachelor's degree preferred. **02-0368GD**

ADMINISTRATIVE ASSISTANT, Mechanical Engineering, to provide secretarial and administrative support for two faculty members. Duties include reviewing, distributing, and responding to correspondence, voice messages, and faxes; providing telephone coverage; photocopying; sending e-mail; faxing; purchasing office supplies and equipment; making complex travel arrangements and processing travel expense vouchers and requests for payment; paying invoices; generating journal vouchers and purchase orders; implementing or maintaining office filing system; assisting in the preparation of grant proposals and budgets; monitoring, reconciling, and projecting accounts; and handling other general office duties as needed. **REQUIREMENTS:** excellent interpersonal and communication skills for dealing with students, faculty, staff, and visitors; good judgment; and tact, discretion, and ability to maintain confidentiality. Seek highly organized and motivated individual who can prioritize and carry out detailed work. Should enjoy working independently or as part of a team in a very busy office with frequent interruptions. Experience with Macintosh computers and Microsoft Word and Excel software important. Willingness to learn SAPweb and Eudora (e-mail system) necessary. Knowledge of PowerPoint helpful. Must be willing to learn other applications if needed. Bachelor's degree and/or equivalent experience and knowledge of MIT preferred. **02-0353GD**

ADMINISTRATIVE ASSISTANT, Human Resources, to provide administrative support to the Disability Services Office (DSO). This includes the Manager of Disability Services and administrators for Workers' Compensation (WC) and Long Term Disability (LTD). The duties include serving as primary contact and information resource, assisting in the coordination and production of DSO/WC/LTD information, maintaining budget, scheduling and coordinating logistics for meetings, providing telephone coverage, sending e-mail and faxes, photocopying, typing correspondence and reports, opening and distributing mail, maintaining filing systems, and performing other duties as assigned. **REQUIREMENTS:** a high school diploma, proficiency with Microsoft Office, and willingness to learn new software applications as needed. Must be flexible with the changes that take place in the DSO/WC/LTD. Excellent interpersonal skills, discretion, and good judgment required. Seek self-motivated individual who is highly organized and has the ability to prioritize tasks. College education may be credited toward experience requirement. **02-0340GD**

ADMINISTRATIVE ASSISTANT, Center for Cancer Research, to handle complex and varied administrative responsibilities for the Director, Associate Director, and Assistant Director. Duties include acting as primary point of contact/liaison between Department Head and faculty, students, visitors, alumni, donors, MIT administrators, and the general public; making complex calendar and travel arrangements; reviewing gift reports and preparing routine acknowledgments; making arrangements for social functions sponsored by the department; composing correspondence for Department Head's signature as well as own correspondence; preparing department newsletter; maintaining accurate files; handling incoming mail for responses and priority purposes; overseeing departmental photocopying facility; scheduling meetings and faculty and staff lunches; maintaining office and conference room calendars; ordering office supplies; handling special projects including annual scientific retreat and annual symposium; seeing to the overall smooth running of the office; and providing backup coverage for headquarters. Will also provide some support for Financial and Personnel Administrators and Director of Development. **REQUIREMENTS:** highly developed interpersonal skills and ability to interact with a diverse group of people and work both independently and as a team member with minimal supervision. Good judgment, excellent organizational and communication skills, and attention to detail important. Must be able to prioritize, handle multiple tasks concurrently, and work efficiently to meet deadlines in a very busy environment. Seek a self-starter who possesses initiative, versatility, flexibility, attention to detail, tact, and discretion. Computer skills essential (Word, Excel, FileMaker). Knowledge of MIT systems preferred. **02-0311GD**

ACCOUNTS MANAGER (Administrative Assistant), Center for Cancer Research, to provide support to the Fiscal Officer for administration of research accounts. Duties include maintenance of appropriate account and proposal documentation; working with PIs and lab staff in oversight, review, and reconciliation of research accounts; monitoring and correcting account transaction activity; maintaining research records and files; preparing reports of individual research account activity; preparing and processing all requisitions for research accounts; and preparing research project projections. Will also assist the Fiscal Officer in the grant proposal development process and serve as level two approver for SAP transactions for labs. **REQUIREMENTS:** excellent communication skills and experience working with computer-based applications. Preference given to those with experience in research accounting, budgeting, or performing similar tasks. Must have strong organizational and interpersonal skills and be able to set goals and objectives, meet deadlines, and work both independently and as part of a team. **02-0310GD**

ADMINISTRATIVE ASSISTANT FOR PERSONNEL, Political Science, to work closely with department Chair and Administrative Officer to organize and prepare faculty searches and promotion reviews. This includes building and maintaining databases using FileMaker Pro, working with one to three faculty committees simultaneously to coordinate searches or reviews, preparing correspondence and memoranda for Chair's signature, assisting faculty members in preparation of their review materials, coordinating department's report for biennial external review, preparing and maintaining faculty course evaluations, preparing EOC reports, responding to outside inquires about advertised faculty positions, coordinating travel and itineraries for visiting prospective faculty, and responding to other assignments from the Chair and AO. **REQUIREMENTS:** proficiency in the use of FileMaker Pro, Word (especially the mail merge function), and Excel software and with Web searches. Experience working with confidential materials needed; as is experience and ease working with people of diverse ethnic, cultural, and religious backgrounds. Must be able multitask and work under pressure of strict deadlines. Attention to detail important. Working knowledge of EEO regulations and ability to work with minimal supervision desired. **02-0299GD**

GRADUATE RESIDENTIAL LIFE ASSIGNMENT COORDINATOR, Housing, to perform diverse administrative support for Graduate Housing Operations. Will exercise discretion in obtaining and providing factual and sensitive information regarding applications for assignment to the on-campus residential system, maintain database of residents and assignments, and assist with the maintenance of the departmental web site. **REQUIREMENTS:** ability to self-direct in a very busy environment with many interruptions, experience with clerical office procedures, discretion, and excellent organizational skills. High volume communications experience with various cultures and languages helpful. Proficiency needed with PC and Macintosh hardware and FileMaker Pro, Word, MITSIS (Student Information System), HTML, and desktop publishing software. Familiarity with MIT helpful. Some post high school education preferred. **02-0298GD**

Due to the number of open positions at this time, we are not able to publish complete descriptions for all openings.

Complete descriptions of all full- and part-time positions that are currently open can be found on the Web at <<http://web.mit.edu/jobs/>>. For those without Web access, complete descriptions are also available for review in Human Resources' reception area.

You may now apply for positions on-line at <<http://web.mit.edu/personnel/www/resume.htm>>.

ADMINISTRATIVE ASSISTANT, Media Laboratory, to handle complex and diverse administrative responsibilities for the faculty head, staff, and students of the Affective Computing Group. Will work as a team member in support of adjacent research groups and provide support to other faculty and staff in these groups as needed. Responsibilities include handling telephone calls, greeting visitors, and acting as a resource on research activities; word processing, proofreading, and editing written materials; assisting with library and Web-based research; maintaining Head's calendar; making travel arrangements; arranging meetings and conferences and coordinating sponsor visits and demo scheduling; maintaining web pages; maintaining filing systems and databases; and acting as a liaison with administrative offices of the Lab and MIT. Will also support academic activities; and monitor, reconcile, and oversee spending on research and fund accounts, i.e., preparing budget projections, overseeing purchasing, processing accounting forms, and maintaining records. **REQUIREMENTS:** proficiency in the use of electronic mail (Lotus Notes and Eudora), Macintosh or PC computer and software programs, Microsoft Word, Excel, and Lotus Notes. PowerPoint and Emacs skills helpful. Excellent proofreading, editing, and writing ability; good judgment; and ability to work both independently with little supervision and as part of a team required. Excellent interpersonal skills and ability to interact with a diverse group of people necessary. Must be flexible and able to handle multiple tasks concurrently and work efficiently in a very fast moving and evolving environment. Bachelor's degree preferred. **02-0282GD**

ADMINISTRATIVE ASSISTANT, Alumni Association-GEO Group, to provide support to an Alumni Affairs Officer providing primary support for alumni career programs and affinity groups. Will coordinate the Student/Alumni Externship Program, e.g., prepare promotional materials; manage timeline for promotion including brochures, e-mail messages, advertisements, poster etc.; coordinate correspondence with alumni and students; prepare matching process; discuss program with students and alumni; respond to inquiries; and manage databases and keep statistics. Will also coordinate the Institute Career Assistance Network Program by inputting volunteer names, ordering volunteer reports, and helping match volunteers with students and alumni. Other duties include responding to inquiries; updating web pages; drafting correspondence, ordering lists and labels, assisting with production of mailings, and completing data entry; assisting in event planning; managing special assignments; providing general clerical support; monitoring budget and assisting in budget preparation; producing financial reports; processing purchase orders, requests for payment, and travel vouchers; preparing statistical analyses; and occasionally overseeing student employees and temporary help. **REQUIREMENTS:** a high school diploma; ability to work both independently and in a team environment; strong organizational, interpersonal, and communications skills; and detail orientation. Ability to work in a service-oriented environment with frequent interruptions necessary. Database experience essential; as is proficiency in Windows NT environment using MS Word, FileMaker Pro, Excel, HTML, PageMaker or Quark, and Eudora. Interest in career related services and programs important. A bachelor's degree and experience in a university or nonprofit setting preferred. **02-0263GD**

ADMINISTRATIVE ASSISTANT, Earth, Atmospheric and Planetary Sciences, to support the Department Head. Will maintain an annual calendar of recurring responsibilities and initiate and organize them as they arise; prepare and edit all correspondence and reports; coordinate, finalize, and distribute the department lecture series schedule; and prepare faculty promotion packages and new faculty hire cases requiring a high degree of accuracy. There will be extensive interaction with students, faculty, and staff. **REQUIREMENTS:** excellent communication and organizational skills; ability to work both independently and as part of a group, set priorities, and meet deadlines in a busy atmosphere; and good judgment in dealing with sensitive issues. Excellent typing, editing, and proofreading skills essential. Must have strong interpersonal skills. Proficiency with Microsoft Office 2001 and graphics software such as Illustrator and PhotoShop for the Macintosh required. **02-0251GD**

ADMINISTRATIVE STAFF ASSISTANT, Office of Government and Community Relations, to provide administrative support to the Codirectors and Staff Associate and assist with MIT's government relations and community outreach activities. Responsibilities include assisting with writing, editing, and updating communications materials including office correspondence and letters for the MIT President; maintaining the office database system, performing mail merges and processing large mailings; assisting with the planning and implementation of MIT-sponsored community events; serving as liaison for internal and external queries from the community; and maintaining the office web site including responding to inquiries and updating content. Will also be responsible for scheduling meetings and appointments; reviewing and distributing mail, messages, and faxes; answering telephones; ordering supplies; and maintaining office files, equipment, and orderliness. **REQUIREMENTS:** excellent organizational and administrative skills and ability to quickly respond to shifting priorities. A bachelor's degree and/or equivalent experience preferred. Excellent writing, editing, and keyboarding skills necessary. Strong communication skills, initiative, accuracy, and reliability essential. Must be able to work independently and with others to handle sensitive and confidential matters. Ability to troubleshoot and utilize resources to solve problems necessary. An interest in public policy matters and public service preferred. Excellent computer skills necessary; Macintosh experience preferred. Knowledge of Word, FileMaker Pro, Netscape, PageMaker, and Excel desirable. **02-0246GD**

ADMINISTRATIVE ASSISTANT, Center for Technology, Policy, and Industrial Development, to provide administrative support to faculty, research staff, and students of the Lean Aerospace Initiative Program. Responsibilities will include preparation and record keeping of consortium-related correspondence, membership invoicing, and reports; preparation of e-mail newsletters to the LAI teams and the consortium; and preparation and filing of official LAI correspondence. General support will be provided to the entire staff including general clerical services; mail services; travel administration; building services; telephone and network administration; procurement order and account invoice/payment administration; and administration/maintenance of conference room, fax, printer, and supplies. **REQUIREMENTS:** excellent organizational skills and ability to prioritize work and track simultaneous projects. Must be self-motivated and flexible and possess strong interpersonal skills and ability to make independent decisions. Should be able to work within a team environment, accepting tasks from multiple individuals. Must have demonstrated experience with Macintosh computers. Knowledge of PCs a real plus as LAI is a multiplatform environment. Required software experience/knowledge includes Microsoft Office with emphasis on Word, PowerPoint, FileMaker Pro, Eudora (e-mail), and Netscape/Internet Explorer. Knowledge of MIT accounting procedures, SAP, Microsoft Excel, Adobe Acrobat, and Meetingmaker helpful. **02-0244GD**

ADMINISTRATIVE ASSISTANT, Physics, to provide financial support to the Physics Finance Office and serve as an information source on department and Institute financial procedures. Duties include processing account information; monitoring, reconciling, and projecting accounts; independently resolving moderately complex accounting problems/issues; preparing file reports, memos, and other correspondence; processing Institute forms such as travel vouchers, requests for payment, and requisitions; and maintaining computer and paper files for accounting support information. Will also provide general administrative support and perform other duties as directed. **REQUIREMENTS:** directly related experience; strong computer skills and experience using Microsoft Word, Excel, and FileMaker Pro; excellent organizational skills; and ability to set priorities. Must be able to work under pressure and exercise tact, discretion, and good judgment. Position requires accuracy, attention to detail, and the ability to communicate information clearly. Strong teamwork and interpersonal skills needed. Bachelor's degree in accounting finance preferred, as is MIT and SAP experience. **02-0220GD**

ADMINISTRATIVE ASSISTANT, MIT Museum, to provide administrative and secretarial support to the Director and Associate Director, act as the Museum bookkeeper, and help coordinate the day-to-day activities of the Museum. Will provide secretarial support for Museum Director on a daily basis; maintain and regularly update master schedule of Museum activities; and help to plan, coordinate, and staff Museum Advisory Board meetings (three to four per year) and other Museum and Museum Friends events. Will act as bookkeeper—under the Associate Director—performing a variety of functions (using SAP) including monitoring and reconciling all Museum accounts; securing requisitions for purchases; recording and maintaining accounts of Museum billables; controlling petty cash and payroll records; and processing income from admissions, education programs, and commercial services. Will also maintain mailing lists, oversee all office equipment, and monitor and update computers per MIT IS recommendations. **REQUIREMENTS:** relevant experience, excellent people skills, adaptability, and willingness to work as part of a team. Should be well organized, detail oriented, show initiative and judgment, and be able to work on several projects simultaneously. Should have solid knowledge of computer hardware and software; excellent financial skills; and be familiar with MS Word, SAP, FileMaker Pro, and Now-Up-to-Date for the Macintosh. College degree and MIT experience preferred. **02-0218GD**

BUDGET OPERATIONS ASSOCIATE, Office of Budget and Financial Planning, to support OBFP personnel by entering budget changes, SAP journal vouchers, and master data updates; and by undertaking monthly production and distribution of budget reports. Will support design and implementation of a quality control process for budget transactions; participate in various financial reports and analyses for senior management including the budget book, quarterly budget report, research report, year-end reports, capital transactions, and periodic reports to the Executive Committee; oversee the format, frequency, and quality of financial reports; enter budget transactions; update cost center master data in the budget system; reconcile and review budget transactions in Nimbus Budget System; design transaction detail report for weekly distribution and review by budget officers; prepare various documentation files for Budget Office processes; prepare and distribute monthly budget reports to departments for the budget officers; reconcile nightly feeds to SAP for budget and draft data; assist budget officers with closing functions such as JV, carry-forward, space change input, and capital transactions; and query data warehouse and design ad-hoc reports as needed. **REQUIREMENTS:** a bachelor's degree; demonstrably high degree of proficiency in Word, Excel, PowerPoint, and BrioQuery in a Windows 2000/NT environment; and very high level of attention to detail. Accounting experience highly desirable. Demonstrated ability to work in an environment requiring a high degree of accuracy, quality, and confidentiality important. Must be able to regularly exercise high levels of discretion and independent judgment. **02-0214GD**

ADMINISTRATIVE ASSISTANT, Media Laboratory, to handle complex administrative responsibilities, support academic activities, and oversee purchasing and accounting for two faculty members. Will handle correspondence, travel arrangements, and reimbursements; maintain busy calendar for one faculty member; and coordinate all sponsor visits including making arrangements for catering, organizing schedules, and securing conference rooms for daily visits. **REQUIREMENTS:** proficiency with MS Word, Excel, and Lotus Notes; and ability to multitask. **02-0196GD**

ADMINISTRATIVE ASSISTANT, Laboratory for Computer Science, to provide support to three computer science faculty members. Will prepare course materials; edit and prepare reports, proposals, manuscripts, and correspondence using Emacs and Word; coordinate and schedule meetings and seminars; monitor monthly fiscal statements; make travel arrangements; interact with students; and provide general secretarial support including telephone coverage, handling mail, filing, and organization of office environment. Will take on other tasks as requested. **REQUIREMENTS:** good communication skills, great attention to detail, willingness to learn, and reliability. Must be an independent worker who possesses initiative, resourcefulness, strong organizational skills, and flexibility. Will work in UNIX and PC environments; knowledge of UNIX preferred. Computer skills needed include experience with MS Word, Excel, PowerPoint, and e-mail. Familiarity with LaTeX and Framemaker desired. MIT experience and college degree preferred. **02-0109GD**

ADMINISTRATIVE ASSISTANT, Chemistry, to provide administrative and secretarial support to the Associate Department Head and one faculty member and their research groups. Will organize and oversee the daily operation of the office, manage and review accounts, assist in the preparation and submission of research publications and grant applications, coordinate seminar programs and special events, provide administrative support for aspects of the department's undergraduate and graduate educational programs, and assist in the administration of departmental laboratory safety program. Will also assist with special projects and perform other faculty support duties. **REQUIREMENTS:** excellent interpersonal, organizational, and planning skills; flexibility; and ability to work with discretion and initiate and prepare material and information for faculty review. Must be able to work with conflicting deadlines and minimal supervision. Strong technical typing, proofreading, and accounting skills essential. Experience with PC and Macintosh computers and knowledge of Microsoft Word and Excel necessary. Experience with SAP and FileMaker Pro recommended. MIT or university experience and a college degree preferred. **02-102GD**

**SR. SECRETARY/
OFFICE/STAFF ASSISTANT**
*These positions require a
minimum of 2.5 years of
direct/related experience.*

SR. OFFICE ASSISTANT, Academic Media Production Services, to provide administrative office support under general supervision. Will handle administrative, secretarial, and logistical functions with a focus on the Educational Media Creation Center and the Streaming Media and Compression Services; schedule and support project team meetings and demonstrations including securing rooms, refreshments, and equipment; work with others to maintain all office operating procedures and computer and paper file systems; maintain and update project management and billing databases; prepare and distribute regular reports, meeting minutes, brochures, and documents; make travel arrangements, obtain travel advances, and complete travel vouchers; conduct research via the Internet and other means; and perform other duties as requested. Will also provide general administrative support such as faxing; handling e-mail correspondence; processing requisitions and purchase orders; account reconciliation; photocopying; and ordering equipment, software, supplies, etc. **REQUIREMENTS:** a high school diploma, excellent interpersonal and organizational skills, and ability to handle multiple tasks and deal with frequent interruptions. Seek a self-starter who enjoys working both independently and as a team member. Experience working in academic IT and web-based multimedia development environments a bonus. Must be computer savvy and familiar with PC and Macintosh platforms. Knowledge of word processing, spreadsheet, database, and presentation software needed, e.g., PowerPoint, Microsoft Office, and FileMaker Pro. Excellent word processing skills needed. Knowledge of SAP a definite plus. Familiarity with the Internet and its users important. Experience with cost efficient travel planning needed. Bachelor's degree preferred. **02-0348GD**

SR. OFFICE ASSISTANT, Leaders for Manufacturing/System Design and Management, to assist LFM-SDM's Industry Co-Director, Director for Partner Relations, and Finance Manager with partner relations and public interface efforts. Will serve as main face to the public by answering telephones and e-mail and greeting visitors at the front desk; schedule events including arranging rooms, filling AV requests, and ordering food; maintain partner files, e-mail lists, and calendar; handle database management and data retrieval; update the web using Dreamweaver or other web development software; perform Web research; coordinate daily facilities functions, e.g., office door alarm operations and upkeep of storage areas; place and follow up on work orders for routine upkeep/repair of office and student study areas; and track keys. There will be extensive interaction with students, faculty, and staff at all organizational levels both inside and outside of MIT. **REQUIREMENTS:** excellent oral, people, and customer service skills; ability and willingness to work both independently and as a contributing member of a team; solid organizational skills; tact and discretion; and attention to detail. Must be able to set priorities and produce accurate results under the pressure of recurring deadlines and unanticipated requests and events. Initiative, motivation, and good judgment essential. Flexibility and willingness to expand professional and technical skills strongly desired, as is attention to small details and commitment to quality. Prefer expertise with Microsoft Office programs as well as database software experience. Willingness to learn additional software packages necessary. Degree strongly preferred. **02-0333GD**

SR. OFFICE ASSISTANT, MIT Credit Union, to be responsible for inputting member transactions (share deposits and withdrawals and account status inquiries) via a computer terminal. Will issue share receipts, withdrawal checks, and account printouts; impart Credit Union policies and procedures to current and potential members; answer telephone inquiries from and research information for members; identify member issues and propose solutions to satisfy both members and the Credit Union; and perform other tasks as necessary. **REQUIREMENTS:** a high school diploma and related work experience, good interpersonal skills, accurate typing skills, and mathematical ability. Familiarity with personal computers (PCs) and office machinery desirable. Seek individual with professional, well-developed communication skills who is able to project a positive image as a representative of the Credit Union. **02-0320GC**

SR. SECRETARY, Brain and Cognitive Sciences, to support the work of four cognitive neuroscience/behavioral neuroscience professors. The responsibilities include assisting with grant preparation; text editing; handling correspondence and telephone calls; making appointments; keeping calendars updated; faxing and mailing; photocopying; making travel arrangements; ordering equipment and office supplies; preparing purchase orders, expense reimbursements, etc.; tracking down library materials; and assisting with tasks related to professors' teaching responsibilities. **REQUIREMENTS:** proficiency with Macintoshes and PCs, MS Office (including Word, Excel, and PowerPoint), and e-mail. Knowledge of Endnote and text editing very important, as is facility with scanners and fax machines. Knowledge of MIT highly desirable. **02-0309GC**

ASSOCIATE PUBLICIST, MIT Press, to obtain promotional endorsements for upcoming books and promote new books electronically via e-mail and the Web. Endorsement duties include creating a schedule of deadlines; identifying and querying potential endorsers; sending page proofs and cover letters to those who express interest in commenting; following up; circulating resulting comments; and consulting with colleagues and authors about endorsement preferences, priorities, timeliness, and style. Electronic promotion duties include creating individual campaigns for each new title; preparing an announcement or press release for each new book; researching relevant e-mail discussion lists, Web sites, and other e-publicity sources; contacting moderators, webmasters, or editors; and tracking any resulting coverage. Will also make use of in-house e-mail lists to keep MIT Press customers who request this information informed of new titles in their areas of interest. If time permits, will work with The Press's other publicists on traditional media campaigns. **REQUIREMENTS:** excellent organizational and writing skills; ability to prioritize work and meet deadlines; familiarity with FileMaker Pro or comparable database program; and a lively interest in scholarly books; particularly in technology and the sciences. **02-0305GC**

SR. SECRETARY, Chemical Engineering, to provide comprehensive receptionist and secretarial support for one faculty member, one administrator, one administrative assistant, and a large research laboratory. Duties will include coordinating and scheduling appointments and meetings; typing and proofreading routine correspondence, e.g., correspondence, e-mail, research proposals, reports, manuscripts, class materials, speeches, and transcription from audio tapes; drafting routine correspondence; assisting with the organization of seminars, workshops, and meetings; making travel arrangements; preparing PowerPoint documents and overheads; maintaining files and records; answering headquarters' telephone calls and responding as needed; faxing and photocopying; retrieving, sorting, and distributing mail twice daily; ordering and maintaining office supplies; ordering coffee/food for meetings, as well as setting and cleaning up; and providing support for special projects as needed. May also be asked to hand deliver items around campus or in the local Boston/Cambridge area. Will be supervised and report to the administrator and be supervised by the administrative assistant for many of the routine daily tasks. This is a fast-paced, high volume office. **REQUIREMENTS:** familiarity with computers (Macintosh and PC) and knowledge of Microsoft Word, PowerPoint, and FileMaker Pro. Seek a well organized, self-motivated individual who is a quick learner. Ability to work both independently and as well as a member of an office team important. Must possess good oral and written communication skills and the ability to handle multiple tasks simultaneously and prioritize with accuracy. **02-0286GC**

SECRETARY/ OFFICE/STAFF ASSISTANT

These positions require a minimum of one year of experience.

RECEPTIONIST/SWITCHBOARD OPERATOR, *Bates Linear Accelerator Center*, to receive visitors and handle a busy, multiline switchboard/paging system. Will also be responsible for monitoring fire alarm panels and performing occasional light typing. **REQUIREMENTS:** a high school diploma or equivalent and a professional manner in dealing with people. Good communications skills a must. Experience operating a Meriden SL-1 Switchboard Attendant Console or similar system and an internal paging system highly desirable. Some computer experience useful. Must be punctual and reliable. Bates is located in Middleton, MA. **02-0301GB**

OTHER SUPPORT

FOOD AND BEVERAGE SUPERVISOR, *Endicott House*, to be directly responsible for food and beverage service areas with emphasis on the supervision of beverage, utility, and coffee break staff. Will supervise all bartenders and beverage staff, break staff, and dishwashers; create, implement, and oversee weekly food and beverage staffing schedules; maintain set-up, service, clean-up, and accounting standards including coffee break areas and all hosted and self service bars; insure the cleanliness of beverage, food service, and work areas; manage beverage and break staff scheduling and productivity; maintain inventories of bar/beverage supplies, equipment, and uniforms; assist in handling client requests and resolving problems; effectively coordinate, implement, and oversee changes in menus, meal counts, event set-ups, and bar arrangements; act as liaison with Conference Planning Department; communicate effectively with Food and Beverage Manager and Executive Chef with regard to the operations of the department, forwarding ideas, observations, suggestions, and concerns; and handle food and beverage-related tasks, assignments, and projects as requested. Will report to the Food and Beverage Manager. (Schedule to be determined as business dictates. Position requires weekend availability and flexibility in covering shifts for other food and beverage supervisors.) **02-0388**

FOOD AND BEVERAGE SUPERVISOR, *Endicott House*, to be directly responsible for food and beverage service areas with emphasis on the supervision of dining and utility staff. Will supervise waitstaff and dishwashers; create, implement, and oversee weekly food and beverage staffing schedules; maintain set-up, service, clean-up, and accounting standards including coffee breaks, regular and theme buffets, plated meals, food stations, etc.; insure the cleanliness of food service and work areas; manage staff scheduling and productivity; maintain inventories of food/beverage supplies, equipment, and uniforms; assist in handling client requests and resolving problems; effectively coordinate, implement, and oversee changes in menus, meal counts, event set-ups, and dining arrangements; act as liaison with Conference Planning Department; communicate effectively with Food and Beverage Manager and Executive Chef with regard to the operations of the department, forwarding ideas, observations, suggestions, and concerns; and handle food and beverage-related tasks, assignments, and projects as requested. Will report to the Food and Beverage Manager. (Schedule to be determined as business dictates. Position requires weekend availability and flexibility in covering shifts for other food and beverage supervisors.) **02-0387**

DISH ROOM ATTENDANT/STEWARD, *Endicott House*, to clean and maintain food and beverage equipment and small wares in the food and beverage service areas. Will maintain dish room in clean and sanitary condition as required by Massachusetts state health regulations; use dish machine; wash, stack, and coordinate banquet small wares and equipment; count, retrieve, and coordinate small wares and equipment pertaining to individual meal periods and/or social functions per guest counts; be responsible for overall cleanliness and condition of dish machine and food and beverage equipment; complete quarterly inventories of all non-kitchen food and beverage equipment, flatware, and small wares; and perform light cleaning of buffet room area, gun room, and walkway to the terrace. Will communicate effectively with Food and Beverage Manager/supervisors and Executive Chef regarding the operations of the work area, forwarding ideas, observations, suggestions, and concerns; and handle food and beverage-related tasks, assignments, and projects as requested by Food and Beverage Manager, Executive Chef, and/or General Manager. (Schedule to be determined as business dictates.) **02-0372**

TECHNICAL ASSISTANT/DATA COORDINATOR, *Teaching and Learning Laboratory*, to handle diverse and complex research, technical, and administrative tasks in support of TLL's educational and assessment activities. Will assist with all aspects of the research process, design layouts for paper and web-based surveys, set up forms to receive web survey data, and prepare data for analysis; aid in statistical analysis and preparation of reports; create and maintain research databases; enter and transfer data between computer applications; perform qualitative research including content analysis; assist with library and web-based literature searches; maintain office web pages; help prepare reports for paper or web distribution; and edit and proofread material. **REQUIREMENTS:** spreadsheet and database experience; proficiency in Windows NT environment using FileMaker Pro, Microsoft Word, Excel, and HTML editors (preferably Dreamweaver); and experience with statistical software (SPSS, SAS preferred). Knowledge of PowerPoint, PageMaker or Quark, and charting programs useful. Should be able to troubleshoot technical problems. Strict attention to detail and accuracy a must. Strong editing and proofreading skills needed, as are excellent organizational and interpersonal skills. Interest and background in educational, social, or behavioral research preferred. Must be able to work with minimal supervision and function effectively as part of a team. Flexibility and resourcefulness important. Ability to set priorities, meet deadlines, and juggle more than one task at a time required. Bachelor's degree preferred. **02-0370GD**

MEDICAL TECHNOLOGIST, *MIT Medical*, to perform a variety of laboratory tests, many of which are complex and require professional judgment in hematology, chemistry, bacteriology, urinalysis, and serology. Will be responsible for producing prompt and accurate test results and meeting established quality control standards, drawing blood samples from patients, and processing specimens as necessary. Must recognize the interdependency of tests and the conditions that affect test results. **REQUIREMENTS:** a bachelor's degree in medical technology or related field with board certification as a medical technologist (ASCP or NCA) and at least 4.5 years' experience in a recognized hospital or clinical laboratory. Bacteriology experience highly desirable. **02-0227GD**

REACTOR OPERATOR, *Nuclear Reactor Laboratory*, to handle reactor startups, routine procedures, control room coverage, shutdown operations, sample irradiations and packaging, decontamination, testing and calibration of equipment, and other assignments related to reactor operations. Will work in areas containing radioactive material and will be required to adhere to all radiation protection measures and exercise sound judgment as directed by the Radiation Protection Office. Will also participate in the annual requalification program for licensed personnel at the Nuclear Reactor Laboratory. **REQUIREMENTS:** two years of technical college education or its equivalent, a strong background in physics and chemistry, and at least one year of additional experience working with nuclear reactors. Must be responsible, punctual, work well in a team environment, have the ability to think and work independently, be 18 years of age or older, and have a strong motivation for advancement to senior levels. Will be required to work 40+ hours a week on day, evening, or night shifts including some weekends. **02-0056GD**

ALUMNI/RESOURCE DEVELOPMENT

ASSOCIATE DIRECTOR OF MAJOR GIFTS, *Sloan School of Management*, to manage relationships with a portfolio of approximately 150 donors and prospects. Will identify, cultivate, and solicit major gifts from individuals; identify, recruit, and motivate alumni and friends as volunteer solicitors; manage and coordinate volunteers' development activities including the cultivation and solicitation of all prospects with a gift potential of \$50,000 to \$1,000,000; and assume supervisory and administrative responsibilities as assigned. Will also understand and be responsive to local concerns, attitudes, and issues; arrange for prospects to visit the campus and meet with appropriate staff and faculty; and counsel Institute officers on solicitation strategies and senior officers on development trips and events. Will report to the Director of Principal Gifts at MIT Sloan. **REQUIREMENTS:** five to seven years of fund-raising experience in development and/or sales/marketing. MBAMS preferred. Must be committed to working in a team of highly motivated and educated professionals who play an important role in implementing external relations and raising funds to support its priorities. Seek an individual who is knowledgeable about business schools and their constituencies and comfortable dealing with world class faculty, Fortune 500 executives, and successful entrepreneurs. Experience with annual fund and reunion giving programs preferred. Proven record of successful cultivations and solicitations of six figure gifts required. Foreign language abilities and knowledge of and experience dealing with foreign constituencies an advantage. Travel will be a regular feature of this position. Campaign experience a plus. **02-0335P**

ASSOCIATE DIRECTOR, FOUNDATION RELATIONS, *Resource Development*, to conduct private foundation fund-raising, including prospect searches, front line visits with foundations, proposal writing, and stewardship. Will work with faculty members, program directors, school development officers and other associate directors to coordinate and execute fund-raising plans for specific foundations, including establishing and cultivating relationships with foundation staff. Will maintain primary responsibility for specific MIT program or school clients and facilitate their connection to appropriate foundation partners; direct and participate in cultivation and solicitation of gifts from major foundations; provide assistance in preparation, development, and implementation of overall foundation relations program; initiate and lead discussions of fund-raising needs/priorities in prospect strategy and review sessions and in the planning and execution of cultivation/solicitation/donor relations activities; assist in prospect identification, evaluation, and allocation; provide operational and solicitation support for specific fund-raising projects; determine best contact between MIT and foundation personnel and coordinate meetings, telephone contacts, and other communications; prepare letters of inquiry and formal proposals to foundations; coordinate appropriate follow-up, including reporting and stewardship after grants are received; perform or assist in presentations to major foundations, both on- and off-campus; and work toward significantly increasing total dollar support from foundation constituency. **REQUIREMENTS:** a bachelor's degree and three or more years' direct experience in college, university, or large nonprofit organization. Advanced degree desirable. Excellent verbal, written, and interpersonal skills essential. MIT experience desirable. **01-1343Q**

FINANCIAL

SR. STAFF ACCOUNTANT, *Lincoln Fiscal Office*, to be responsible for the planning and direction of the cash management section. Will plan and provide for the acquisition of cash for provision of travel advances, cashing of checks, and sundry disbursements and receipts; assign, monitor, and review work performance of office support staff; provide direction and leadership in weekly/monthly cash forecasting; coordinate and reconcile expenditures to available funding; reconcile advance funding/working capital accounts; reconcile various general ledger/petty cash accounts; and be responsible for all banking needs, e.g., monitoring account balances, wire/ACH/EFT transfers, cancel/stop payment transactions, foreign drafts, etc. Will also interact with internal and external auditors and with various personnel within the U.S. government, advise and consult with senior staff of Lincoln Laboratory and the Lincoln Fiscal Office on the implementation of cash related policies including participation in the design or related automated operations, and be involved in the cashier's system redesign effort in conjunction with the Lincoln SAP implementation. **REQUIREMENTS:** a bachelor's degree in accounting or related discipline and at least three years' experience in the cash management/accounting field. Must be able to work independently and handle multiple tasks. A thorough knowledge of Microsoft Word and Excel required. Must be a U.S. citizen and be able to obtain and maintain a security clearance. Expected competencies include ability to influence, communication for results, information seeking, interpersonal understanding, organizational awareness, conceptual thinking, commitment to service, collaborating with others, talent development, and active listening. **02-0362O**

FISCAL OFFICER, *Microsystems Technology Laboratories*, to maintain overall fiscal responsibility for the management of departmental operations and administration of a wide array of sponsored research programs. Will provide direction and supervision to one administrative and two support staff members; work closely with faculty in both pre- and post-award grant administration; and serve as the department's interface with the MIT Office of Sponsored Programs, Subcontracts Office, etc. Will be responsible for departmental budgets, facilities operation accounts, departmental payroll, fund account management, sponsor billing, and facilities recharge system(s). Will review agency announcements for applicability to MTL faculty, review rules and guidelines, work with faculty to coordinate post award reporting requirements and in the preparation of budgets, monitor research accounts and forecast expenditures through the period of the grant/contract, and serve as the primary interface between faculty and the grant or contract agency. Will also assist the Assistant Director with special projects/reports as needed. **REQUIREMENTS:** college graduate with five to ten years' direct/related fiscal and grant and contract administration experience. Familiarity with word processing, spreadsheet, and desktop publishing programs preferred. Must pay close attention to detail and be able to tolerate interruptions, handle a variety of tasks simultaneously, and see complex projects through to completion. Ability to prioritize and meet deadlines essential. There will be extensive interaction with students, faculty, staff, and outside contacts at all organizational levels, requiring a professional office manner. Experience with MIT financial systems preferred. **02-0343**

ACCOUNTING OFFICER, *Controller's Accounting Office*, to be responsible for integrating SAP Labor Distribution System (LDS) monthly processing into CAO's monthly closing operations. Will set up and maintain LDS DLC authorizations in the Roles Database and investigate and advise on resolution of data file problems; run LDS month end production processes, diagnose and resolve any data file problems, and maintain LDS master data and configuration; serve as liaison between CAO and Financial Systems Services on LDS, ensuring timely identification, communication, and escalation of questions and issues pertaining to LDS; make recommendations on improving LDS-related business processes and user support; report suspected programming problems to LDS developers for resolution; maintain LDS month-end processing procedures documentation and review LDS end-user documentation and advise FSS of necessary updates; and support the Assistant Controller on other projects as time permits. **REQUIREMENTS:** a bachelor's degree, preferably in business or management information systems; knowledge of payroll business rules; and five-plus years' relevant experience, preferably in payroll operations. Strong analytical skills and ability to troubleshoot problems a must. Reliability and ability to work independently important. Ability to meet deadlines required. Experience with SAP or other database business applications desired. Programming experience a plus. Must be willing to work evenings and/or weekends during month end processing. **02-0280P**

COST ANALYST, *Office of Sponsored Programs*, to assist in the development of complex financial/analytical cost accounting studies. Will participate in the development, analysis, audit, and negotiation of MIT's overhead and employee benefit rates; provide support for federal audits of MIT research programs and maintain supporting documentation for Institute costing policies and procedures; and perform major recurring Institute costing studies and ad hoc analyses. **REQUIREMENTS:** a bachelor's degree in business administration or a related field or the equivalent combination of formal education and experience; a strong background in accounting or financial modeling/forecasting; and the ability to manage multiple priorities and meet deadlines. Knowledge of higher education cost principles desirable. Must be self-motivated and detail oriented. Word, Excel, and PowerPoint computer skills needed. Familiarity with MIT systems and experience with database applications helpful. **02-0240Q**

INFORMATION TECHNOLOGY

ASSOCIATE DIRECTOR OF IT OPERATIONS, *Sloan School of Management*, to oversee the daily operations of Sloan Technology Services. This includes management of student computing services, faculty and staff support, overseeing help desk, audio-visual services, video-conferencing support, server management, and network operations. Typical activities include delivery of IT services to Sloan students, faculty, and staff; management of student labs; oversight and operation of the help desk; management of network servers; monitoring Sloan network; incident response coordination for server and network outages; and supervision of technical and network support personnel. Will report to Director of IT Operations. **REQUIREMENTS:** a college degree, five years' IT management experience, strong technical and project management skills, ability to prioritize and schedule work for multiple staff, and excellent communications skills. Must show a positive and cooperative customer service attitude, a high degree of professionalism, diplomacy, and sensitivity to the needs of academicians. Ability to work well in an academic setting and comfort with the tempo of the academic calendar required. Must be willing to wear a pager, take responsibility for off-hours and weekend network monitoring, and perform server maintenance. **02-0361Q**

STELLAR SYSTEMS AND APPLICATION PROGRAMMER, *Academic Media Production Services*, to program primarily web-based educational applications in Java for delivery in MIT's learning management system known as Stellar, extend/modify existing educational tools, develop new tools to run in the Stellar environment, and contribute to ongoing enhancements of the underlying system. Will deal with somewhat complex problems that must be broken down into manageable pieces; identify relationships between problem components, prioritize them, and find solutions; engage in organizational development practices involving regular communication with technical leadership to solve problems; collaborate with team and share relevant information with those who may be affected by decisions; participate in formal or informal group problem solving for immediate issues; seek additional information as necessary to enhance understanding; and communicate basic established processes and procedures, formally or informally. May initiate and compose various types of basic business communication, participate in development of improvements, and help implement change. **REQUIREMENTS:** a minimum of three to six years of related experience and Java development experience delivering applications within established methods for UI and systems design. Experience with XML and programming web applications highly desirable. Ability to work both independently and as a team member essential. Should have experience working in organizational development environments where communicating with technical leadership to solve problems is a significant part of the development process. Proven ability to follow through and complete challenging tasks required. **02-0337P**

WEB ACCESSIBILITY SPECIALIST, Laboratory for Computer Science, to assist in developing guidelines for accessibility of Web-based software as part of the World Wide Web Consortium's (W3C) Web Accessibility Initiative (WAI). Will act as staff contact to WAI working groups and assist in developing guidelines and techniques for user agents and authoring tools, help develop consensus around accessibility solutions, edit documents, provide technical assistance on implementation of WAI guidelines and techniques, and make presentations on WAI work. **REQUIREMENTS:** expert knowledge of Web accessibility guidelines and techniques; knowledge of W3C specifications, disability communities, the Web industry, and assistive technologies; and excellent communication and technical writing skills. Must be able to build consensus and follow W3C process and work effectively in a team setting. Web design experience a plus. Must be free to travel. **02-0021**

SYSTEMS PROGRAMMER III, Information Systems-VM System Services Team, to join a team of professionals who are extremely knowledgeable and skilled in their work. MIT uses the VM environment for several of its mission-critical applications (including payroll and freshman admissions) and runs several TSM (ADSM) servers for desktop backups as well as LISTSERV. Growth opportunities will exist to learn new systems and grow into newer technologies. Responsibilities include contributing as a member of team on the maintenance of a VM system (CP and CMS), associated service virtual machines (e.g., RSCS, VM:Backup, VM:Secure, VM:Archive), program products (e.g., PL/1, COBOL, Easytrieve), and home-grown software. Will have primary responsibilities for some of these areas. **REQUIREMENTS:** a bachelor's degree in a technical area or equivalent combination of education and experience and extensive experience as VM systems programmer, including CP, CMS, Assembler, REXX, and Pipes. Experience with and knowledge of CA (formerly Sterling) products (VM: Backup, VM:Archive; and VM:Secure) or with VM/SES for installation/maintenance of VM products a plus. Must be willing to learn new skills (such as Java, Unix and Linux) as needed. **02-0217P**

WEB ACCESSIBILITY OUTREACH COORDINATOR, Laboratory for Computer Science, to coordinate development of education and outreach materials promoting Web accessibility for people with disabilities as part of the World Wide Web Consortium's Web Accessibility Initiative (WAI). Will research and write outreach and reference materials and news items, promote Web accessibility through presentations and outreach to different organizations, and assist in maintaining the WAI web site and answering public questions. Will also serve as staff contact to one or more WAI working groups, assist in representing WAI in standards discussions and advisory bodies, and write reports on WAI activities. **REQUIREMENTS:** expert knowledge of Web accessibility, excellent communication and presentation skills, Web design experience, and knowledge of disability communities and the Web industry. Experience working in international and consensus-based organizations, and knowledge of standards organizations and policies relating to Web accessibility a plus. Must have excellent interpersonal skills, be able to work effectively in a team setting, and be free to travel. **02-0022**

Please also see Sponsored Research Staff.

LIBRARY

Complete listings of open library positions can be found on the web at <http://web.mit.edu/personnel/jobs/>.

STUDENT SERVICES

CAREER DEVELOPMENT COUNSELOR, Career Services and Preprofessional Advising, to help students learn to make informed decisions about career goals and find opportunities related to their professional objectives. Our philosophy is that career development is an ongoing process that includes self-assessment, research into career options, experiential learning and preparation for the job search or graduate/professional school application process. Will design and deliver career development program components including individual and group career development counseling; assist with making the transition from first year to graduation and prepare students for preprofessional advising and graduate study related programming; and design and deliver departmental career development workshops, plan and implement career development programs, and act as a liaison to assigned schools, departments, student organizations, living groups, etc. **REQUIREMENTS:** thorough knowledge of career development and employment recruiting practices; a bachelor's degree; experience in higher education, delivering career development, cooperative education and internship programs, career counseling, and career services and preprofessional advising; familiarity with business/corporate environment; and broad general knowledge of and interest in opportunities for students in the professions. A career services graduate assistant or intern and/or master's degree preferred. Should have demonstrated ability to work effectively in a team environment with diverse populations including minority, undecided, first year, and graduate students; faculty; and employers. Successful experience in job development and student recruitment required; as is experience working in a team environment. High degree of flexibility and excellent written, technical, oral, and interpersonal communication skills required. **02-0349O**

COORDINATOR, Career Services and Preprofessional Advising, to assist two special programs, the Freshman/Alumni Summer Internship Program (F/ASIP) and Preprofessional Advising. F/ASIP responsibilities will include recruiting students and employers, organizing and delivering seminars and workshops on career-skills development, developing publicity, acting as liaison between freshman interns and their host employers, coordinating all program office functions, and maintaining a database. May require some travel during the summer. Preprofessional advising duties will include assisting in recruitment of advisors; organizing special events such as receptions, informal gatherings, and information meetings; organizing outreach efforts; and assisting with counseling and walk-in hours for premedical and prelaw applicants. **REQUIREMENTS:** one to three years' experience; a master's degree in higher education, student affairs, and/or marketing; strong project management, communication, event planning, and marketing skills; demonstrated ability to thrive in a team environment working with diverse populations; and ability to foster effective relationships with faculty, employers, and students. Higher education experience needed, e.g., career development, internships, counseling, and preprofessional advising. A high degree of flexibility necessary, as is experience with information technology. Familiarity with business/corporate environment and general knowledge of and interest in opportunities for students in the professions an asset. A current valid driver's license and the ability to travel by car on behalf of OCSA required. **02-0269O**

PROGRAM COORDINATOR FOR STUDENT ACTIVITIES, Residential Life and Student Life Programs, to provide support, advice, and direction to and for MIT student activities, clubs, and organizations, particularly in the areas of event planning, leadership development, and program coordination. Will work with recognized groups and student governments to strengthen the ongoing visibility and diversity of student-run programs on campus. Will also foster communication and collaboration between and among students, student life staff, and the relevant programs and operations at MIT. **REQUIREMENTS:** a bachelor's degree and two to four years of experience in student activities or related field. Master's degree in student affairs preferred. Must demonstrate a commitment to diversity, appreciation of community, ability to multitask in an intense environment, and conflict resolution skills. Proficiency with Microsoft Office and desktop publishing required. HTML design experience preferred. Some evening and weekend hours will be necessary. **02-0204O**

ASSOCIATE DEAN, STUDENT CONFLICT MANAGEMENT AND DISCIPLINE SYSTEM, Office of the Dean of Student Life, to be responsible for the administration of the Student Conflict Management and Discipline (SCMD) function, with careful attention to the fundamental values of the MIT community and balance of stakeholder needs. Will also be responsible for leading improvement efforts as defined by the Dean for Student Life, providing leadership at a strategic and policy planning level, and representing the interests of MIT in the judicial process. The SCMD function is based upon educational principles and the fundamental standards of honesty, integrity, and respect for the rights of others. Will report directly to the Sr. Associate Dean for Student Life. **REQUIREMENTS:** a master's degree in a related discipline and five to seven years' experience in conflict management, mediation, discipline, and/or policy development directed towards maximizing the educational environment for students. J.D., Ed.D., or other doctorate preferred. Seek a hands-on leader who is highly skilled in judicial affairs and has demonstrated success in starting-up and implementing innovative, well-received training and educational programs for student committees and staff. Current knowledge of laws, trends, and practices related to conflict management and discipline in the college and university environment needed. Must have demonstrated track record of flexibility, creativity, and tenacity; and ability to understand and listen to needs of others and develop services and programs to most effectively meet their needs. Political acumen with a strong sense of how and when to engage the participation of different constituencies required. **02-0254Q**

ASSOCIATE REGISTRAR, Registrar's Office, to direct the planning and operation of classroom scheduling, academic information and course schedule publications, and on-line information. Will work with faculty, staff, and senior administrators in support of the Institute's academic programs and provide policy information related to classrooms, scheduling, and subject listings; insure the effective and efficient operation of classroom scheduling; negotiate and resolve competing requests for classroom resources and clarify and enforce policy decisions; act as a central communication source for academic and policy information; understand the impact of curriculum changes; provide leadership, supervision and direction to assistant registrars; anticipate developing issues and precedents; develop—in conjunction with the Registrar—policy changes and communication strategies to properly inform and include senior officers and the MIT community; and maintain a high level of computer system knowledge. **REQUIREMENTS:** a master's degree or equivalent combination of education and experience, eight to ten years' experience in Registrar's Office and/or academic services at a college or university, excellent written and oral communication skills, demonstrated negotiation experience and ability to influence decisions, and ability to work under deadline pressure and with complex policies and workflow. Demonstrated ability to analyze procedures and make improvements required. Must have experience in the academic program at a research university, particularly around implementing educational initiatives, and be able to participate as part of Institute-wide teams. Demonstrated knowledge of database issues, desktop publishing, and web technology needed. **02-0245Q**

RESIDENTIAL LIFE ASSOCIATE, Residential Life and Student Life Programs, to offer resources, skills, and energy to MIT's residential system in the areas of crisis response, event planning, activities support, training, and effective communication between MIT's student life administration and undergraduate and graduate residence halls. Will work collaboratively with faculty housemasters, student residents, and the student life staff to serve a specific zone of three to four residence halls. Will live on campus and serve to enable the work of the house teams and students within the residential system. **REQUIREMENTS:** a bachelor's degree and demonstrated ability to resolve conflicts, handle crisis situations, be flexible, and function well in team environment. Master's degree in education or counseling and two to four years of student services experience strongly preferred. Ability to communicate and work effectively with diverse student body essential. Must be willing to work flexible hours including weekends. (The schedule for the position is Monday through Friday, 1:00 to 9:00 PM.) **02-0202N**

OTHER ADMINISTRATIVE

JOURNALS EDITORIAL AND PRODUCTION MANAGER, MIT Press, to direct all editorial functions, typesetting, and manufacturing and develop standard guidelines and procedures for 35 to 40 scholarly journals in the fields of architecture and design, the arts, business and economics, current affairs and social sciences, and science and technology. Will oversee the scheduling of editorial, typesetting, and manufacturing activities for each journal; manage the coordination of all schedules with external editorial offices, copy editors, proofreaders, typesetters, and manufacturers, and internal advertising, circulation, and fulfillment; purchase all typesetting and manufacturing services on a competitive bid basis; and help determine and monitor the annual production budgets for each journal. Will also establish costs for offprints, reprints, and authors' alternations and billing for the same; supervise all design for new journals and the redesign of existing journals; provide estimates for new journals and potential acquisitions; oversee all freelance copy editors and proofreaders; and supervise a staff of four. **REQUIREMENTS:** at least five years of publishing experience (preferably in journals) in the areas of production and editorial with management/supervisory experience. Strong organizational and communication skills necessary, as is attention to detail. Must be able to multitask, meet deadlines, and work well under pressure. Familiarity with FileMaker Pro, Microsoft Word, and Excel preferred. **02-385N**

DIRECTOR OF BENEFITS, Human Resources, to be responsible for planning, developing, and administering medical, dental, life, disability, workers compensation, 401(k), and pension plans; providing oversight of the Center for Work, Family and Personal Life; recommending new and/or improved employee benefit plans and cost-saving measures; and ensuring compliance with all legal requirements. Will oversee the implementation, administration, communication and legal soundness of all benefits programs; develop, maintain, and report statistical data; manage current benefit programs and align them with Institute objectives; analyze existing policies and practices among similar organizations to establish competitive benefits programs; communicate and administer benefit plans to effectively produce positive employee reaction; negotiate with and manage performance of outsourcing vendors; monitor and analyze tax and governmental legislation and economic trends; provide leadership, supervision, and guidance to staff; build and supervise a strong team, cross-trained in all benefits areas; interface with Controller's Accounting Office regarding legal, accounting, and financial reporting; work with HRIS and others to clearly define and test new processes and procedures; and manage eight administrative and eight support staff personnel. **REQUIREMENTS:** a bachelor's degree (CEBS, master's, or law degree a plus) and ten to twelve years' related experience. Strong project management skills needed, along with proven track record for completing assignments/projects on time and on budget. Must possess strong problem solving, decision making, organizational and interpersonal skills. Excellent communication and writing skills required. Working knowledge of Word, Excel, and PowerPoint (Access a plus) necessary. Familiarity with SAP a plus. **02-0363R**

BUILDING SERVICES/SUPERVISOR, Facilities, to provide supervision, resources, and direction to Building Services custodial teams to achieve high levels of cleaning quality and customer satisfaction. Will provide daily supervision to the teams; assist teams with the identification and implementation of continual improvement practices; develop problem solving techniques and long-range planning; ensure quality and service standards; conduct quality inspections; assist in budget development, maintenance, and reporting on labor and custodial supply inventories; assist in the administrative setup and coordination of special projects; coordinate, respond to, and evaluate emergencies such as fires, floods, chemical spills, elevator shut downs, etc.; act as a member of the coaches team in providing coverage to additional teams as needed; maintain data and analyze and produce reports on team progress, inventory information, and customer feedback; and perform other duties as assigned. **REQUIREMENTS:** a bachelor's degree and/or three years of related experience in custodial services, a minimum of two years of supervisory experience, and knowledge of custodial procedures and products/applications. Knowledge of Microsoft Office, Windows operating system, Internet browsers, and e-mail programs required. Working knowledge of HTML desirable for assisting with maintenance of web pages. Knowledge of labor relations desirable. Experience in a team environment; excellent interpersonal, written, and oral communications skills; and ability to work with a diverse population required. Building services is a three-shift operation. Must be available to work any shift, weekends, and holidays. **02-0360O** (11:00 P.M. to 7:00 A.M. shift), **02-0359O** (3:00 to 11:00 PM shift)

ASSISTANT OPERATIONS MANAGER FOR STATA CENTER, Facilities, to provide coaching, resources, and direction to the Repair and Maintenance teams which provide daily services to the Stata Center. Will be responsible for oversight of all maintenance and repair for the new 425,000 sq. foot complex. The goal is to facilitate and consistently produce high quality technical trade services, customer service, and value satisfaction. Will plan, organize, and supervise work to assure that repairs, modifications, installations and other maintenance activities are properly accomplished in a timely manner; assist with hiring, supervising, and evaluating maintenance staff and monitor the quality of repair and maintenance work; ensure the completion of maintenance and repair jobs in accordance with established standards and codes; train, guide, and provide technical assistance to employees to enhance their skills; interface with the Operations Manager regarding building's program support as well as directly with occupants regarding maintenance issues; and establish and maintain positive relationships with other Facilities' staff and with other departments within MIT. **REQUIREMENTS:** an associate's degree in facilities management or related field; three years' experience; and knowledge of building systems including HVAC, electrical, plumbing, fire protection, elevators, roofing, controls, and security. Bachelor's degree and/or engineering background desirable. Ability to access and monitor building temperature controls and security essential. Knowledge of Microsoft Office products such as Word and Excel, Windows operating systems such as Windows 2000, internet browsers such as Netscape, and e-mail programs such as Outlook required. **02-0351P**

OMBUDSPERSON, Office of the President, to provide neutral, independent, informal, and confidential conflict management resources for members of the MIT community. Will serve individuals and groups—through coaching, mediation, and facilitation—with generic solutions and systems changes; advocate for fair, effective conflict management processes and fair administration of processes, not for an individual or any specific outcome; help people develop options for resolving conflict in order to improve processes or to end inappropriate behavior; identify and draw attention to systemic issues that are causing or may cause conflict and make recommendations to address them; and promote improved understanding of conflict management throughout the Institute by teaching conflict resolution skills to individuals and groups. The MIT Ombuds Office adheres to the University and College Ombuds Association and the Ombudsman Association Standards of Practice. **REQUIREMENTS:** seven or more years of experience in conflict management, organizational change, or closely related experience. Knowledge of university environment, experience teaching conflict management skills, and specific experience as an organizational ombudsperson or impartial complaint-handler desired, as is experience with scientific and technical professionals and students and staff with diverse backgrounds. Proven discretion and demonstrated ability with problem-solving, personal communications, presentations, and writing required. Must be able to work as a member of a team. Advanced degree preferred. Application deadline: May 22, 2002 **02-0306R**

TECHNOLOGY LICENSING ASSOCIATE, Technology Licensing Office, to work for and with licensing officers to see that MIT inventors' ideas are appropriately patented and licensed to companies. Will attend meetings with inventors to determine the nature of the invention, relevant prior art, and the commercial value of the invention and work with external patent attorney's to see that the inventions are protected; search the Web and other sources to identify potential licensees (from startups to multinationals) and contact those potentials to create interest for the inventions; attend licensing negotiations and draft basic clauses reflecting those negotiations; and help negotiate joint invention and option agreements and non disclosure documents. Will interact extensively with inventors, patent attorneys, licensees, and potential licensees and be responsible for insuring that all the relevant information related to the patent prosecution, sponsor rights, and licensing activities are correctly tracked. **REQUIREMENTS:** a strong background and interest in patent law and science; a B.S. in engineering, chemistry, or physics; outstanding written and oral communication skills; and the ability to quickly communicate complex issues clearly and succinctly. Must thrive in an environment that encourages strategic thinking and enjoy working independently in a collaborative setting. Seek a self-starter who can handle multiple assignments despite many interruptions. Strong intellectual curiosity and an interest in clarifying and simplifying complexity required. Strong priority setting skills needed. Computer search/marketing experience and an interest in computer/patent work desirable. Office and/or organizational experience required. **02-0289N**

SR. COUNSEL FOR INTELLECTUAL PROPERTY, *Intellectual Property Counsel*, to act as hands-on, campus-wide legal advisor on matters of intellectual property, computer software, the Internet, and Internet publishing; and oversee two lawyers and a paralegal/legal assistant. Will participate in institutional decisions on intellectual property matters at the highest level including policy setting, representing MIT on a national level, and providing advice and guidance to senior officers; work with others to frame, negotiate, and close on MIT's major relationships with industrial companies, consortia, and others seeking research relationships with MIT; and write position papers in support of intellectual property positions. Working knowledge of all areas of practice of the office will be expected, including intellectual property issues on university research, technology transfer, federal regulations, copyright, computer law, Internet law, e-commerce, and electronic publishing. **REQUIREMENTS:** a law degree, membership in or willingness to join the Massachusetts Bar, a minimum of eight years' experience in intellectual property law including patents and copyrights, and five years of familiarity with university research and technology transfer issues. Working knowledge of computer law and technology from a university or industry perspective required; as is familiarity with university intellectual property issues, research contracting, technology transfer, Internet issues, and government contracting. National leadership on one or more of these issues desirable. Ability to interact with senior officers expected. Must possess excellent negotiation, contract drafting, oral and written communication, and organizational skills. **02-0243S**

LEGAL ASSISTANT, *Environmental Programs/Risk Management and Sr. Counsel*, to provide paralegal, administrative office management, and secretarial support for the Sr. Counsel's Office and Insurance Manager. Will assist in managing the flow of work and perform a full range of legal, administrative, and support duties including conducting basic legal research; making editorial changes; preparing forms, agreements, and correspondence; keeping records and legal files; obtaining information from MIT departments, courts, administrative agencies, and others; proofreading, editing, and typing; maintaining calendars and scheduling appointments; duplicating and distributing materials; and maintaining inventory of supplies. **REQUIREMENTS:** a wide range of knowledge of legal and office procedures; ability to independently organize, prioritize, and carry out detailed work with minimal supervision; and initiative, resourcefulness, and ability to manage a high volume of work. Must be able to multitask in a fast-paced environment with changing priorities. Accuracy, unflappability, and an eye for detail essential. Must be flexible, diplomatic, and possess a concern for order, bias for action, interpersonal understanding, and organizational awareness. Must exhibit tact and mature judgment in handling confidential information, the public, students, and staff and leadership at all levels of the Institute. Excellent interpersonal skills required; as are proficient writing, editing, proofreading and basic research skills. Experience with Microsoft Word software and familiarity with e-mail and electronic calendars required; familiarity with Excel and PowerPoint software preferred. There is a strong preference for legal experience and a bachelor's degree, paralegal training, or equivalent experience. **02-0231N**

INFORMATION SYSTEMS TRAINING SPECIALIST, *MIT Medical*, to plan, develop, and implement a comprehensive approach to training and competency development for information systems deployed across the Medical Department. Will support and coordinate departmental policy and procedure development as it relates to best practice work flows and HIPAA guidelines. **REQUIREMENTS:** a bachelor's degree in related field (e.g., management, management information systems, education) or equivalent combination of education and experience. Position requires at least two to three years' experience with various health care applications—with an emphasis on scheduling and billing/accounts receivable. IDX application knowledge preferred. Seek highly motivated and enthusiastic team player with excellent oral and written communication skills. Should be able to tailor presentations to appropriate audience, i.e., one on one training, small or large groups, formal or informal settings. Training experience educating adults preferred. Must be able to balance multiple priorities and projects. **02-0203P**

FINANCE AND ACCOUNTING MANAGER, *Endicott House*, to manage the accounting, finance, budget, front office and housekeeping functions. Will direct staff in executing duties to serve guests; assist General Manager in setting direction, goals, and objectives; act as liaison between department and MIT on personnel, payroll, and benefits matters; promote and motivate employees to achieve department's mission; and be responsible for the meeting standards, expectations, goals, and client expectations for respective area. **REQUIREMENTS:** a bachelor's degree in related field or equivalent experience; eight to ten years' direct/related experience in hospitality industry or conference center and/or hotel environments; proficiency in accounting, budgeting, and strategic planning; experience leading and working with teams including managing and supervising staff members. Ability to manage and motivate group members and deal persuasively with others both within and outside of Endicott House important. Excellent customer service, interpersonal, and written and oral communication skills needed. Excellent project management skills required. Must have knowledge of and experience with hotel and conference center labor relations and conflict resolution; and with computer operation systems, telephone and call accounting systems, electronic mail, the Internet, hospitality software packages, BrioQuery, Excel/Lotus 123, Summit, CAO application, SAPweb, NIMBUS, and SAP. Expertise in working with a diverse population necessary, as is ability to interact with and represent the office at all levels of the MIT community as well as external corporate clients. (Will provide support for off-hours, weekend, and/or holidays for twenty-four hour/seven day facility.) **02-0191P**

DIRECTOR, *International Scholars Office*, to represent MIT before the Immigration and Naturalization Service, the Departments of State and Labor, and local and state employment offices. Will keep abreast of changing regulations, laws, and world conditions; advocate on behalf of MIT and the international scholar population; and take initiative on important issues and serve in a leadership capacity at conferences and committees or as an elected officer. Will also manage the International Scholars Office, a key administrative office serving nearly 1700 MIT-affiliated international scholars and their families each year. Will assume oversight of employment-based immigration advising, policies, computer systems, budget, programming, and publications; hire, train, and supervise staff; provide strategic planning and guidance on immigration-related issues; act as Responsible Officer for MIT scholar's J-1 exchange visitor program; prepare permanent residence applications; and oversee Institute-sponsored Interested Government Agency waivers. **REQUIREMENTS:** a master's degree or equivalent; at least five years' direct, professional-level experience in immigration and related advising; demonstrated expertise in immigration matters related to international scholars in an academic setting; experience with employment-based immigration petitions; excellent written, verbal, diplomacy, and cross-cultural communication skills; and strong analytical and planning skills. Must be familiar with legislative and regulatory language and processes and have experience dealing with campus legal counsel or government relations office. Familiarity with word processing and database software needed. Must be highly organized, attentive to details, proactive, goal-oriented, and committed to excellence. Overseas experience preferred. U.S. citizenship or lawful permanent resident status required. **02-0154Q**

CURATOR, ARCHITECTURE AND DESIGN, *MIT Museum*, to be responsible for the documentation, interpretation, and conservation of architectural collections including drawings, models, artifacts, architectural fragments, photographs, and written materials. Will be involved in active collecting in liaison with MIT faculty; handle research inquiries and the curation of exhibits as part of exhibition team; undertake scholarly research in area associated with collections; and assist with fund-raising, public programs, and development of long-range plans. **REQUIREMENTS:** a minimum of an M.A. in architectural history or related field, significant experience in research and curation, and at least three to five years' experience in museums. Familiarity with contemporary collecting issues an advantage. Ability to grasp intellectual content in the academic areas in which MIT is actively engaged essential. Must show great initiative, have excellent interpersonal skills, and be able to communicate effectively with MIT faculty and staff. Please include three references with resume. **02-0132P**

MANAGER, COMMUNICATIONS CENTER, *Facilities*, to provide management of the Operation and Dispatch Center. Will hire, train, and supervise employees; direct and oversee responses to alarms, emergencies, and customer calls; supervise the monitoring of fire alarm systems; ensure that emergency procedures are up-to-date; respond to, evaluate, and coordinate emergency situations; assess training requirements and organize programs; evaluate, maintain, and develop operating policies and procedures; coordinate and assist with operating strategies, scheduling, and software changes with the facilities control systems; work with vendors providing facility controls service, communications equipment, and maintenance; identify supply and equipment needs, develop procurement rational, develop specifications to identify vendors, and prepare purchasing requisitions; and maintain and analyze data and produce reports. **REQUIREMENTS:** a bachelor's degree in facilities or related field; three years direct/related experience in a repair and maintenance, facilities management environment; a minimum of three years' experience in an operations center environment; and three to five years' supervisory experience. Excellent customer service, interpersonal, and written and oral communication skills required. Basic understanding of HVAC systems and direct digital controls required. Experience with facilities control systems such as Johnson, Andover, and Carrier highly desirable. Excellent conflict resolution skills essential. Ability to organize and conduct employee training programs desirable. Knowledge of computer systems, local area networks, and the WWW required. Experience with communications systems such as two-way radios, pagers, and cell phones highly desirable. Department is open twenty-four hours a day, seven days a week. **02-0151Q**

PUBLISHER/DIRECTOR, *Sloan School of Management*, to provide strategic leadership and direct the business operations of Sloan Management Review (SMR), a quarterly management journal with annual revenues of over \$3 million. Will oversee aggressive enhancements and circulation growth of the journal, identify and pursue other revenue and growth opportunities for the publication while increasing the Sloan School's visibility and reputation through an exceptional editorial product, supervise the SMR team including six administrative and four support staff members, have full P&L responsibility, and serve as liaison to the Sloan School deans. **REQUIREMENTS:** undergraduate business degree and eight to ten years' publishing industry experience, including eight-plus years of managerial experience. Graduate business degree and experience as a publisher preferred. Sales experience a plus. Knowledge of business/management content desirable. Proven ability to negotiate strategic alliances with critical industry partners required. Experience with a circulation-driven publication essential. Ability to work in a team environment, provide leadership, and communicate well at all levels also required. **02-0112R**

HUMAN RESOURCES ADMINISTRATOR, *MIT Medical*, to be responsible for the administration of human resource activities. Will facilitate move toward desired strategic direction and help department leadership define and implement strategies for assuring that MIT Medical is a desirable place to work and provides staff enrichment at all levels. Will provide guidance in the following areas: employee learning and development; employee/labor relations; sourcing, interviewing, and selecting candidates; compensation and classification; organizational development; training, performance management, and professional development; and policy interpretation and compliance with Joint Commission on Accreditation of Healthcare Organizations (JCAHO) HR standards. Will also provide support, direction, coaching, and training to staff on HR issues and people management; represent the unique needs and objectives of MIT Medical within an academic environment; and act as liaison with central MIT HR. **REQUIREMENTS:** a bachelor's degree; at least seven years' HR generalist experience (education may be substituted for experience); demonstrated creative, proactive problem solving abilities; and employee development, coaching; and facilitation skills. Experience in a health care organization preferred. Advanced degree in business, organizational behavior, or human resource management desirable. Knowledge of JCAHO HR standards highly desirable. Ability to maintain confidentiality a must. Knowledge of MIT HR policies helpful. Should possess commitment to customer service and outstanding written and verbal communication, public speaking, presentation, and interpersonal skills. Excellent organizational, leadership, and collaboration skills a must. Ability to work across organizational levels to develop and maintain positive relationships and assure fairness and consistency necessary. **02-0051Q**

SR. PROJECT DEVELOPMENT MANAGER FOR SPACE MANAGEMENT, *Facilities*, to provide oversight and coordination to various elements within the Institute's space management process. Will lead major internal planning efforts for space changes and the development of new concepts and techniques for Institute planning; provide status reports of all projects; collect, analyze, adapt, and present information to various audiences; coordinate research and analysis with primary data sources; communicate clear goals and desired outcomes to a variety of individuals and groups; manage the process for tracking all requests for space changes, renovations, and construction projects; oversee the progress of all space projects and assure the integrity of the updates to the project's tracking database; prepare all agendas and meeting minutes; and provide follow up with all project managers, designers, and consultants as necessary. **REQUIREMENTS:** a master's degree in planning management and ten years' experience in areas of planning, architecture, or engineering. Practical experience in planning architecture, urban design, or engineering areas strongly preferred. Senior level experience in public or institutional setting preferred. Must possess demonstrated managerial and analytical experience and thorough knowledge of and experience working with complex data and databases. Must be able to handle issues and people with diplomacy and confidentiality. Ability to translate technical principles into understandable concepts essential. Must demonstrate an understanding of issues in a large and complex environment. Exceptionally strong communication skills and extensive knowledge of the management of people, processes, and systems required. **02-0013Q**

ENVIRONMENTAL HEALTH AND SAFETY OFFICER/REACTOR RADIATION PROTECTION, *Environmental Health and Safety*, to serve as the designated alternate to the Reactor Radiation Protection Officer. Duties will include performing managerial and technical tasks in radiation protection for the MIT 5 MW research reactor under the general direction of the Deputy Director for Environmental Health and Safety/Reactor Radiation Protection Officer; and assisting in the development and implementation of all aspects of the reactor radiation protection program in accordance with technical specifications, license conditions, Institute policies, and state and federal regulations. **REQUIREMENTS:** a bachelor's degree in an appropriate scientific or engineering field and six years of professional experience in radiation protection (two of which must be in a reactor environment) or a master's degree in health physics and four years' professional experience in a radiation protection program (two of which must be in a reactor environment). Certification by the American Board of Health Physics highly desirable. Current health physics experience at a reactor facility and working knowledge of present radiation protection standards and recommendations required. Must be able to prepare clear technical reports, analysis, and correspondence. Excellent interpersonal skills and ability to make effective oral presentations and work as part of a team important. Demonstrated working knowledge of radiation detection and measurement instrumentation and ability to understand research applications of radiation in a multidisciplinary research environment required. PC computer skills highly desirable. Must be able to qualify for the use of respiratory protection and be able to lift 50 lbs. **01-1360P**

ACADEMIC STAFF

POSTDOCTORAL ASSOCIATE, *McGovern Institute for Brain Research*, to join a laboratory with a long-term research goal of understanding neuronal representations in the primate inferotemporal cortex that underlie visual object recognition. Projects will be motivated by computational models of recognition and will employ single- and multisite recording and stimulation. **REQUIREMENTS:** a Ph.D., a background in neuroscience or a neuroscience-related field, and strong computer skills. Training in neurophysiology and experience working with animals highly desirable. Position is available immediately. Please forward a brief statement of research goals, CV, and names of three references to mcgovern@mit.edu. **02-0330**

POSTDOCTORAL ASSOCIATE, *Earth, Atmospheric and Planetary Sciences*, to investigate and mitigate errors in upper level humidity that are observed in the National Center for Atmospheric Research Community Climate Model (CCM3). Will work with Professor Kerry Emanuel of MIT and Shepard Clough of Atmospheric and Environmental Research to implement an improved representation of cumulus convection in CCM3, increase the vertical resolution of the model's troposphere, and explore the sensitivity of outgoing longwave radiation to microphysical parameters in the convection scheme. **REQUIREMENTS:** a Ph.D. in meteorology or atmospheric physics. A background in the use of convective parameterizations and large-scale models strongly desirable. The desired start date is summer or fall of 2002, but can be sooner. A statement of research interests; list of publications; and the names, addresses, e-mail addresses, and telephone numbers of three references should be included with application material. **02-0322**

LECTURER IN WRITING ACROSS THE CURRICULUM, *Humanities* (nine-month contract), to be responsible for the codevelopment and coimplementation of a communication program for Communication Intensive (CI) courses in biology, chemistry, and chemical engineering. Will work with course instructional staff (faculty and technical instructors) to develop assignments that teach the fundamentals of scientific and technical writing and speaking. Will also be responsible for coordinating other lecturers from the Program in Writing and Humanistic Studies teaching in these classes. Will work under the supervision of the Director of Writing Across the Curriculum. **REQUIREMENTS:** substantial experience teaching writing and speaking in the biological, chemical, or health sciences; an earned doctorate or equivalent experience in the teaching of writing, chemistry, or biology; and excellent interpersonal skills and ability to interact effectively with faculty, students, administrative staff. Administrative and supervisory experience preferred. The initial appointment is for three years. Salary is commensurate with experience. Application deadline: May 8, 2002. **02-0321**

POSTDOCTORAL ASSOCIATE, *Haystack Observatory*, to join the Atmospheric Sciences Group which is pursuing comparisons of ionospheric radar observations with total electron content data obtained with global GPS networks and magnetospheric particle and field data obtained with spacecraft. A second project involves direct associations of the midlatitude ionosphere with magnetospheric processes and solar wind variations. **REQUIREMENTS:** recent Ph.D. in space physics or a related field. Please submit a CV including education and experience, a publications list, a statement of research background and interests, and the e-mail addresses and telephone numbers of two references. Haystack is located in Westford, MA. **02-0293**

INSTRUCTOR, *Chemistry*, to become full-time instructor in organic chemistry for the 2002-03 academic year. Responsibilities will include teaching introductory and advanced undergraduate organic chemistry courses. **REQUIREMENTS:** a Ph.D. in organic chemistry, demonstrated excellence in teaching, outstanding organizational and interpersonal skills, and a strong commitment to undergraduate education. Applications from recent Ph.D.s interested in pursuing careers in undergraduate education are especially welcome. Application material should include a statement of teaching philosophy and approach and three letters of reference. Applications received by April 22 will get first consideration. **02-0258**

POSTDOCTORAL ASSOCIATE, *Center for Cancer Research*, to study how death receptors induce either inflammatory or apoptotic signals using a combination of molecular and computational approaches. **REQUIREMENTS:** experience with basic molecular techniques and computer modeling. Application material should include three references. **02-0195**

INSTRUCTOR, *Aeronautics and Astronautics*, to join the Software Engineering Research Laboratory. Will assist in teaching beginning programming and software engineering classes; participate in constructing test beds and simulation environments for undergraduate software courses; and work with students in specifying, designing, constructing, and testing software for Course 16 project courses, for individual student and group projects. May also participate in Course 16 research if desired. **REQUIREMENTS:** extensive knowledge of software engineering, particularly practices appropriate for real-time control software. Master's degree or higher required. Aerospace industry experience developing control software desirable. **02-0163**

POSTDOCTORAL ASSOCIATE, *Center for Space Research*, to perform analysis of X-ray spectra of active stellar coronae obtained with the Chandra X-ray Observatory High Resolution Transmission Grating Spectrometer. Goals are to measure and model the X-ray spectra of coronally active stars as a function of rotational phase or time. Determination of temperature and density structure and of elemental abundances are fundamental to the theoretical underpinning of coronal heating mechanisms. The work will entail applications of thermal plasma emission models, dynamic flare models, and spectroscopic line-based analysis techniques to the observations. **REQUIREMENTS:** experience with X-ray astronomical data analysis methods, such as with one or more data analysis packages (ISIS, CIAO, XSPEC), programming languages (IDL, Slang, C), or astronomical high-resolution spectroscopy (X-ray, optical or UV). Three letters of reference should be included with application material. Application deadline: May 31, 2002. **02-0100**

POSTDOCTORAL ASSOCIATE or VISITING ENGINEER, *Laboratory for Energy and the Environment* (two-year appointment), to join the Sloan Automotive Laboratory. The project area is lean gasoline engine operation, enhanced by hydrogen addition, to achieve significant improvements in efficiency and emissions. The project has a major industrial partner and involves a range of experimental and computational engine research and development activities. **REQUIREMENTS:** Experience in at least some of the following areas desirable: engine combustion and emissions experiments, computer simulation of engine performance, applications of computational fluid dynamics to sprays and mixing processes. **01-1365**

POSTDOCTORAL ASSOCIATE, *Center for Space Research*, to work with data from the Chandra X-ray Observatory (CXO) as part of the Advanced CCD Imaging Spectrometer (ACIS) group. Members of the ACIS group regularly collaborate with Chandra staff and with members of the High-Energy Transmission Grating Spectrometer (HETG) Group. ACIS is one of two imaging detectors on CXO with the capability of performing moderate resolution spectroscopic imaging. The postdoc's primary responsibility will be to carry out forefront research using and/or related to ACIS and HETG data. If interested and qualified, may devote a limited amount of time to ongoing X-ray imaging detector development at the Center for Space Research. Will work directly with the ACIS and HETG teams and with scientists at the MIT Chandra X-ray Observatory Center. More information on ACIS, HETG, and CXO can be obtained at <http://acis.mit.edu>, <http://space.mit.edu>, and <http://asc.harvard.edu>. **REQUIREMENTS:** demonstrated ability to conduct independent research in a relevant area. Should have or be about to receive a Ph.D. in physics or astronomy. Application material should include two copies of curriculum vitae, a statement of past research and future plans, and the names of three references. **02-0071**

COMPARATIVE PATHOLOGIST, *Division of Comparative Medicine*, to assume a primary role in the division's research, diagnostic and training activities. DCM provides animal husbandry and clinical care for all research animals on the MIT campus, conducts externally-funded research, and has an NIH-funded training program for veterinarians specializing in biomedical research. The comparative pathologist will pursue independent and/or collaborative research complementing our strength in animal models of gastroenteric and hepatic inflammation and neoplasia, provide pathology services for DCM's research and diagnostic activities, participate in the training and education of postdoctoral fellows, and participate in the development and/or implementation of new diagnostic tests. **REQUIREMENTS:** a DVM from an AVMA-accredited university with two to four years' experience in a pathology training program. PhD preferred. ACVP board certification or eligibility and demonstrated research ability and skills with molecular techniques required. **02-0003**

POSTDOCTORAL FELLOW, *Chemistry*. Positions are available in theoretical physical chemistry. The projects include research in condensed-phase spectroscopy in solutions and liquids and in the physical and chemical properties of biological systems. Both projects involve analytical theory and numerical calculations. **REQUIREMENTS:** recent Ph.D. in theoretical research of physics, chemistry, or biology. A strong background in statistical mechanics needed. Computer skills and simulation experience are a plus. Application material should include a publications list and two to three letters of recommendation. **02-0085, 02-0084**

SPONSORED RESEARCH

TECHNICAL ASSISTANT, *Brain and Cognitive Sciences*, to join a research group studying learning, reasoning, and perception in humans and machines. Current projects include concept learning, causal inference, learning word meanings and semantic structure, mapping perceptual feature spaces, and perceiving the brightness and material properties of surfaces. Duties will include designing, programming and coordinating behavioral experiments; analyzing and modeling data; web design; and some computer management. Will be encouraged to take an active role in all stages of the research, including initiating your own projects. **REQUIREMENTS:** some relevant experience, a sense of creativity, and an ability to work independently. Work hours are flexible, within the range of 30 to 40 hours/week. We ask for a one-year commitment, with a possibility of two. Application material should include a brief statement of interest and contact information for references. **02-0384**

RESEARCH SCIENTIST, *Laboratory for Computer Science*, to join the Supercomputing Technologies (SuperTech) Group and participate in the research and development of parallel computing technology including hardware, software, and applications. Will participate in, and in some cases lead, research on multithreaded programming, computer architecture, and wide- and local-area distributed systems; take primary responsibility for stabilizing and organizing development of SuperTech's software systems, including its Cilk multithreaded programming system (see <http://supertech.lcs.mit.edu/cilk/>); and contribute creatively to research proposals. **REQUIREMENTS:** a Ph.D. in computer science or a related discipline and five years of experience in software or architecture development. Should have a strong background in the following areas: algorithms, software development, concurrency and multithreading, parallel computer architecture, programming languages and compilers, operating systems, and networking. Proficiency with programming languages such as C and C++, and familiarity with the Linux kernel and GNU essential. Processor-design experience, especially with speculative-execution units a plus; as is experience with system fault-tolerance and distributed databases. Ability to work both independently and cooperatively with others essential, as are good speaking and writing skills. **02-0358**

RESEARCH SCIENTIST, *Artificial Intelligence Laboratory*, to lead an effort designing computer vision systems for tracking and interacting with people. **REQUIREMENTS:** a Ph.D. in computer vision, two to four years' postdoctoral experience, demonstrated ability to interact well with other project members in a top-tier research environment, ability to provide mentorship to junior colleagues, and willingness to oversee the implementation and integration of various system components developed by team members. Demonstrated ability to liaise with sponsoring organizations both at a technical and conceptual levels required. Experience with real-time stereo vision systems, object recognition algorithms, and motion estimation preferred. **02-0357**

RESEARCH SCIENTIST/ASSISTANT SCIENTIFIC DIRECTOR, *Center for Environmental Health Sciences*, to join the BioMicro Center, a centralized facility for biological computing and biofabrication that performs original research and provides services in the areas of bioinformatics and microarraying to faculty in the Department of Biology, Division of Biological Engineering, Center for Cancer Research, and Center for Environmental Health Sciences. Will be responsible for helping to establish the scientific and technical objectives of the BioMicro Center, delivering presentations at international scientific meetings, assisting with research grants, writing original research papers, and overseeing the preparation of the center's annual report. Will work with a team of seven other permanent staff members and report directly to the Director, an MIT faculty member. There will be opportunities available for professional development. **REQUIREMENTS:** a Ph.D. in biology, chemistry, or biological engineering; one to three years of postdoctoral experience; and a record of original publication. Successful candidates will have had extensive laboratory experience in molecular biology or biological chemistry and be adept at computer-aided analysis of data. Experience with microarray technologies, computer programming (Perl, C or Java), and relational databases a plus. Please submit a list of publications, summary of past research accomplishments, and three letters of reference with application material. **02-0347**

DIRECTOR, INSTRUMENTATION LABORATORY, *Chemistry*, to assume supervisory responsibility for laboratory staff; instrument acquisition including proposal preparation, repair, and maintenance; teaching and training of student operators; the implementation of current instrumental research techniques in response to faculty need; and the operating budget and staff development. The facility currently houses NMR, Mass Spec, EPR, and peripheral instrumentation used routinely by faculty and students in the Chemistry Department. The Instrumentation Lab currently employs four staff members who are involved in providing mass spectra as a service, instrument maintenance and repair, teaching, and computer maintenance. **REQUIREMENTS:** experience in modern multidimensional NMR spectroscopy. Ph.D. in chemistry preferred. Must be able to interact with students and faculty with diverse needs and interests. **02-0331**

RESEARCH TECHNICIAN, *Chemistry*, to assist and participate in ongoing projects that include development of biochemical reporters for investigation of signaling pathways involved in cell growth and differentiation. Responsibilities include maintenance of a cell culture room, preparation of molecular biological reagents, molecular cloning, and general laboratory management. **REQUIREMENTS:** a minimum of a B.A./B.S. in biology, biochemistry, or related field and familiarity with cell biology and molecular biology laboratory techniques. Seek a highly motivated person who is able to carry out experiments independently. Good organizational skills and attention to detail important. **02-0334**

TECHNICAL ASSISTANT, *Biology*, to join a dynamic research laboratory. Will work 60% time on research and 40% time on lab management. Will be responsible for some combination of the following: standard protein biochemistry and molecular biology techniques, maintenance of tissue culture cells, establishment and maintenance of strain and supply databases, ordering and maintaining lab stocks and small equipment, and oversight of day-to-day lab functions. The Sorger lab studies the kinetechore complex and checkpoint protein functions in yeast, mammalian cells, and mice primarily using microscopy and biochemical techniques. Strong candidates will be encouraged to pursue independent research projects. **REQUIREMENTS:** some combination of a bachelor's degree in biological sciences or chemistry and three or more years' relevant lab experience. **02-0327**

TECHNICAL ASSISTANT, *Center for Cancer Research*, to participate in the generation and analysis of models of human cancer and assist in the characterization of tumor suppressor genes and modifier genes using techniques in molecular and cell biology. Will also have shared responsibility for performing various tasks in support of the overall operation of the lab. **REQUIREMENTS:** a bachelor's degree in biological science and experience in genetics and/or molecular and cell biology. Experience in histology and PCR useful. **02-0326**

LABORATORY MANAGER, *Linguistics and Philosophy*, to run the KIT/MIT Joint Magnetoencephalography Lab of Dr. Alec Marantz. Responsibilities include maintaining the MEG laboratory, training new lab users, conducting experimental sessions, assisting in the formulation and design of experiments, data analysis, and manuscript preparation. Position available July 1, 2002. **REQUIREMENTS:** a bachelor's degree in linguistics, cognitive science, or related discipline. Neuroimaging experience desirable. This is a one-year appointment that may be extended for a second year. **02-0313**

TECHNICAL ASSISTANT, *Center for Cancer Research*, to study cell cycle and cancer. Will participate in several research projects under the supervision of the principal investigator with the potential to conduct independent research. Projects will involve the generation, maintenance, and analysis of novel transgenic mouse strains to investigate the role of cell cycle regulators in both development and tumorigenesis. **REQUIREMENTS:** a B.S. in biology or equivalent with some prior research experience, although this could be at the undergraduate level. Preference will be given to candidates who have some experience in the maintenance and analysis of transgenic mice. A two-year commitment is required. **02-0312**

TECHNICAL ASSISTANT, *Chemical Engineering* (temporary), to work in the laboratory of Dr. Robert Langer. Duties will be centered on a number of projects to determine the biocompatibility of novel materials and the development of new systems for the relief of chronic pain. Specific skills that will be developed—but are not an initial requirement for hiring—include animal care and minor surgery, microparticle manufacture, and routine chemical and biological assays. **REQUIREMENTS:** a bachelor's degree in chemical engineering, biology, or a comparable field. This is a temporary, one-year position that may be extended for a second year. **02-0296**

DIRECTOR (Research Associate), *Center for Transportation and Logistics-Affiliates Program in Logistics*, to run and build an industrial consortium to over 50 companies with focus on logistics, supply chain, and transportation. Key tasks include working with individual firms to promote ties with MIT; planning and executing an annual program of seminars, forums, and executive courses for the sponsors; and identifying and attracting new members. Will interact with related researchers and educational and research programs at MIT covering such focus areas as manufacturing, supply chain management, electronic commerce, operations research, etc. A secondary responsibility will be participating in and helping to organize and promote new, large-scale research initiatives. Under general supervision, will report to the CTL director and will work closely with the Director of the Integrated Supply Chain program. **REQUIREMENTS:** a minimum of a master's degree in logistics, transportation, business administration, or related field. Seek a self-motivated individual capable of self-direction. Excellent communication, facilitation, marketing, program development, sales, and presentation skills needed. Should also possess work experience in logistics, transportation, operations, or supply chain management or an equivalent combination of pertinent education and experience. Significant research experience and/or experience in private sector logistics highly desirable. **02-0300**

RESEARCH ASSOCIATE, *Center for Transportation and Logistics*, to conduct research under the supervision and direction of the principal investigator and appointed lead researchers. Will carry out research activities associated with the study of the impact of global terrorism on supply chains. Primary responsibility includes conducting research in the defined domain; identifying, contacting, and soliciting prospective agencies and organizations for funding and support; serving as liaison to cross-departmental efforts at MIT and with sponsors; working closely with other researchers as part of a team to make a significant contribution to the field of study; working with students; and helping with other major center activities. There will be extensive interaction with external industrial and government contacts and with other MIT organizations. **REQUIREMENTS:** a minimum of a master's degree in transportation, logistics, business administration, or related field, or an equivalent combination of education and experience; significant research experience; and strong grounding in an academic environment and with proposal writing. A Ph.D. in a relevant field desirable. Experience in private sector logistics and/or e-business highly desirable. Ability to work with government agencies and familiarity with logistics, international concerns, supply chain management, and the associated issues of integration needed. Should demonstrate a willingness to contribute to the educational and research programs of the center. Excellent communications and presentation skills needed. **02-0292**

TECHNICAL ASSISTANT, *Center for Environmental Health Sciences*, to work on dissecting the molecular mechanisms by which mammalian cells and organisms respond to DNA alkylation damage. The major responsibilities are to assist with and participate in ongoing projects that include the characterization of knock-out and transgenic mouse lines and the analysis of transcription profiles in selected mouse tissues. Will also be responsible for several lab maintenance tasks. **REQUIREMENTS:** a B.A./B.S. in biology, biochemistry, or equivalent and related research experience. Preference will be given to those with technical skill in molecular biology, cell culture, or mouse maintenance. Experience with Southern, Northern, and Western hybridization; PCR; and in situ hybridization especially useful. Must have good organizational skills and show attention to detail. **02-0287**

RESEARCH ORGANIC CHEMIST, *Chemical Engineering* (temporary), to join a team of chemical engineers who have developed a novel microchemical reactor to synthesize fluorinated compounds. Will work closely with a senior graduate student in Chemical Engineering and a practicing Ph.D. organic chemist; explore various fluorination synthetic routes using the microchemical reactor; and work-up, identify, and quantify reaction products. **REQUIREMENTS:** a strong background in organic chemistry and good command of work-up and analytical techniques: rotary evaporation, thin layer and column chromatography, GC-FID, GC-MS, ¹H-NMR, and ¹⁹F-NMR. (Starting and ending dates are flexible, but would like to cover a significant portion of the period April to October 2002.) **02-0279**

TECHNICAL ASSISTANT, *Chemical Engineering* (temporary), to work on the development of polymers for non-viral gene delivery and cellular engineering in the laboratory of Dr. Robert Langer. **REQUIREMENTS:** a bachelor's or master's degree in biochemistry, chemistry, chemical engineering, or a related field with at least one year of laboratory experience. Must be well organized, hard working, and self-sufficient. Experience with computers a plus. (This is a one-year position and may be extended for a second year.) **02-0278**

TECHNICAL ASSISTANT, *Brain and Cognitive Sciences*, to join a cognitive neuroscience lab and assist with all phases of functional MRI and behavioral studies of high-level vision. Will also handle some administrative duties. **REQUIREMENTS:** enthusiasm for cognitive neuroscience. Experience required with various computer platforms, e.g., Macintosh, Windows, and Unix (Sun and Linux); and programming languages e.g., Matlab, C, and tclsh. Knowledge of visual cognition, neuroanatomy, or statistics helpful. Position begins summer 2002. **02-0275**

RESEARCH SCIENTIST, *Chemical Engineering*, to join a collaborative effort between MIT and Harvard under the JDFI Center for Islet Transplantation at Harvard Medical School. The major emphasis of the project is on the development of novel methods for islet culture and quality assessment. **REQUIREMENTS:** a Ph.D. in chemical engineering, strong publication record, substantial background in tissue engineering, and in-depth understanding of b-cell physiology and stimulus-secretion coupling. Three or more years' experience required in as many as possible of the following areas: monolayer and 3D cell culture with insulin-secreting tissue, including human islets; effect of hypoxia and hyperoxia on viability and glucose-stimulated insulin secretion; cell encapsulation in alginate and/or in planar diffusion chambers and NMR spectroscopy for assessing metabolism and energetic state of cells in bioreactors and islet and b-cell quality assessment using oxygen consumption rate (OCR) and NMR. **02-0270**

STAFF PHYSICIST, *Bates Linear Accelerator Center*, to join the Research Support Group working on the BLAST (Bates Large Acceptance Spectrometer Toroid) spectrometer. Construction is nearly complete and commissioning will begin in June. BLAST is designed to study nucleon and nuclear properties using polarized gas targets internal to the Bates South Hall Ring. Will act as the laboratory staff member responsible for the BLAST spectrometer, including on-site run coordination, data acquisition and analysis, detector development, and user support. **REQUIREMENTS:** a Ph.D. in experimental nuclear or particle physics and experience in some of the following: few-body spin physics, scintillation and Cerenkov detectors, lead glass calorimetry, drift chambers, VME and/or FASTBUS-based data acquisition, CODA, and Root. Three letters of recommendation should be included with application material. Bates is located in Middleton, MA. For more information, see <http://mitbates.mit.edu>. **02-0256**

RF PHYSICIST, *Plasma Science and Fusion Center*, to join the Alcator C-Mod Tokamak, a national facility at the forefront of fusion plasma physics research, using radio-frequency waves to heat and control the plasma. It is located on the MIT campus and enjoys the participation of students, faculty, and a world-class research team, as well as collaborators from many other institutions. Duties will include constructing RF heating and current drive experiments on the Alcator C-Mod Tokamak in the ICRF and lower-hybrid frequency regimes and analyzing and modeling the results of these experiments. **REQUIREMENTS:** a Ph.D. in physics, electrical engineering, or nuclear engineering; demonstrated ability to master and quickly contribute to a complex field of plasma physics; and intimate knowledge of RF hardware and engineering practices. Position requires a person with demonstrated proficiency in using state-of-the-art computational simulation and modeling tools. Detailed knowledge of high temperature plasma diagnostic techniques desirable. **02-0234**

RF or POWER ENGINEER, *Plasma Science and Fusion Center*, to join the Alcator C-Mod Tokamak, a national facility at the forefront of fusion plasma physics research. It is located on the MIT campus and enjoys the participation of students, faculty, and a world-class research and engineering team. Engineering projects involving multimegawatt power supplies and rf transmitters covering the 40 MHz to 4.6 GHz frequency range, and the ongoing development of automatic tuning systems and antennas. Will be expected to contribute in at least several electrical engineering disciplines including high power AC to DC converters, vacuum tube based rf transmitters, rf, analog and digital circuitry, high power rf protection circuitry, and the safety requirements demanded by multimegawatt systems. Will be expected to document, maintain, operate, and upgrade these high power systems. **REQUIREMENTS:** a B.S. or higher in electrical engineering or equivalent work experience (military training in rf, radar, or power systems for example). Demonstrated ability to master and quickly contribute to complex engineering projects while maintaining aggressive schedules required. **02-0233**

MECHANICAL ENGINEER, Plasma Science and Fusion Center, to join the Alcator C-Mod Tokamak, a national facility at the forefront of fusion plasma physics research. It is located on the MIT campus and enjoys the participation of students, faculty, and a world-class research and engineering team. Seek individual to design, and analyze unique components for plasma confinement experiments. These components experience extreme electrodynamic loads and require critical alignment. New projects will involve the design of cryogenic systems for use in vacuum, the mechanical structures needed for high power rf antennas and plasma facing components, and new diagnostic systems needed to study high temperature plasmas. Will perform hands-on work to bring projects on-line while maintaining aggressive schedules. **REQUIREMENTS:** a B.S. in mechanical engineering; at least two years' work experience; and ability to rapidly develop expertise in several mechanical engineering disciplines including cryogenic systems, vacuum systems, plasma facing component design, and high field magnet technology. Familiarity with FEA stress and thermal analysis codes, solid modeling software, and material properties desirable; but talent and energy are the key qualifications. **02-0232**

TECHNICAL ASSISTANT, Harvard-MIT Division of Health Sciences and Technology, to join a laboratory primarily interested in vascular biology. The major responsibilities are to assist with and participate in ongoing projects that include examination of cellular and molecular mechanisms of tissue growth control and autocrine and paracrine growth regulation. Will also be responsible for the maintenance of a cell culture facility and general laboratory management. **REQUIREMENTS:** a minimum of a B.A./B.S. in biology, biochemistry, or related field; experience in mammalian cell culture, cell biology, and biochemistry; and experience with general laboratory techniques and laboratory management. Skills in histology, immunohistochemistry, and analytical biochemistry preferred. Must have good organization skills and show attention to detail. **02-0223**

RESEARCH ASSOCIATE, Chemistry, to conduct research in ultrafast condensed matter spectroscopy, femtosecond pulse shaping and coherent control, terahertz generation and spectroscopy, and coherent x-ray generation and spectroscopy. **REQUIREMENTS:** a Ph.D. in physics with postgraduate experience in linear and nonlinear optics, femtosecond pulse shaping, terahertz spectroscopy, and ultrafast x-ray generation. Experience with amplified Ti:sapphire lasers, high-field interactions in solids, polariton spectroscopy, and spatiotemporal imaging highly desirable. Please include three letters of recommendation with application materials. Application deadline: May 31, 2002. **02-0221**

RESEARCH ASSOCIATE, Technology and Development Program, to direct the information technology portion of a dynamic, multifaceted, international academic-business partnership involving joint research and information technology curriculum design. Responsibilities include overseeing the establishment of academic software infrastructure, authorship and coordination of joint proposals for research, input into information technology curriculum, and serving as liaison to cross-departmental group at MIT and overseas. **REQUIREMENTS:** a Ph.D. in computer science, management information systems, or information technology; several years' experience managing information technology projects; strong grounding in academic environment and with proposal writing; and familiarity with enterprise software infrastructure planning and development. Should also be familiar with enterprise software design, OLAP and/or data mining technology, SAP, and/or software for management of academic environments. **02-0181**

TECHNICAL ASSISTANT, Chemical Engineering, to develop software embodying the research results of the research group as well as other methodologies developing from other laboratories. These methods provide solutions to sequencing and related problems and to problems associated with cell physiology. This software will be used in regular graduate and undergraduate courses at MIT and in the Bioinformatics Summer Course. Much of the software will be devoted to user-friendly interfaces and biochemical databases and databases for microarray and other physiological data. A final component of this assignment will be the development of methods for linking genomic and physiological data. Will work closely with students and postdocs. **REQUIREMENTS:** a bachelor's degree in biology and very good skills in computer science. Must be self-motivated and able to interact well with students and other researchers. **02-0169**

RESEARCH SCIENTIST, Research Laboratory of Electronics, to participate in research on the acoustics, aerodynamics, and physiology of speech production with application to speech synthesis. **REQUIREMENTS:** a Ph.D. in speech science or speech signal processing and three to five years of experience in articulatory and acoustic phonetics and speech synthesis. Background in speech perception, linguistics, and managing speech databases desirable. Should be able to develop own research as well as work with colleagues on existing projects. **02-0161**

RESEARCH SCIENTIST-EXPERIMENTAL, Plasma Science and Fusion Center, to join the Alcator Project. The Alcator C-Mod Tokamak is a national facility at the forefront of fusion plasma physics research, using radio-frequency waves to heat and control the plasma and a wide variety of sophisticated plasma diagnostics. It is located on the MIT campus and enjoys the participation of students, faculty, and a world-class research team, as well as collaborators from many other institutions. **REQUIREMENTS:** a Ph.D. in physics, electrical engineering, or nuclear engineering; demonstrated ability to master and quickly contribute to a complex field of physics; and laboratory experience in plasma physics or applications relevant to plasma heating or diagnostics. **02-0160**

TECHNICAL ASSISTANT, Biology, to join a small team of biologists and engineers who are working to experimentally validate useful models of biological systems. Lab duties will include the culture and genetic engineering of bacteriophage and their hosts (E.coli and Salmonella) and the fabrication of long fragments of DNA (via PCR). Will act as an active and contributing participant in an ongoing and dynamic research project. **REQUIREMENTS:** a B.S. in biology or related discipline and two years of experimental experience. Any additional experience with Salmonella a plus. Experimental and/or computational skills related to mRNA and protein quantification and fluorescent microscopy would also be of use. Must be adept at PCR. Candidate directly out of a solid undergrad program with very strong undergrad lab experience will be considered. **02-0155**

RESEARCH SCIENTIST, Laboratory for Information and Decision Systems, to conduct research and supervise graduate students in statistical signal and image processing. There will be particular emphasis on the following projects: data fusion in sensor arrays in uncertain environments, where one objective is to develop variational methods for robust, superresolution source localization; synthetic aperture radar imaging of stationary and moving scenes, where the goal is to develop advanced algorithms to help improve the performance of automatic target recognition systems; and medical image analysis and segmentation, where the research objectives include the development of novel statistically-based curve evolution methods using non-parametric estimation techniques and the development of shape-based segmentation algorithms. **REQUIREMENTS:** a Ph.D. in electrical engineering; experience in signal processing research, demonstrated through published work in leading scientific journals and conferences; and excellent communication and presentation skills. Must have technical background in digital signal processing, stochastic processes, regularization-based image reconstruction and restoration, image segmentation by variational and curve evolution methods, non-quadratic and non-convex optimization theory, detection and estimation theory, recursive estimation and optimal filtering, multiresolution statistical models, statistical pattern recognition, automatic target recognition, dynamical system theory, inverse problems, computed imaging, medical imaging modalities and techniques, sensor array processing, synthetic aperture radar and other coherent imaging techniques, and information theory. **02-0128**

RESEARCH ENGINEER, Laboratory for Computer Science, to join the Computer Graphics Group (CGG) and create and manage complex systems and networks of PCs, Linux and SGI servers, workstations and high-end input devices, instrumentation, and software packages. Will independently pursue complex system administration tasks and interact with faculty and technical staff, contribute to and support a wide variety of research projects which include development of cutting-edge software and instrumentation; assist in the construction of hardware for projects measuring, photographing, and scanning 3D objects; create and implement structures and algorithms to facilitate storage and retrieval of large video and geometry data sets; and advise and direct student research and engineering projects. **REQUIREMENTS:** an M.S. in computer science and two years' related experience. Must have experience working with PCs, Linux and SGI machines, graphics peripherals, fast-distributed file systems, video frames, geometric data and textures, storage and retrieval of large images. Ability to assemble, upgrade, and debug a variety of software packages necessary. Familiarity with graphics platforms and practice, traditional or digital photography, 2D/3D CAD modeling, 3D scanning and video equipment required. **02-0075**

TECHNICAL ASSISTANT, Biology, to assist in studies of lipoprotein metabolism and atherosclerosis using molecular and cellular techniques. Lab duties will include preparation of lipoproteins from plasma, fluorescent and radioactive labeling of lipoproteins, performing various assays using labeled lipoproteins on cultured cells, FPLC analysis of biological specimens, and PCR. **REQUIREMENTS:** a bachelor's degree in biology or in chemistry with a minor in biology. Some biology lab experience also required. **01-1325**

TECHNICAL ASSISTANT, Biology, to assist in research on lipoprotein metabolism and atherosclerosis using cellular, molecular, and animal models. Duties include isolation of lipoproteins from plasma, fluorescent and radioactive labeling of lipoproteins, performing various assays using labeled lipoproteins on cultured cells, FPLC analysis of biological specimens, and PCR. Some animal work may be necessary. **REQUIREMENTS:** a B.S. in biology or related area and a minimum of one year of biology laboratory experience. **01-1324**

SERVICE STAFF

TECHNICIAN A (E-M), Plasma Science and Fusion Center, to assist in laboratory, research, or analytical work under the direction or supervision of scientific personnel and operate highly technical experimental apparatus. Will work inside the tokamak vessel on the installation of new diagnostic equipment which is designed to withstand the extreme temperature and forces experienced during plasma operation. Additional duties will involve work on high energy power supplies; multimegawatt RF transmitters; and control, vacuum, and magnet systems. All of this work will provide very interesting work for motivated, highly skilled people. **REQUIREMENTS:** graduation from a two-year technical day school or its equivalent and a minimum of two years of applicable experience. Should have worked at least one year in an electro-mechanical position. Because of restrictions at the entry to the vessel, the size of the applicant is of importance and will be considered during the hiring process. **02-0267**

THIRD CLASS ENGINEER, Facilities. **REQUIREMENTS:** Massachusetts Third Class Stationary Engineer's License or higher grade and a minimum of one year operating experience on high pressure boilers, oil and gas fired, with automatic combustion controls. Experience with turbine driven auxiliaries, AC and DC generation, and switchboard and feedwater control needed. Experience required on turbine and motor driven refrigeration equipment. Must be willing to work any and all shifts and do any and all kinds of work, consistent with the self-sufficiency of the Central Utilities Plant. **02-0308**

PART-TIME POSITIONS

SUPPORT STAFF

ADMINISTRATIVE ASSISTANT, MIT Medical (part-time, 20 hrs/wk.), to work in the Health Plans and Finance Office providing administrative and analytical support to the Financial Manager. Will assist with requests for data and statistical reports, process daily payment interfaces, maintain computer system dictionaries, maintain master file of provider contracts, review financial claims and reports, and handle member and provider correspondence. Will also lend administrative support to special projects. **REQUIREMENTS:** a minimum of 4.5 years' direct/related experience, strong verbal and written communication skills, solid organizational skills, and analytical ability. Must be able to handle multiple tasks simultaneously in a fast-paced work environment, be team oriented, and possess excellent customer service skills. Familiarity with or ability to quickly learn various computer programs including IDX, Excel, and word processing necessary. College degree preferred. (Schedule for the position to be determined.) **02-0366GD**

ADMINISTRATIVE ASSISTANT, Plasma Science and Fusion Center (part-time, 20 hrs/wk.), to provide administrative and secretarial support to Division Head, Associate Division head, and staff. Will have complete charge of office and duties will include making travel arrangements, obtaining travel advances, and processing travel expense vouchers; serving as initial contact person for all inquiries; organizing seminars and meetings; handling typing and proofreading of manuscripts, proposals, correspondence, and viewgraphs; and assisting with editing and submission of papers and proofreading galley for journal. There will be extensive interaction with students, faculty, and staff at all organizational levels both inside and outside MIT. **REQUIREMENTS:** attention to detail, proven organizational skills, and ability to work independently and professionally and maintain focus in a busy work environment prone to frequent interruptions. Excellent grammar, spelling, proofreading, and typing skills needed. Must possess a highly professional telephone manner, tact, and discretion. Ability to work in a tight team to provide continuity of information flow essential. Macintosh computer and Microsoft Word experience required. (Schedule to be determined.) **02-0266GD**

TECHNICAL ASSISTANT, MIT Medical (part-time, 24 hrs/wk.), to join the MIT Medical Pharmacy and assist the pharmacist in dispensing medication. Will primarily be responsible for receiving and processing cash register transactions, assisting patients in receiving filled prescriptions, answering telephone inquiries, and entering patient prescription information into the computer. Will also perform other stocking and clerical duties unique to an outpatient or retail pharmacy operation. **REQUIREMENTS:** a high school diploma and a minimum of two to three years' work experience, preferably in a retail store setting and ideally in a pharmacy. Must be able to deal sensitively and confidently with patients and staff members. The work is fast paced and requires standing for long periods of time. (The schedule for the position is Monday through Friday, 2:00 or 3:00 to 7:00 P.M., with some Sunday hours.) **02-0386GC**

SR. STAFF ASSISTANT, Center for Learning and Memory (part-time, 17.5 hrs/wk.), to provide administrative and financial support for faculty and research staff of the Wilson Laboratory. Duties include preparing Institute forms such as requests for payment, requisitions, and vouchers; handling reimbursement requests; maintaining and ordering lab equipment and office supplies; and working on monthly accounting statements. Will also maintain computerized prospect tracking system; make travel arrangements, including scheduling appointments, distributing itineraries as appropriate, obtaining travel advances, preparing expense vouchers, and coordinating conference/seminar arrangements; provide organizational and administrative assistance by developing and maintaining research files and preparing teaching materials, e.g., course packets and outlines; and run errands and handle special tasks as the need arises. Financial responsibilities will include assisting with annual and quarterly budget projections and with the preparation of grant proposals, processing accounting paperwork, and working with center administration on budget analysis. **REQUIREMENTS:** excellent organizational skills, a high level of initiative and resourcefulness, attention to detail, and ability to work both independently and as part of a team. Seek energetic, organized individual with excellent interpersonal skills. Good oral and written communication skills needed, as is ability to follow issues/problems through to resolution. Must be a fast worker who learns quickly. Strong PC skills and knowledge of software programs such as MS Word, Excel, PowerPoint, Eudora, and Netscape required. (Schedule for the position to be determined.) **02-0364GC**

Applying for a Position

Applications made to Human Resources should be for specific positions. Each position is assigned a job number which must be used on all application material as job matching services are not currently offered.

The one or two letter code which appears at the end of the job number refers to position's level or salary range within our "broad band" structure. If no code appears, the salary range for the position will depend upon experience. The jobs containing codes beginning with the letter "G" are support staff positions. Those beginning with any other letters are administrative staff positions. Positions with the IA code are currently under review. You may check the corresponding salary band for a position by visiting our web site <<http://web.mit.edu/personnel/www/compensation/salarybands>>. Years of experience as well as internal and external equity are reviewed when making salary decisions.

Due to the number of open positions, we are not able to publish complete descriptions for all of our openings in *Positions Available*. Complete position listings may be found in our reception area. On-line access is also available through the World Wide Web. Our address is <<http://web.mit.edu/jobs>> and the listings are updated frequently.

When submitting resumes, we prefer that you apply on-line. You may search for and review specific positions on-line at <http://web.mit.edu/jobs>. Once you have identified a position of interest, click the "apply for this position" button to use the on-line resume entry tool. If you do not have access to the web, you may send your resume by mail to: MIT, P.O. Box 391229, Cambridge, MA 02139-0013. You may also drop off your resume at the reception desk of the Human Resources Department.

Once your resume has been submitted, it will be forwarded to the appropriate hiring department where your background and qualifications will be reviewed. You will be contacted for an interview (by the hiring department) if an appropriate match is identified. Because of the volume of resumes we receive, we are not always able to acknowledge each one individually.

The Human Resources Department is located at 400 Main Street (E19-215) in Kendall Square, Cambridge. It is open Monday through Friday, 9:00 AM to 5:00 PM. Our mailing address is P.O. Box 391229, Cambridge, MA 02139-0013. Our telephone number is (617) 253-4251.

The security of all members of the campus community is of vital concern to MIT. Information regarding crime prevention advice, the law enforcement authority of the Campus Police, policies concerning the reporting of any crimes which may occur on the campus, and crime statistics for the most recent three-year period may be requested from the MIT Campus Police Department, Crime Prevention Unit, 617-253-9755.

POSITIONS AVAILABLE



May 8, 2002
Volume 13, Number 10

MIT Positions Available is a publication of the Human Resources Department, Massachusetts Institute of Technology. It is published every other week and appears as a supplement to *Tech Talk*.

Positions Available is distributed free to faculty and staff offices. It is also available free in Human Resources, the Information Center, and in various lobbies throughout the Institute.

Positions Available subscriptions are only available by subscribing to *Tech Talk*. Mail subscriptions are \$25 per year. Checks should be made payable to MIT and mailed to Business Manager, Room 5-111, MIT, Cambridge, MA 02139-4307.

Address inquiries or resumes to the MIT Human Resources, P.O. Box 391229, Cambridge, MA 02139-4307. General telephone inquiries are received at (617) 253-4251. Please include the job number(s) when making inquiries.

DEADLINE INFORMATION

To post openings in *Positions Available* (or on our web site), Request for Personnel forms <<https://web.mit.edu/personnel/rfp/forms/Rfp.htm>> should be submitted to the appropriate HR officer in Human Resources. Deadlines for submission are as follows:

- Wednesday 12:00 noon (except when the following Monday is an Institute holiday)
- Tuesday 12:00 noon (when the following Monday is an Institute holiday)

SR. OFFICE ASSISTANT, MIT Medical (part-time, 20 hrs/wk.), to provide assistance to the Coordinator of Purchasing and Central Supply. Will be responsible for processing invoices for Accounts Payable, keeping detailed accounting logs, and reviewing accounting statements; placing routine orders for supplies; assisting in maintaining detailed purchasing and computerized records; providing back up to Central Supply; and performing routine supply and mail functions. **REQUIREMENTS:** a high school diploma and a minimum of 2.5 years' related work experience. Should have basic math and accounting skills and show attention to detail. Excellent communication skills and basic computer skills required. (Schedule to be determined.) **02-0314GC**

SR. SECRETARY, Sloan School of Management-MIT Workplace Center (part-time, job share, 17.5 hrs/wk.), to assist the Executive Director, Program Director, and the Program Manager of a busy new research center. Duties include scheduling meetings; reconciling accounts; and day-to-day office management, e.g., photocopying, faxing, e-mailing, processing payments, distributing papers, updating/maintaining databases, editing/proofreading/formatting documents, and drafting letters. **REQUIREMENTS:** initiative and ability to work independently and take direction from several individuals, willingness to work as a team player, and ability to communicate clearly regarding work completed and work to be done with job-share partner. Must be organized and able to handle multiple tasks. Knowledge of Word, Excel, SAP, Meetingmaker, PowerPoint, FileMaker Pro, and Eudora/Microsoft Outlook needed. MIT experience preferred. (Schedule will be Tuesday and Thursday, 9:00 A.M. to 5:00 P.M.; plus an as yet undetermined additional four to five hour day.) **02-0236GC**

MEMBER SERVICE REPRESENTATIVE, MIT Credit Union (part-time, 20 hrs/wk.), to be responsible for inputting member transactions (e.g., share deposits and withdrawals and account status inquiries) via computer terminal. Will issue share receipts, withdrawal checks, and account printouts; impart Credit Union policy and procedures to current and potential members; answer telephone inquiries from and research information for members; identify member issues and propose solutions to satisfy both members and the Credit Union; and handle other tasks as necessary. **REQUIREMENTS:** a high school diploma, good interpersonal skills, familiarity with personal computers (PCs), accurate typing, mathematical ability, and familiarity with office machinery. Seek professional with well-developed communication skills who is able to project a positive image as a representative of the Credit Union. (Schedule to be determined.) **02-0171GC**

OFFICE ASSISTANT, MIT Medical (part-time, 20 hrs/wk.), to be responsible for pulling and filing medical X-ray folders. Will be the primary person responsible for documenting, tracking, and retrieving MIT Medical X-ray films loaned to outside health facilities or patients. Will also prepare X-ray film folders for new patients, return MRI and CT scans to medical facility of origin, purge active files on an annual basis, and maintain supply inventory for the file room. **REQUIREMENTS:** a high school diploma and one to two years' work experience, preferably with filing. Excellent communication skills and ability to work effectively as part of a team in a fast-paced environment required. Must be able to concentrate on detailed tasks despite frequent interruptions. (The schedule for the position is Monday through Friday, either 10:00 A.M. to 2:00 P.M. or 12:00 to 4:00 P.M.) **02-0315GB**

OTHER SUPPORT

HOUSEKEEPER, Endicott House (part-time, 24 hrs/wk.), to perform routine cleaning of all public areas, offices, meeting rooms, and rest rooms. Will perform general cleaning of guest rooms including making beds, dusting, vacuuming, and cleaning bathrooms; take dirty linens from rooms; wash, dry, and replace terry linen; and perform other tasks as directed by supervisor. **REQUIREMENTS:** dependability and ability to get along well with staff members and guests. Endicott House is located in Dedham, MA. (The schedule for the position varies as business dictates and may include some weekends.) **02-0242**

LIBRARY

LIBRARY ASSISTANT V, The Libraries-Rotch Visual Collection (part-time, 30 hrs/wk.), to assist in the management of an image library. Duties include reference services, development of the collections, in-house cataloging, and the creation and maintenance of web pages. Will provide public services, including circulation and reference; assist users in locating materials; catalog slides and supervise their processing; set priorities and direct the work of others; order slides, other visual media, and supplies and prepare invoices for payment; participate in collection management routines including shelf-reading, weeding, and replacement; maintain account records and compile statistics; and perform other duties as needed. Will manage the library in the absence of the Librarian. Rotch Visual Collections houses a large teaching collection of 35 mm slides, videos, photos, and digital images. **REQUIREMENTS:** a high school diploma or equivalent; 4.5 years direct/related experience (not including experience used to fulfill education equivalency); and excellent organizational skills, including ability to set priorities, meet deadlines, work with minimal supervision, and exercise good judgment. Capacity and concern for detail and accuracy important. Must possess positive and proactive customer service manner and excellent communication and interpersonal skills. Knowledge of Windows and library computer applications needed. Subject background in art or architecture and reading knowledge of at least one foreign language (German, French, Italian, Spanish) required. Knowledge of relational databases highly desirable. Familiarity with image processing software desired. Should be familiar with library research methods. Two years of college preferred. (Schedule for the position to be determined.) **02-0346GD**

INTERLIBRARY BORROWING ASSISTANT, The Libraries-Humanities (temporary, part-time, 25 hrs/wk.), to share responsibility for interlibrary borrowing activities. Will provide citation and location verification using electronic and printed sources, generate requests on the OCLC ILL subsystem and by other electronic means, prepare manual requests, maintain manual and on-line records, process incoming and outgoing material, and have frequent contact with members of the MIT community and with other libraries by telephone and computer. Will also work with the Humanities Library Technology Expert to provide technical support for the unit, implement technical advances in interlibrary borrowing services to enhance productivity, participate in training students and other staff members, and perform other duties as needed. All members of the unit are cross-trained to facilitate workflow maintenance and to cover staff absences and are engaged in creating a team environment. All Humanities Library staff participate in Reference/Information Services one to two hours per day. These duties include answering library holdings, directional, and basic reference questions; and making referrals to other MIT libraries and departments. **REQUIREMENTS:** a minimum of 2.5 years' direct and/or related experience; excellent organizational skills; and ability to set priorities, meet deadlines, and work with minimal supervision. Must possess a capacity and concern for detail. Excellent communication and interpersonal skills needed. Good typing skills and ability to follow instructions and procedures required. Knowledge of Windows and library computer applications necessary. (This is a one year appointment with the possibility of an extension. Schedule to be determined.) **02-0302GC**

OTHER ADMINISTRATIVE

DESIGNER, MIT Press (part-time, 50%), to be responsible for the design concept and implementation for books and book jackets. Will develop design projects under the supervision of the design manager and work closely with the production and editorial departments to meet deadlines. **REQUIREMENTS:** strong organizational and interpersonal skills and a BFA or MFA in graphic design. Knowledge of working in QuarkXpress, Photoshop, and Illustrator on the Macintosh necessary. Three examples of work (printouts or photocopies) should be sent with paper resume; these will not be returned. (Schedule to be determined.) **01-1312N**

SPONSORED RESEARCH

TECHNICAL ASSISTANT, Chemistry (part-time, 50%), to maintain cell culture facility. This includes cell passaging, insect viral stock upkeep, and media preparation. **REQUIREMENTS:** a B.S. in biology, biochemistry, or related field. Experience with bacterial, insect, and mammalian cell culture and molecular biology (including cloning and PCR) required. **02-0365**

OTHER POSITIONS

The **Howard Hughes Medical Institute**, an international philanthropy devoted to biomedical research and scientific education, has an opening. HHMI offers competitive salaries and an excellent flexible benefits package which includes health, dental and life insurance; generous personal time off; short and long-term disability; and an employer contributed 403(b) retirement program with immediate vesting. Web site: <http://www.hhmi.org>.

Computer Analyst/Network Analyst - to provide computer support for a computational neuroscience laboratory located in the Department of Brain and Cognitive Sciences at MIT. Under the direction of Professor Sebastian Seung, laboratory members model the neural networks of the brain using mathematical theories, computer simulation, and circuits of biological neurons in vitro. The laboratory's computer network consists of Linux and Windows workstations, a file server, and various peripherals. Primary responsibilities will include network planning and design improvement; purchasing, installing, and maintaining equipment; training lab members in the use of equipment and software; and troubleshooting computer or network related problems. A secondary responsibility is scientific programming, primarily for data acquisition and control for experimental apparatus. Qualifications: a B.S. in computer science; solid knowledge of network protocols, architecture, organization, and security; familiarity with Linux and Windows 98/NT/2000; software including matlab, X, ssh, Samba, Apache httpd, MySQL; and experience with Linux on laptops. Ideal candidate will also have infrastructure support experience in a laboratory environment. Please send cv to: Professor H. Sebastian Seung, HHMI/MIT, Brain and Cognitive Sciences Department, E25-210, 77 Massachusetts Avenue, Cambridge, MA 02139-4307. E-mail: seung@mit.edu

Research Technician - Seek individual perform genetic, molecular biological, and biochemical experiments in the field of human neurogenetic disease, particularly amyotrophic lateral sclerosis (ALS- Lou Gehrig's Disease). Research will be conducted at the Massachusetts Institute of Technology's Department of Biology in collaboration with the Massachusetts General Hospital-East (Charlestown Navy Yard). Qualifications: a B.S. in biochemistry, biology, or chemistry; and previous experience with methods of molecular biology. Previous research experience an advantage. Please send resume and cover letter to: H. R. Horvitz, Ph.D., HHMI/MIT, 68-425, 77 Massachusetts Avenue, Cambridge, MA 02139-4307. E-mail: casbury@mit.edu. Fax: 617-253-8126

LINCOLN LABORATORY

ADMINISTRATIVE STAFF

Group Administrator. BS in Business Administration or related field with a minimum of 5 years of administrative and financial experience. Will develop, coordinate, and maintain an integrated financial planning and tracking system for the groups. This will consist of program-specific spend plans, monthly tracking of actual costs, analysis of spending trends, and reporting results to group, division, and sponsor management. Will work closely with group management to pro-actively identify and resolve financial issues. Must have demonstrated an ability to organize such a financial system, perform timely analyses, and coordinate the implementation of solutions, as necessary. Will serve as the communications link and advisor between the group, division, and Laboratory support services, including space allocation, property coordination, purchase order administration, and general support and logistics, as needed. Will occasionally carry out special projects as directed by the group management. Must work closely and effectively with a wide range of personnel including technical management, administrative, and support personnel. Must have mature judgment, self-confidence, a cooperative and responsible attitude, a desire to learn new skills, and a conscientious and well-organized approach to work. The ability to prioritize and track many tasks, work under pressure, and work well with others is essential. Must have demonstrated ability to plan, track progress, and perform financial analysis using computer-based scheduling, budgeting, and database management tools. Must possess strong communications skills (written and oral) in order to conduct business with all Laboratory personnel ranging from the Director's Office to support services, outside contractors, vendors, sponsors, and potential sponsors. Experience with Microsoft Office, Excel, and Project is required. **045-12826 (5/22/02)**

If interested in this position, please send your resume to Paul Hezel or contact him on 181-7048 from any Institute telephone or (781) 981-7048 from any outside telephone.

Group Administrator. BS in Technical Communications or related field with 3-5 years of administrative and communications experience. Will manage the day-to-day administration of the group's presentations, proposals, orientations, and technical publications. Will be responsible for advising group leaders, technical staff, and principal investigators on planning, drafting, presenting, and/or publishing documents. Will work on multigroup and division projects in drafting proposals, overviews, and management reviews. Presentations must be prepared for high-level visitors, which may require last-minute changes. The ability to revise work within the group or in coordination with Publications is a must. This will include working closely with senior Laboratory management and special services. Continuous review of group and division communications and publication processes will be conducted to improve the quality and responsiveness of the group's publications and presentations. Will instruct and supervise an administrative cooperative student. Must possess the ability to work effectively with a wide variety of Laboratory technical management, administrative, and support personnel. Must be able to prioritize work and keep track of many projects simultaneously. Must have demonstrated ability to plan, track progress, and prepare presentations, proposals, and technical documents using computer-based tools. Must possess strong communication skills (written and oral) in order to conduct business with all Laboratory personnel ranging from the Director's Office to support services, outside contractors, vendors, sponsors, and potential sponsors. **064-22824 (5/22/02)**

If interested in this position, please submit resume to Eva Cardarelli or contact her at 181-7068 from any Institute telephone or (781) 981-7068 from any outside telephone.

The following positions remain open:

Administrative Staff

Security Administrator
Group Administrator
Programmer Analyst
Group Administrator

Specialist

Electro-Mechanical Designer
System Integration and Harness Designer
Mechanical Designer (2 Openings)
Engineering Assistant (2 Openings)
Antenna Designer/Tester
Engineering Assistant—Wafer Processing
Operations Supervisor (Night Shift)

Support Staff

V Administrative Secretary
IV Security Coordinator (3 Openings)
IV Senior Office Assistant
IV Senior Secretary
III Secretary
Design Draftsman

Service Staff

Senior Technician, Electro-Optical
Electrical/Electronic Inspector B
Technician A, Electronics

If interested in these positions, please call (781) 981-7066 for more information.

Lincoln Laboratory is a research facility of MIT. All Administrative, Support, and Service Staff positions are posted in *MIT Positions Available*. A complete listing of other Lincoln positions is published weekly and is available for review in the campus Personnel Office (E19-215), or by calling Lincoln Laboratory's Office of Human Resources at 181-7066 from any Institute telephone or (781) 981-7066 from any outside telephone.

Lincoln Laboratory is currently utilizing an automated resume scanning and skills management system to expedite candidate recruiting, screening, and hiring. This system enhances our ability to match your background with our available positions. Please visit our web site for more information about creating a scannable resume.

To apply for career opportunities, please forward a cover letter and scannable resume to: resume@ll.mit.edu (ASCII Text File).

Applicants selected will be subject to a government security investigation and must meet eligibility requirements for access to classified information.

Human Resources
MIT Lincoln Laboratory
244 Wood Street
Lexington, MA 02420-9108
(781) 981-5500
(781) 981-2011 (fax)

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<http://www.ll.mit.edu>

Bush's science advisor discusses plans for new student visa reviews

President George Bush's science advisor, John Marburger, and aides briefed members of the higher education community Tuesday on the administration's plans regarding access by international students to education and training in sensitive areas of study.

Conducting the briefing on the provisions of the President's October 29, 2001 Homeland Security directive were Marburger, who also is director of the Office of Science and Technology Policy; assistant OSTP director James Griffin; and two other OSTP representatives, according to the Association of American Universities.

The criteria for review—and especially the definition of “sensitive areas” have not yet been developed fully, and remain to be worked out. Marburger and Griffin said this would be done in consultation with various federal agencies and community representatives.

The administration's plan is focused on the creation of a new Interagency Panel on Advancing Science and Security (IPASS) that will function as a mechanism to provide another level of review for all specialized visas—including student visas (F visas), visas for postdoctoral fellows and researchers (J visas), and visas for students pursuing vocational programs (M visas).

IPASS reviews would be triggered whenever regular reviews of visas find that applicants fit certain criteria, such as being citizens of countries known to sponsor terrorism and applying for study in specific areas of study that are “uniquely available in the United States” and in sensitive areas.

Once IPASS has completed its review of a visa applicant, the panel's findings and recommendations would be forwarded to the Immigration and Naturalization Service or the State Department, depending on the circumstances of the particular case, for action.

IPASS's role would be strictly advisory, and the panel could take no formal action itself. IPASS will review current visa holders according to the same procedures. It is expected that IPASS will be created by a special presidential order or directive, and not through the normal federal rulemaking process. The timetable for this is not yet spelled out.

The higher education community's initial reaction to this plan was that it appeared to be a positive step, although there is interest in seeing a written version and learning details. The community expressed appreciation for the opportunity to receive information on the plan, and the opportunity to provide feedback as the plan evolves.

CIS plans 50th celebration

The Center for International Studies will celebrate its 50th anniversary with a day-long symposium covering topics such as “Research and the National Interest,” “War and Peace in the 21st Century,” “Human Rights and Justice” and “Global Education.” The symposium will take place from 9 a.m. to 5 p.m. in Wong Auditorium.

The symposium will be preceded by a dinner May 15 at which President Charles M. Vest will announce a grant to endow the center. The grant is the largest ever from a private foundation in support of the School of Human-

ities, Arts and Social Sciences. Dr. Sadako Ogata, the former United Nations High Commissioner for Refugees, will serve as keynote speaker at the dinner.

The Center for International Studies, which includes the Security Studies Program and the MIT International Science and Technology Initiatives (MISTI), is dedicated to generating the knowledge, skills and leadership necessary to address an increasingly complex international political and economic environment.

The symposium is free and open to the public.

Symposium on traumatic stress disorder scheduled by CRC

MIT's Clinical Research Center will present a symposium May 14 on the neuropsychiatry of post-traumatic stress disorder (PTSD).

The symposium, which is open to the public, will be held from 2 to 5 p.m. in the Bartos Theatre in the Wiesner Building.

Terence Keane of the National Center for PTSD at the Boston V.A. Medical Center will give an overview of the role of conditioning and extinction in

PTSD. Michael Davis of Emory University's psychiatry department will speak on the neural systems involved in fear conditioning and anxiety, and Dr. Roger K. Pitman of Harvard's psychiatry department and MIT's Clinical Research Center will describe neuropsychopharmacological studies of conditioning and memory in PTSD.

For more information, call Susan Dalton at the Clinical Research Center at x8-6430.

CAES forms AIDS walk team

The Center for Advanced Educational Services invites members of the MIT community to join its team for the annual AIDS walk along the Charles River Sunday, June 2.

People interested in walking with the CAES team (Team #2097) are asked to register by May 22 by contacting Deirdre Dow-Chase at deede@mit.edu and going online at <http://www.AIDSWalkBoston.org/register.htm>. CAES will provide team T-shirts.

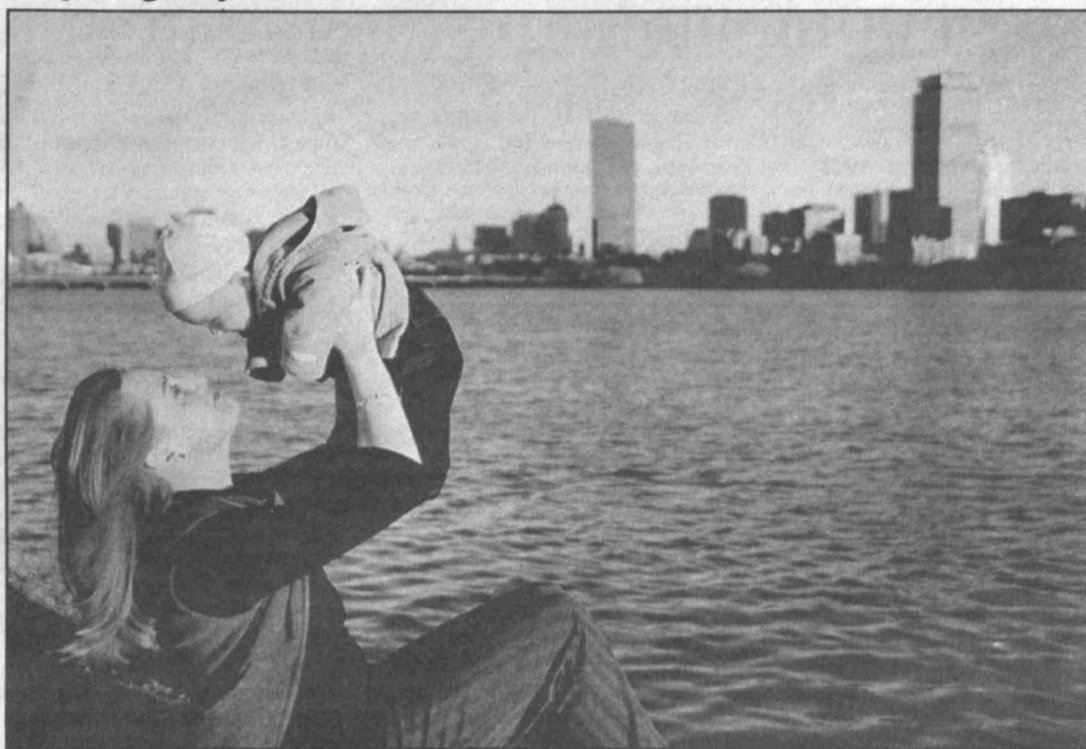
The 10-kilometer (6.2 mile) walk along the river draws thousands of walkers each year who raise money for AIDS patients care and research. The walk starts at 10 a.m. and ends

about 12:30 p.m. Food and water are provided along the route and prizes are given out at the finish line.

Awards Convocation scheduled

All members of the MIT community are invited to the 2002 Awards Convocation Monday, May 13 at 4 p.m. in Room 10-250. A reception will follow the ceremony.

Sky-high tyke



“Jenelle and her son,” by Shannon Culpepper, is one of the many works that will be on display at the spouses&partners@mit Art Show on May 8 from 1 to 6 p.m. in the Building E25 Lobby.

Neuroscientists to attend McGovern symposium on brain research areas

“New Approaches in Neuroscience,” the inaugural symposium of the McGovern Institute for Brain Research at MIT, will feature some of the world's leading scientists in the fields of neuroscience, molecular neurobiology and cognitive science. The free symposium will be held in Wong Auditorium May 13 and 14; registration is not required.

“This symposium is an exciting event for anyone who is working on the frontiers of higher brain functions in humans,” said Institute Professor Phillip A. Sharp, director of the McGovern Institute. “It is organized around the cutting edges of neuroscience and will address many of the most pressing issues in the field today.”

Among the speakers and panelists are Miguel Nicolelis of Duke University, Richard Andersen of Caltech, Mahlon R. DeLong of Emory University, Catherine Dulac of Harvard Uni-

versity, Nikos Logothetis of the Max-Planck Institute and Anders Bjorklund of the Wallenberg Neuroscience Center. The four core sessions will be on “Novel Avenues for Electrophysiology,” “Genes in Neuroscience,” “Imaging the Brain” and “Neural Stem Cells and Repair.”

The event runs from 9 a.m. to 5 p.m. each day. For more information, see http://web.mit.edu/mcgovern/html/Events_and_Seminars/events_and_seminars.shtml.

The symposium's major sponsor is Merck Research Laboratories. Additional sponsors include Schering-Plough Research Institute, Amgen, Pfizer, Genzyme and Transkaryotic Therapies.

THE MCGOVERN INSTITUTE

The McGovern Institute for Brain Research at MIT is a research and teaching institute committed to advancing human understanding and

communications. The goal of the Institute is to investigate and ultimately understand the biological basis of all higher brain function in humans through integrated research in neuroscience, genetic and cellular neurobiology, cognitive science, computation and related areas.

By determining how the brain works, from the level of gene expression in individual neurons to the interrelationships between complex neural networks, the McGovern Institute's efforts will help to improve human health, discover the basis of learning and recognition, and enhance education and communication. Understanding the brain will foster better ways of communicating at all levels of society, both nationally and internationally. The work will ultimately contribute to the most basic knowledge of the fundamental mysteries of human awareness, decisions and actions.

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just call us,
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One of our clinicians will call you back that day, listen to your concerns, and make an appointment with the right professional for you within a week—or sooner.

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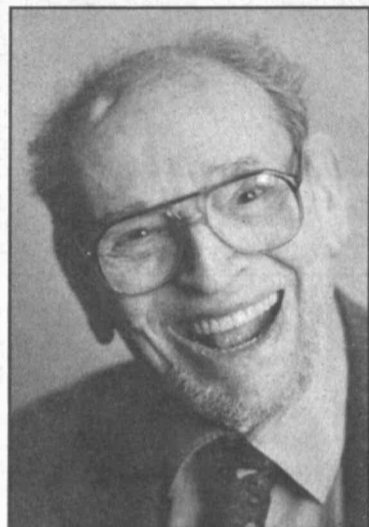
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Rosenblith dies at 88; pioneered use of computers to study brain

Institute Professor Emeritus and former Provost Walter A. Rosenblith, who pioneered the use of computers and mathematical models in the study of the brain as a biophysical information handling system, died of complications resulting from prostate cancer Wednesday, May 1 in the Miami Heart Institute of Miami Beach, Fla. He was 88 years old.

Upon learning of Rosenblith's death, President Charles M. Vest said, "Walter is one of the handful of people who truly defined MIT as it is today. I have thought often of Walter's unstinting dedication to science as an open, international undertaking. That, too, was one of his great legacies."



Walter A. Rosenblith

Rosenblith's career included significant accomplishments in the sciences, technology, education, international cooperation and public policy. He was one of a small number of scholars elected to all three of the National Academies—the National Academy of Sciences, the National Academy of Engineering and the Institute of Medicine. He was elected foreign secretary of the National Academy of Sciences in 1982, a post he held until 1986. He was also a member of the American Academy of Arts and Sciences and a fellow of the World Academy of Arts and Science.

Frank Press, president emeritus of the National Academy of Sciences, said: "Walter Rosenblith's contributions as a scientist, engineer and humanist to scholarship, education and international cooperation are no less than monumental. That he also was a distinguished researcher adds to the luster of his career."

Rosenblith's deep interest in science, technology and society grew, in part, out of his early studies of the effects of noise on human beings. This research, he said, "alerted me to a number of social problems that come from the incautious use of technology." He helped found the Program in Science, Technology and Society and later joined it.

Rosenblith had a long and distinguished tenure at MIT, helping to shape it during turbulent times and ensure its world-class status. He joined the faculty in 1951 as an associate professor of communications biophysics in the Department of Electrical Engineering (renamed the Department of

Electrical Engineering and Computer Science in 1975). He was elevated to full professor in 1957 and named Institute Professor in 1975. He was elected by his colleagues as chair of the faculty from 1967 to 1969.

As MIT's associate provost from 1969 to 1971 and provost from 1971 to 1980, he played a central role in developing the health sciences and biomedical engineering disciplines at the Institute, in forging MIT's collaboration with other universities and medical institutions, and in fostering greater attention to the interplay among science, technology and society. While associate provost, he also was acting director of the Harvard-MIT Joint Center for Urban Studies.

In 1994, MIT established a chair in his honor. Ann M. Graybiel of the Department of Brain and Cognitive Sciences, the first Walter A. Rosenblith Professor of Neuroscience, still holds the chair. Fifty Walter A. Rosenblith graduate fellowships were created in 1997, and Rosenblith was particularly pleased that they covered all of the schools at MIT. At the time of his death, Rosenblith was working on a book about his close friend, MIT's former president Jerome B. Wiesner.

In the words of Howard Johnson, MIT president from 1966 to 1971: "Walter Rosenblith was a noble academic whose enthusiastic participation for 50 years in MIT life as Institute Professor, faculty chair, provost and, most of all, as a rare human being will leave an indelible mark on the Institute. Those of us who were privileged to work with him will remember his many contributions and especially his deep insight and understanding of MIT and the culture of science, technology and ethics that pervades this institution."

Born in Vienna, Austria on Sept. 21, 1913, Rosenblith studied in Vienna, Berlin, Lausanne, Paris and Bordeaux. He held degrees in communications engineering from the University of Bordeaux (1936) and the Ecole Supérieure d'Electricité, Paris (1937). In 1939 he came to the United States to study the effects of industrial noise on human beings. When the outbreak of World War II prevented his return to France, he conducted research and taught physics at New York University and the University of California at Los Angeles, where he met and married Judy Olcott Francis of Manhattan Beach, Calif., his wife of 60 years.

From 1943 to 1947 Rosenblith was a member of the physics faculty at the South Dakota School of Mines and Technology in Rapid City. In 1947, he became a research fellow at Harvard University's Psycho-Acoustic Laboratory. While there he became increasingly involved in psychophysics and neurophysiology. He was, in his own words, "sucked into the brain through the ear."

His early work in hearing led Rosenblith to collaborate with faculty members of the Harvard Medical School in the formation of the Eaton Peabody Laboratory for Auditory Physiology at the Massachusetts Eye and Ear Infirmary. Rosenblith was appointed research associate in otology (1957-69), then lecturer in otology and otolaryngology at the Harvard Medical School. He was editor of the MIT Press vol-

umes "Processing Neuroelectric Data and Sensory Communication," and author of numerous papers in a broad range of scientific journals.

He served on many technical committees and advisory boards, executive committees, and as a member of several academic societies. Rosenblith was fond of quoting a Harvard colleague as saying, "For Rosenblith, talking is the easiest form of breathing."

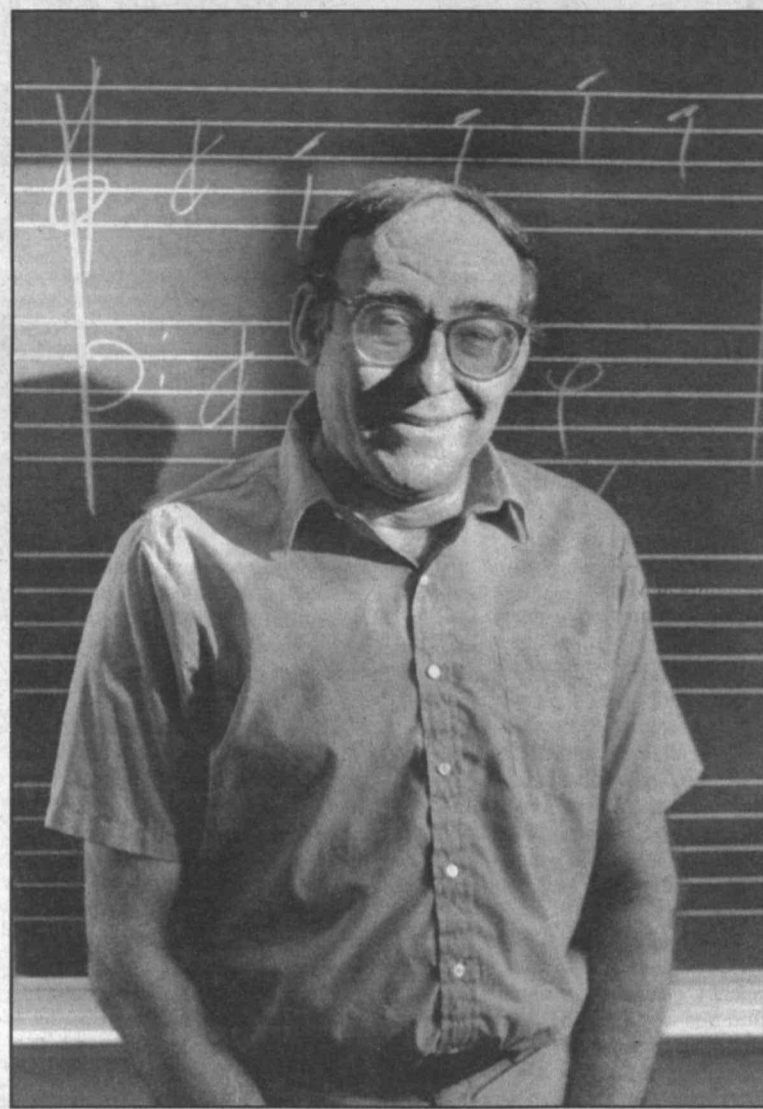
Rosenblith served on the International Committee on Scholarly Communication with the People's Republic of China (1977-1986), and was named a consulting professor at the University of Electronic Science and Technology of China in 1988. He served on the Board of Governors of the Weizmann Institute of Science and the Brandeis University Board of Trustees. From 1978-1986 he was a member of the President's Board on Foreign Scholarships (Fulbright), serving as its chair in 1980-1981, and as a member of the USIA Advisory Panel on International Educational Exchange from 1982-1986.

President Francois Mitterrand of France named Rosenblith a "Chevalier de l'Ordre National de la Legion d'Honneur" in 1982 for his services at MIT and elsewhere, on behalf of intellectual and scientific exchanges between the United States and France. In 1989 he was awarded the Alexander von Humboldt Medal. He was awarded the Okawa Prize in 1999 for outstanding contributions to research.

U.S. Sen. John Kerry (D-Mass.) noted: "Walter Rosenblith was one of the most influential leaders of the international scientific community during the last 50 years. From his service as foreign secretary of the National Academy of Sciences and his participation with the World Bank in strengthening Chinese universities after the Cultural Revolution, to his many awards, Walter Rosenblith built bridges to the world through science. I am grateful for his personal support and friendship."

U.S. Sen. Edward M. Kennedy (D-Mass.) said: "I am deeply saddened to learn of the death of Walter Rosenblith. He was a brilliant scientist who devoted his life to developing groundbreaking scientific research. He will be missed." Rosenblith received honorary Sc.D. degrees from the University of Pennsylvania (1976), the South Dakota School of Mines and Technology (1980), Brandeis (1988) and the University of Miami (1992). He was awarded the Doctor Honoris Causa from the Federal University of Rio de Janeiro in 1976, the year in which he was designated an honorary alumnus by the MIT Association of Alumni and Alumnae.

Rosenblith is survived by his wife, Judy, a professor emerita of psychology at Wheaton College who lives in Marston's Mills and Miami; a daughter, Sandy, of Chevy Chase, Md.; a son, Ron, of McLean, Va.; a brother, Eric, of Newton; a grandson and two granddaughters. Burial will be private; contributions may be made in his name to MIT for the Wiesner book project or to the Union of Concerned Scientists. A memorial service will be scheduled at MIT.



Edward Cohen

Photo by Donna Coveney

Composer, performer, lecturer Edward Cohen dies at age 61

■ By Sarah H. Wright
News Office

Edward Cohen, composer, performer and senior lecturer in music at MIT, died at his home in Belmont Saturday, April 27 after a long illness. He was 61.

Cohen was a classically trained musician inspired by jazz and devoted to new music. His compositions include pieces for solo instruments, chamber ensembles and orchestra, as well as two operas. One of these, "The Bridal Night," his last major work, was premiered this past January by the College New Music Ensemble in Boston.

"He was a great musician and a wonderful teacher," said Professor of Music Ellen Harris, director of the music and theater arts section at MIT.

"His vision, commitment and perennially renewable enthusiasm were the guiding forces for MIT's music theory curriculum," said Peter Child, professor of music.

"Eddie was a deeply serious musician, uncompromising in his artistic standards. He was modest to a fault, yet he knew his worth and demanded as much of others as he did of himself," said David Deveau, senior lecturer in music.

A 60th birthday concert celebrating Cohen's career as a composer was held last year at MIT. Following it, Cohen, who had had an electric piano brought to his hospital room while he underwent cancer treatments, modestly described his life in music: "In the mornings I compose at home, and in the afternoons I come into MIT and teach," he said.

The MIT concert, held in Killian Hall, drew colleagues from MIT and Brandeis, along with students, area musicians and critics. Cohen, depleted by illness, attended in a wheelchair.

"He was clearly satisfied, and I'll never forget his smile after that concert," said Deveau.

The critics did more than smile. "Forgive the stereotype, but university professors aren't supposed to compose music like this. The piano quartet was a continuation of Shostakovich's music; the piano sonata, a big-scaled vigorous enterprise," Richard Buell, music critic, wrote in his review of the Cohen concert for The Boston Globe.

"What kind of 'voice' is this mu-

sic? A surprisingly lyric, long-spanned one, striking, obviously 'modern.' And all of it built like a steel trap. Gripping music, beautiful performances, a wonderful concert," Buell wrote.

Bogdan Fedeles, writing for The Tech, described Cohen as a "living master" of chamber music that is "fascinating in its complex polyphonic sonority."

Cohen received numerous awards and commissions for his works from many sources including the Massachusetts Council for the Arts, the MIT Council for the Arts, Tanglewood Music Center and Brandeis University. His clarinet quintet was released on the CRI label.

MUSICIAN, MENTOR, FRIEND

Cohen began teaching at MIT in 1977. Colleagues and students alike pointed to Cohen's generosity of spirit and seriousness of purpose in their memories of working and studying with him.

"He was my lifelong teacher. His steadfast devotion to truth and honesty in his music and in his personal relations were always an example to me. Most of my most cherished musical ideas around which I continue to grow as a musician stemmed from discussions with Ed," Child said.

His students recalled a man of high expectations and low tolerance for distraction or discouragement.

Dawn Perlner (S.B. 2001) studied composition with Cohen and recalled his teaching style as both exacting and enthusiastic.

"I'll never forget the time Professor Cohen was explaining how to compose a sonata form and someone jokingly challenged him to write one for us on the spot. He improvised it at the piano—it was beautiful and in perfect form."

Perlner also recalled Cohen's patient resourcefulness as a teacher and mentor.

"I flunked one exam, yet he did not tell me to drop the class. Instead he told me to go over the exam and re-do all the questions, which I did. He knew how to make students feel talented and in need of improvement at the same time, the perfect balance to get us to learn to be the best musicians possible," said Perlner.

Ed Kohler (S.B. 1995, S.M., Ph.D.)
(continued on page 9)

Campus construction update

STATTA CENTER

The pedestrian path that leads from the underpass at Compton Laboratories (Building 26) and heads east around the Stata trailer is closed to allow for crane access to the area. Detour signs have been installed to help pedestrians.

VASSAR STREET UTILITIES

Installation of chilled water, fire protection, steam, telecommunication and electric ductbanks is progressing behind the Cyclotron (Building 44) and Building 45, and through the Building 45 parking lot toward the Stata site.

Sewer replacement work continues on Vassar Street heading west from Building 42, affecting traffic and parking near the work zone.

The parking lot between Building 45 and the Parsons Lab (Building 48) is closed for utility construction for the Stata Center. This phase of construction will extend into June. Parking spaces are available in the CRA lot at the corner of Main and Ames streets.

DREYFUS CHEMISTRY BUILDING

Installation of mechanical, electri-

cal and piping systems continues on all floors. Faculty are being moved into new lab spaces.

SPORTS & FITNESS CENTER

Removal of scaffolding is complete. Drywall framing and rough plumbing continue on all floors. Ceramic tile is being installed in the swimming pools.

MEMORIAL DRIVE LIGHTS

The traffic lights at Memorial Drive and Wadsworth and Endicott streets are fully operational. Landscaping work continues.

Felix Villars dies at 81

Professor Emeritus Felix M. H. Villars, 81, a theoretical physicist who changed directions in mid-career and became a pioneer in biological physics, died of cancer Saturday, April 27 at his home in Belmont.

"Felix was a theoretical physicist of great breadth and versatility," said John W. Negele, the W.A. Coolidge Professor of Physics, who was director of the Center for Theoretical Physics when Villars retired in 1991. "He was a gifted and caring teacher with an encyclopedic mastery of physics and enviable clarity of mind.

"He had a vision of bringing the concepts and rigor of physics to bear on fundamental problems in medicine and biology. By his tireless efforts in teaching at MIT and Harvard Medical School and in writing a series of text-

both meson exchange currents and rotational states in deformed nuclei were fields of active investigation at MIT's Bates Electron Accelerator Center in Middleton.

Villars collaborated with two other eminent theoretical physicists of his generation at MIT on problems in atmospheric physics. With Institute Professor Victor F. Weisskopf, he studied the scattering of radio waves due to atmospheric turbulence. He and Institute Professor Herman Feshbach studied the effect of the earth's magnetic field on ionization in the atmosphere.

Later, Villars studied biology and mastered the complexity of biological systems. He then applied rigorous mathematical analysis to elucidate the functioning of biological systems. On the basis of this work, he developed insights not previously discovered by biologists and physiologists who had been working in these areas for years. His mission also included teaching these discoveries.

BRILLIANT LECTURER

Villars was an extraordinary teacher. He delivered brilliant lectures to both graduate and undergraduate students in nearly every subject offered by the Department of Physics. He had the gift of inventing original and insightful problems, which he formulated with great clarity. Students who solved these problems developed insight and confidence in the power and usefulness of the principles of physics.

His courses in quantitative physiology and respiratory pathophysiology at HST were master classes for medical students who sought a deep quantitative insight into organ physiology in health and disease.

His undergraduate textbook, a three-volume work titled "Physics with Illustrative Examples from Medicine and Biology," co-authored with MIT professor George B. Benedek, demonstrated to students at the very beginning of their college careers that the principles of physics could illuminate the inner workings of a broad range of biological and medical phenomena.

"His knowledge was profound, encyclopedic and crystal clear," said Benedek, the Alfred H. Caspary Professor of Physics. "He freely helped his students and professional colleagues to understand deeply an exceptional range of science. He was a rare intellect and brilliant teacher who elevated those who had the good fortune to know him."

Born in Biel, Switzerland on Jan. 6, 1921, Villars received the diploma in physics and mathematics from the Swiss Federal Institute of Technology in Zurich in 1945. He was awarded the Kern Medal for an outstanding undergraduate thesis. During World War II, he served in the Swiss army as a meteorologist and then returned to the Swiss Federal Institute to earn his doctorate in 1946.

From 1946 to 1949, he was a research assistant at the Swiss Federal Institute of Technology, where he collaborated with Pauli on their paper on quantum field theory. He married the former Jacqueline Dubois in 1949 and they moved to the United States, where he was a visiting member of the Institute for Advanced Study in Princeton, N.J., for a year before settling permanently at MIT.

He began his MIT career as a research associate in 1950, was appointed assistant professor in 1952, associate professor in 1955, and full professor in 1959. He served as chair of the faculty from 1980 to 1983. He was also a lecturer at Harvard Medical School.

In addition to his wife, he is survived by four children, Fred of Philadelphia, Cecile of Belmont, Monique of the Netherlands, and Philip of Northboro; a brother and sister, Hans and Mireille of Switzerland; and three grandchildren. Burial will be at the family's summer home on Cape Cod. A memorial service will be held at MIT in the fall. A memorial fellowship fund will be established at MIT.



Felix H. M. Villars

books, he played a seminal role in creating a new generation of physician-scientists."

Villars, who was a member of the MIT faculty for 41 years, played a central role in the development of the Harvard-MIT Division of Health, Sciences and Technology. He embraced the concept that physics and engineering can provide a foundation for advancing medical science. Many classes of medical students and Ph.D. candidates at HST benefited from Villars' insights.

"Professor Villars' inspirational teaching and curriculum development helped to achieve a major objective of HST, the advancement of the health sciences, by promoting their productive interaction with the physical sciences and engineering," said Irving M. London, founding director of HST.

"Throughout my years of contact with Felix, I always found him to be a patient listener, insatiably curious, intellectually rigorous, and always kind and considerate," said Dr. Richard Cohen, the Whitaker Professor of Biomedical Engineering at HST. "It was a true privilege to have had the opportunity to work with such a pre-eminent scientist and fine human being. He certainly had a great impact on my career and served as a role model as scientist, teacher and colleague. I will miss him greatly and remember him often."

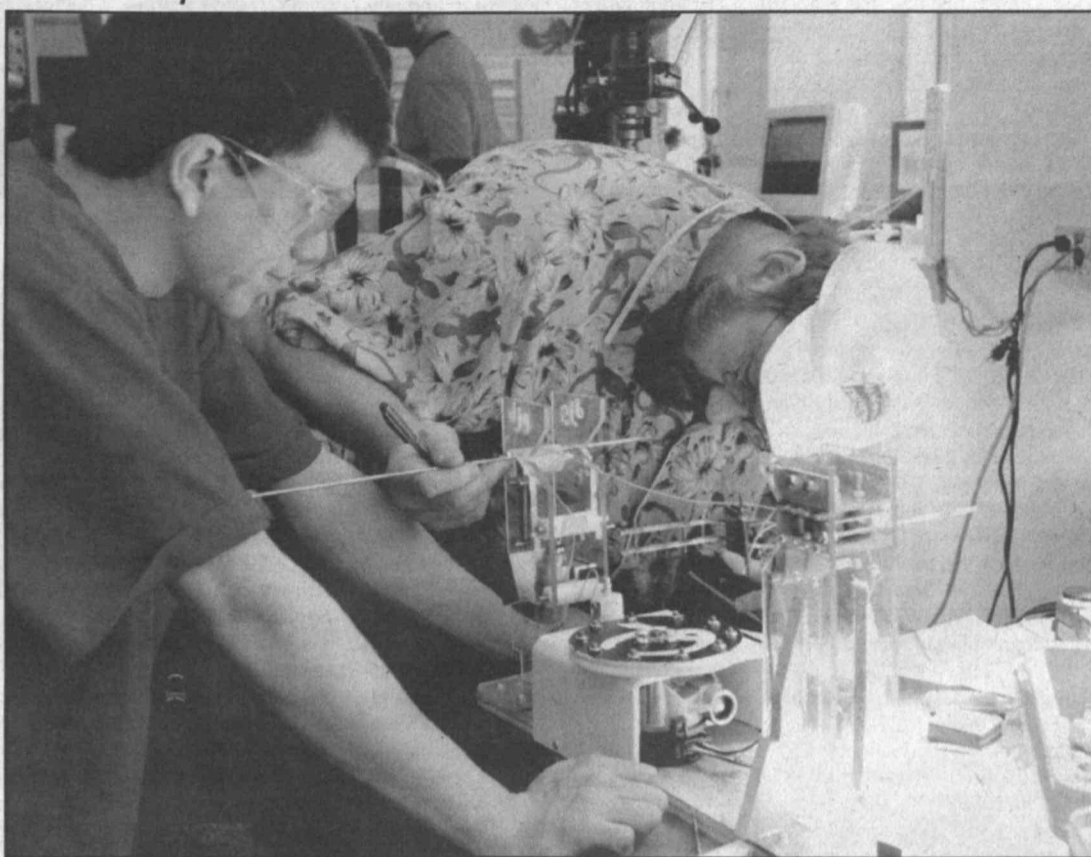
BROAD IMPACT

Villars' research had impact on diverse areas of physics.

In the infancy of quantum electrodynamics, he and the Swiss Nobel laureate Wolfgang Pauli developed a simple and elegant method to regulate the mathematical singularities in quantum field theory and extract finite physical results. The resulting method, known as "Pauli-Villars regularization," was widely influential and is known and used by all students of field theory.

In nuclear physics, he was the first to recognize that the exchange of mesons generating the nuclear force also contributes to the electromagnetic properties of nuclei. With this insight, he calculated the magnetic moments of the three-body nuclei helium and hydrogen and laid the foundation for the systematic study of the effects in nuclei of meson exchange current. He also developed the theory governing the collective rotations of deformed nuclei, such as uranium. Building upon these theoretical developments,

Check-up



Danile J. Guarda (left), a sophomore in mechanical engineering, braces himself as Professor Alexander Slocum of mechanical engineering offers last-minute suggestions on Guarda's entry in the annual 2.007 design contest held yesterday and today. Photo by Donna Coveney

Cohen, professor and performer, dies at 61

(continued from page 8)

said, "He was patient and kind. He never skimped on feedback. He treated every piece of work we produced as worthy of respect. And he wrote all his comments in complete sentences."

Kohler also recalled a moment one Valentine's Day, when the Logarithms interrupted one of Cohen's classes to serenade a female student. Cohen resisted, then allowed the a cappella group to sing.

"About a minute in, Professor Cohen put his hands on the piano and joined them, slipping in without a break. His version was all chords, jazzier, hugely harmonized, perfectly in time and in tune. They finished together with a huge crescendo. We clapped like crazy. I was overwhelmed with joy. The Logs left, and Professor Cohen said, 'Very simple harmony. Too bad.' Then he went on with class," Kohler said.

A LIFE IN MUSIC

Born in New York City in 1940,

Cohen played piano and trumpet and attended the High School of Music and Art in Manhattan. While writing music in a classical vein, he was inspired by jazz and improvisation. As a teenager he worked as a jazz pianist at resorts in the Catskills, and he retained an avid interest in jazz throughout his life. He frequently entertained family and friends with sparkling and original renditions of jazz standards.

Cohen's summer jobs in the Catskills may have nourished an avocation, too. He became an avid pool player and liked to take breaks from composing by shooting pool on a table he kept in his basement, his wife, Marjorie Merryman, said.

Cohen's formal musical training was entirely classical. He received the B.A. with honors in music from Brandeis University in 1961 and the M.A. in 1965 from the University of California at Berkeley, where he won the Ladd Prix de Paris, which spon-

sored two years of composing in Paris.

Before coming to MIT, Cohen taught at Brandeis University for 13 years. He also taught at Harvard.

Although he was strongly focused on the creation of new music, Cohen found time for other pursuits. He spoke French fluently and had a life-long interest in French literature and film. He was a determined distance runner who ran the Boston Marathon four times in the 1970s.

Cohen is survived by his wife; two daughters, Sarah of Somerville, and Jane of Belmont; his parents, Lawrence and Naomi Cohen of Westport, Conn.; two brothers, Jonathan of Chicago, and Frederick of New York City; and eight nieces and nephews.

A memorial service is planned for October 20 from 3 to 5 p.m. in Wong Auditorium and MIT is establishing the Edward Cohen Fund for New Music. Contributions may be sent to MIT, Music and Theater Arts, Cambridge, MA 02139.

Other obituaries

EVELYN A. MACLEAN

Word was just received that Evelyn A. MacLean of Milbank, S.D., a clerk in General Purchasing from 1961 until her retirement in 1974, died Nov. 22 at age 96. Information about survivors was not available.

SVEN O. HALLBERG

MIT Tech Talk recently learned that Sven O. Hallberg of Wolfboro, N.H., a painter for Physical Plant from 1958 until his retirement in 1974, died Dec. 15 at age 93. Information about survivors was not available.

DOMENIC SORRENTI

Domenic Sorrenti of Concord, a painter for Lincoln Laboratory from 1955 until his retirement in 1986, died Feb. 18 at age 80.

THEODORE S. PODYMAITIS

Theodore S. Podymaitis of Somerville, a custodian in Physical Plant for 20 years until his retirement in 1995, died March 2 at age 71. Information about survivors was not available.

BRUCE L. JEWETT

Bruce L. Jewett of Norton, a mechanic for Physical Plant from 1967 until his retirement in 1989, died March 7 at age 74.

GERHARD REETHOF

Gerhard Reethof (S.B. 1947, S.M. 1949, Ph.D. 1953), assistant professor of mechanical engineering in the 1940s, died April 16 at his home in New Port Richey, Fla. at age 79.

Reethof, a native of Czechoslovakia, entered MIT in 1940. Three years later, he fought in World War II, where he was decorated with the Silver Star, three Bronze Stars, the Purple Heart, European-African-Middle Eastern Campaign Medal, a Bronze Arrowhead WWII Victory Medal and the Croix De Guerre.

After two years as an assistant professor at MIT, Reethof went to work in industry. He was an integral part of the jet engine design team for General Electric and worked on the country's first supersonic bomber aircraft, the XB70. In 1965, he accepted a full professorship in mechanical engineering at Pennsylvania State University. He was awarded the Alcoa Chair and for several years was named top researcher at Penn State, where he formed and directed the Noise Control Laboratory. Reethof published more than 100 technical papers and co-authored two books.

He is survived by his wife, Evelyn; a son, Alex; two daughters, Su-

zanne and Erika; a sister, Inge; and five grandchildren.

ANTHONY R. FORTE

Anthony R. Forte of Lowell, a Lincoln Laboratory process engineer specializing in integrated circuit fabrication and measurement techniques, died suddenly April 15 at age 45.

He is survived by his parents, Elizabeth R. Relf-Forte of Framingham and Frederick J. Forte of Westborough; four sisters, Joanne Forte-Leroux of Greensboro, N.C., Carolyn Forte-Straus of Dover, Patricia Weier of Nashua, N.H., Deborah Forte Landry of Natick, and their families. He also is survived by his long-time partner, Irene Collins, and her daughter, Evan, of Chelmsford.

Forte received an associate's degree in computer engineering from the Franklin Institute in Boston in 1980 and joined Lincoln Lab that year. His contributions there include numerous technical papers and processing innovations. Forte was buried in St. Patrick's Cemetery in Natick.

Forte was a volunteer with Big Brothers/Big Sisters and the Chelmsford Food Bank. Contributions in his memory may be made to Big Brothers/Big Sisters of South Middlesex, 4 Franklin Commons, Framingham, MA 01702.

Dibner Institute announces resident fellows for 2002-2003

The Dibner Institute for the History of Science and Technology has announced the appointment of 25 Dibner Institute Resident Fellows for 2002-2003.

The appointments are for 11 senior fellows, two senior visiting research fellows and 12 postdoctoral fellows, including five second-year renewals. The fellows are listed below with their research projects.

SENIOR FELLOWS

Robert P. Crease, a professor at SUNY, Stony Brook and an historian at Brookhaven National Laboratory—a new volume of the history of the Brookhaven National Laboratory, covering the period 1973-1997.

Robert DiSalle, a professor at the University of Western Ontario—an investigation of the evolution of theories of space and time in a work to be titled “Conceptual Analysis and the Conceptual Development of Physics.”

Stephan R. Epstein, a professor at the London School of Economics—“Systems for the Production and Diffusion of Technical Knowledge in Europe, 1250-1750.”

Jeanne Guillemin, a professor at Boston College—“Sir Frederick Grant Banting and Sir Paul Gordon Filde: Science, Anthrax, and the Initiation of the UK Biological Weapons Program.”

Jeff Horn, a professor at Manhattan College—research for “The Path Not Taken: French Industrial Policy in the Age of Revolution, 1750-1830.”

Akihiro Kanamori, a professor of mathematics at Boston University—chapters on the early and more recent history of set theory for the forthcoming “A History of Mathematical Logic,” and work toward a second volume of “The Higher Infinite,” focusing on developments within the last 25 years.

Evelyn Keller, a professor at MIT and a MacArthur Fellow (1992-1997)—“Subjectivity in the Human Sciences of the Late 20th Century.”

Patrick Malone, a professor of urban studies and American civilization at Brown University—“Waterpower in Lowell, 1821-1885.”

Giuliano Pancaldi, a professor at the University of Bologna—

“Enlightenment, Diversity, and the Cultures of Science and Technology.”

Emily Thompson, a professor at the University of Pennsylvania—“Sound Men: Engineering the Sound Revolution in the American Film Industry.”

Richard Yeo, a professorial fellow at Griffith University, Australia—“Managing Knowledge in Early Modern Europe 1650-1800.”

SENIOR VISITING RESEARCH SCHOLARS

Constance Barsky, director of the Program in Learning by Redesign at The Ohio State University—a catalog of technological history, with Kenneth Wilson.

Kenneth Wilson, Nobel laureate in physics and the Youngberg Professor in physics at The Ohio State University—Two projects: a catalog of technological history, with Constance Barsky; and, connected with the Sloan-Dibner project in the History of Recent Science and Technology, the conditions requisite for community-wide, sustained developments in science and technology.

POSTDOCTORAL FELLOWS

Nimrod Bar-Am, a postdoctoral fellow at Haifa University, Israel—“Formalization and Induction: The Background to the Rise of Boolean Logic.”

Alain Bernard, a teacher of mathematics in the secondary school at Lycée Apollinaire and an instructor of the history of mathematics at Versailles-Saint Quentin University, France—“Rhetoric and Mathematical Practice in Late Antiquity.”

François Charette, recent Ph.D. graduate of the Program in History of Science at Frankfurt University—“The Visual Language of Islamic Science.”

Guido Giglioli, recent Ph.D. graduate from Johns Hopkins University—“Helmontianism and Late 17th-Century Anatomy: the Case of Francis Glisson.”

Aren Maeir, an archaeologist at the Institute of Archaeology, Department of Land of Israel Studies, Bar Ilan University—“Changing Technologies in a World in Transition: The Development of Philistine Culture and Technology during the Iron Age.”

H. Darrel Rutkin, a doctoral candidate at Indiana University—development of a book on the place of astrology in premodern western science circa 1250-1500.

Christopher Smeenk defends his dissertation at the University of Pittsburgh this spring—“An Inflationary Field: The Heyday of Early Universe Cosmology.”

SECOND YEAR POSTDOCTORAL FELLOWS

Elizabeth Cavicchi, a lecturer and course developer at the Harvard University Graduate School of Education—research on induction coil-making by 19th-century amateurs and the educational and historical ramifications of replicating their experiments.

Abigail Lustig, a postdoctoral fellow at the Max-Planck Institute for the History of Science—“Altruism, Biology and Society.”

Alberto Martinez, a former Dibner Library Resident Scholar at the Smithsonian Institution—a book on the history of kinematics, the modern science of motion. He is also finishing a book titled “Physical Mathematics.”

Alison Sandman, a recent Ph.D. graduate from the University of Wisconsin who spent a semester at the John Carter Brown Library at Brown University—an examination of interactions among navigators, cosmographers and cartographers in Portugal, Spain, England, France and Holland to explore reasons for the spread of methods of celestial navigation.

Yunli Shi, a former professor in the Department of History of Science at the University of Science and Technology of China—“European Background of Jesuit Predictive Astronomy in 18th-Century China.”

GRADUATE STUDENT FELLOWS

Dibner Institute graduate fellowships have been awarded to six doctoral candidates writing their dissertations at Dibner Institute consortium-member institutions: MIT, Boston University and Harvard University.

Brendan Foley, MIT’s Program in Science, Technology and Society—the increasingly professional role of the mechanical engineers who studied

at the United States Naval Academy from the end of the Civil War until 1890. Foley is a member of the Deep Water Archaeology Research Group at MIT, which uses robotics systems to investigate ancient shipwrecks.

Jeremiah James, the History of Science Department, Harvard University—the development of new research programs and their identities as scientific disciplines, built upon work done by Linus Pauling in the 1930s.

Montgomery Link, Center for Philosophy and History of Science, Boston University—“The Mathematical History of the Canonization of First Order Logic as the Formal Language of Set Theory.”

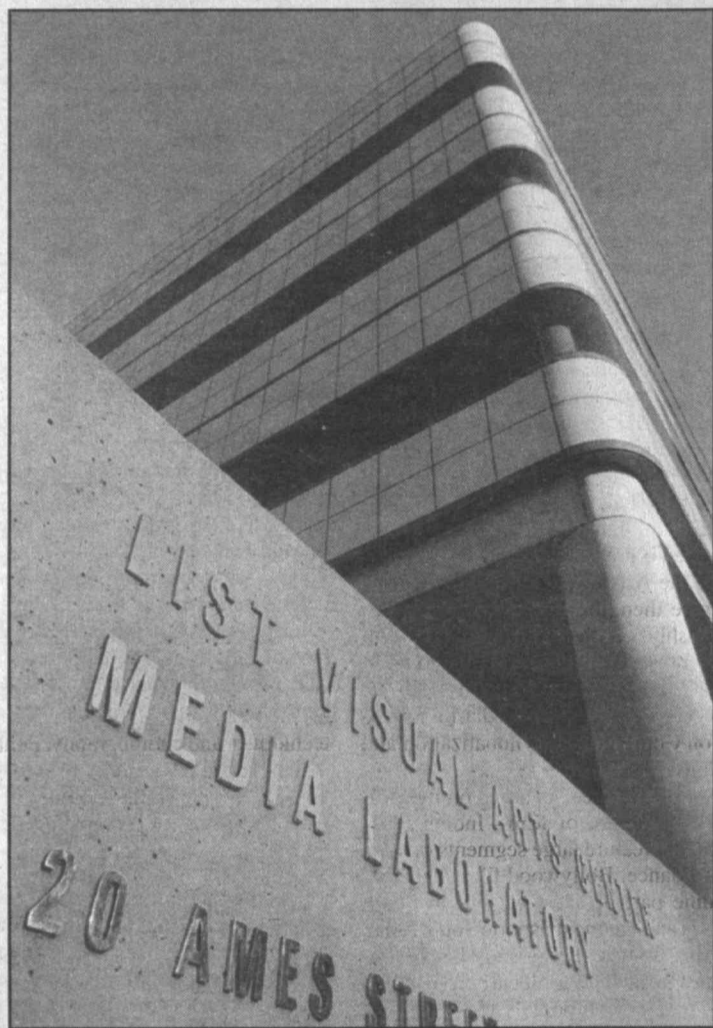
David Lucsko, MIT’s Program in

Science, Technology and Society—“Performance Tuning: The Evolution of a Modern Craft,” a study of the wants and needs of those who choose to modify their automobiles for enhanced performance, the “high-performance aftermarket” or “hot rod industry.”

Eden Miller, graduated from Princeton University in electrical engineering—“Designing Freedom, Regulating a Nation: Socialist Cybernetics in Allende’s Chile.”

Chen Pang Yeang, recent recipient of the Sc.D. in Electrical Engineering from MIT now enrolled in MIT’s Program in Science, Technology, and Society—“Transmission, Reception, and Interference: Radio Technology and Science, 1900-1940.”

Media wall



Art's eye view of the List Center for the Visual Arts.

Photo by Laura Wulf

Classified

Ads

Tech Talk ads are intended for personal and private transactions between members of the MIT community and are not available for commercial use. The Tech Talk staff reserves the right to edit ads and to reject those it deems inappropriate.

INSTRUCTIONS: Ads are limited to one (of about 30 words) per issue and may not be repeated in successive issues. Ads may not be resubmitted after skipping a week. Ads/renewals are not accepted via telephone or fax. All must be accompanied by full name and extension (or proof of MIT affiliation).

- E-mail address (return address must be mit.edu): ttads@mit.edu
- Interdepartmental/walk-in address: Calendar Editor, Rm 11-400.

Please note that all Tech Talk ads are posted on the Internet on the date of publication, which makes them accessible world-wide.

Deadline is noon Friday before publication.

FOR SALE

Chest freezer. Full sz, 12.2 cubic ft, used 1 yr, orig cost \$300. \$100. Clares, x3-7708.

2 MITAC NY trip tickets. Mariann Murray, x3-1712 or mariann@mit.edu.

Kensington slimscreen monitor filter. Anti-glare, anti-radiation, for 14"-15" monitor. New in box, \$25. Catherine, x3-9411.

Glass table w/4 chairs, \$185. Refrigerator, \$150. Arm chair, \$35. 2 lg end table lamps, \$10. Tiffany style ceiling lamp w/chain, \$40. Mauro, x8-2497 (days) or 978-535-0270 (eves).

Computer programs: Peachtree accounting, AccuCalc medical, ViaVoice, Family Tree Maker. Also, USB webcam, Motorola cell phone. Reasonable offers. A.M. Ruggelo, klcei@gis.net.

ANIMALS

Several kittens are looking for a new home. Please e-mail for info: ishut@mit.edu.

VEHICLES

1995 Ford Taurus GL Sedan. 4-dr, auto, tan, 96k miles, pwr locks/windows, well maintnd, exc cond. Must sell, \$3,600. 617-277-0963 or jane_lim@mit.edu.

1997 Ford Escort LX Wagon. 79k miles, auto, air, pwr locks, well maintnd, gd cond, \$5,750. x3-3842 or ecross@mit.edu.

1997 Saab 900s. 5-dr, orig owner, well maintnd, exc cond, 115k miles, pwr everything, htd seats, ski/kayak racks. View on campus w/1 day notice. \$9,000. mrjung@mit.edu or x3-1606.

2 motorcycles. 1997 Ducati 748 and 1990 Honda VTR. jfield@mit.edu for details.

1998 Nissan Altima. 21k miles, auto, exc cond, leather, CD/radio/tape, pwr seat/windows/drs, cruise cntrl, like new, w/warranty. Tsering, x8-0561 or ngodup@genome.wi.mit.edu.

HOUSING

White Mtns, NH: 3BR, 2b twbns, mntntop views, pools, tennis, fitness ctr, nr golf. No pets/smokers. Avail May-June, \$650/wk; July-Sept, \$700/wk or \$1300/2wks. Chuck, x8-2957.

Cambridge: Summer sublet starting ASAP thru Aug. River view, 7 Granite St, nr Trader Joe's and BU bridge. 10min walk to campus. \$650/mo. 617-225-8466 or dankwon@mit.edu.

Glencoe, Nova Scotia: Artist's retreat on 12 acres, 2BR, loft, swimming in nrby waterfall

pools. \$350/wk. Alex Parker, 978-369-3973 or loarja@erols.com.

Boston: South End brownstone apt avail for July-Aug sublet. Fully furn 2BR w/prkg space, prvt roof deck, laundry. Price neg. betsyd33@aol.com or 617-266-1786.

Chatham, Cape Cod: 3BR, 2.5b hse, sleeps 6. View of tidal marsh and inlet. Avail 7/27-8/3 and 8/17-31. \$2,200/wk + cleaning fee and deposit. 617-734-0812.

East Cambridge: 3BR apt, 10-15min walk to MIT, on safe ride route, ethernet and broadband connections in most rms. \$2,250/mo + utils. anniek@mit.edu or x3-3535.

Apt or rm for rent. Short or long term for commencement, summer, visits, guests. 20 min drive to Cambridge. Avail immediately. scyudits@mit.edu or 781-229-2171.

Woburn: Duplex, 3BR, 1b, hwd flrs, 1g prvt yd, off-street prkg, \$1,350 + utils. 617-969-2129.

WANTED

English family (2 children, 12 and 9) wish to exchange homes in second half of July. 5BR hse w/garden in a London village for family's N Shore or Cape Cod home. bis@mit.edu.

ROOMMATES

Cambridge, furnished rms in prvt home, kitchen privs, w/d, cable, walk to Draper/MIT/subway. \$250/wk, \$800/mo, prkg extra. Jan Blair, x8-2843.

Belmont: Furn BR study (single) in prvt home. Share bath, light kitchen privs, on transit. Visiting scholars, non-smokers, internat'l guests welcome. Mrs Wolf, 617-484-6455.

Panelists explore "Innovation Technology in a New Asia"

MIT panelists and their counterparts in Singapore swept aside an almost 13-hour time difference with a live seminar on "Innovation Technology in a New Asia."

The April 17 event was the first Joint Seminar hosted by the Singapore-MIT Alliance (SMA) and the MIT International Science and Technology Initiatives (MISTI) Singapore Forum.

More than 100 students from MIT, the National University of Singapore (NUS) and the Nanyang Technological University (NTU) attended, watching the presentation on large projection screens and questioning the panelists. The live simulcast was broadcast via Internet 2 connections.

The hour-long panel discussion featuring three MIT experts and three industry leaders from Singapore addressed distinctive modes of innovation that can be empirically associated with different countries or regions of the world—particularly as applied to the various developed and late-developing states in Asia. It also addressed the consequences of globalization and innovation in several industries.

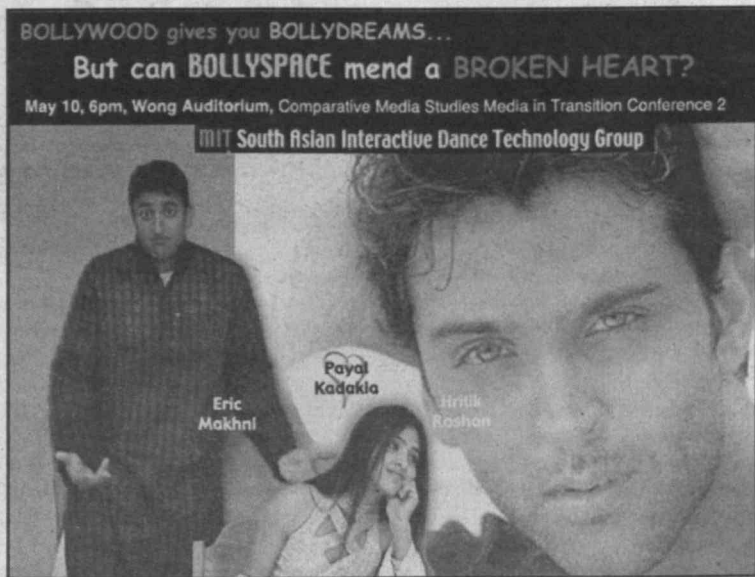
William Keller, associate director of MIT's Center for International Studies, observed that new imperatives driven by economic and political instability may influence the ways in

which Asian governments and companies think and behave regarding critical technology assets.

Eleanor Westney, the Society of Sloan Fellows Professor at the Sloan School of Management, focused on the role of multinationals in national innovation systems, the trend towards centers of excellence in innovation systems and the dissemination of best practices in technological innovations.

Simon Johnson, the Michael M. Koerner 1949 Career Development Associate Professor of Entrepreneurism, said state-sponsored research and multinational companies, rather than individual entrepreneurs, will be the source of innovation in the 21st century. Further, political stability and openness to trade will be the key elements of Asia's economic growth over the next 50 years.

The Singaporean panelists, Chua Taik Him, Lap Chan and Teh Bong Lim, discussed innovation capacity of a country as both a function of market pull and technology push; the development of Taiwan and Singapore's semiconductor industry in three phases of innovation; and typical modes of innovation in local manufacturing enterprises in Singapore—incremental process innovation, industry/government alliance or innovation, and process innovation in new industries.



'BollySpace' melds Indian film traditions with digital media

By Christina Jensen
Office of the Arts

Three graduate students from the Comparative Media Studies Program have been suffering from sleepless nights lately, but not because of finals.

Aswin Punathambekar, Zhan Li and Sangita Shresthova are the creators of "BollySpace: An Interactive Dance Technology Project," and founders of the MIT South Asian Interactive Dance Technology Group, which seeks to bridge MIT's vibrant South Asian arts community with innovative technologies as a long-term project.

The students began their collaboration in January, and in March received a grant from the MIT Council for the Arts to finance "BollySpace." Since then, they've been working feverishly on the project, which will be presented May 11 from 6 p.m. to 7 p.m. in Wong Auditorium, in conjunction with the Media-in-Transition Conference on Globalization and Convergence.

"BollySpace" is based on the Bollywood genre of film—Indian movies that feature large segments of song and dance. Bollywood films have become part of everyday life in South Asia and among diasporic South Asian communities. Song and dance routines from the films have been adopted as part of communal events such as weddings and festivals.

"BollySpace" uses music and themes from film with six live dancers who interact with digital images

projected on a screen. According to the creators, this will be the first time this type of interactive dance has been paired with elements from non-Western popular culture. "'BollySpace' is a collaborative, performative student project that explores the cultural significance [of Bollywood] in increasingly global and convergent media environments," said Punathambekar, Li and Shresthova.

Although Punathambekar did not want to reveal too much about the performance, he described it as a multimedia spectacle based on the theme of love in Bollywood films. "The technology being developed will give people a chance to explore their [Bollywood] fantasies in a digital space," he said.

Punathambekar, who is from India, has extensive knowledge and experience with Bollywood films. Li has expertise in game design, and Shresthova, who is Nepalese and Czech, has studied classical Indian dance, as well as modern and contemporary dance techniques and choreography. Punathambekar said that each of the creators brought unique skills and interests to make "BollySpace" complete.

Punathambekar, Li, and Shresthova hope the MIT South Asian Interactive Dance Technology Group will become a permanent fixture on at MIT. They plan to continue developing the group in the fall and will schedule more performances next year. For more information on the group or "BollySpace," contact the Comparative Media Studies Office at x3-3599 or uricchio@mit.edu.

MIT hosts 'Copenhagen' symposium

Why did Werner Heisenberg visit his former colleague and mentor Niels Bohr in Copenhagen in 1941? What happened at that mysterious meeting that caused a permanent rift between the men? Can quantum mechanics and the uncertainty principle be theatrical?

Michael Frayn examines these questions in his award-winning play, "Copenhagen," which is playing at the Colonial Theatre in Boston. The play reenacts the visit of Heisenberg, who was then in charge of the Nazi nuclear power program, to Niels Bohr, with whom he created quantum mechanics, complementarity and the uncertainty principle.

Professor Ulrich Becker of physics met with the cast of "Copenhagen," on Tuesday, May 7, giving them a tour of MIT's cyclotron, an experimental magnet built in 1938 to aid in Manhattan Project research and the development of nuclear physics.

The MIT Office of the Arts and Boston's Goethe Institute will host a symposium titled "New Thoughts on Interpreting 'Copenhagen'" on Monday, May 13 from 7:30 p.m. to 9:30 p.m. in Wong Auditorium, in conjunction with the performance of the play at the Colonial Theatre in Boston.

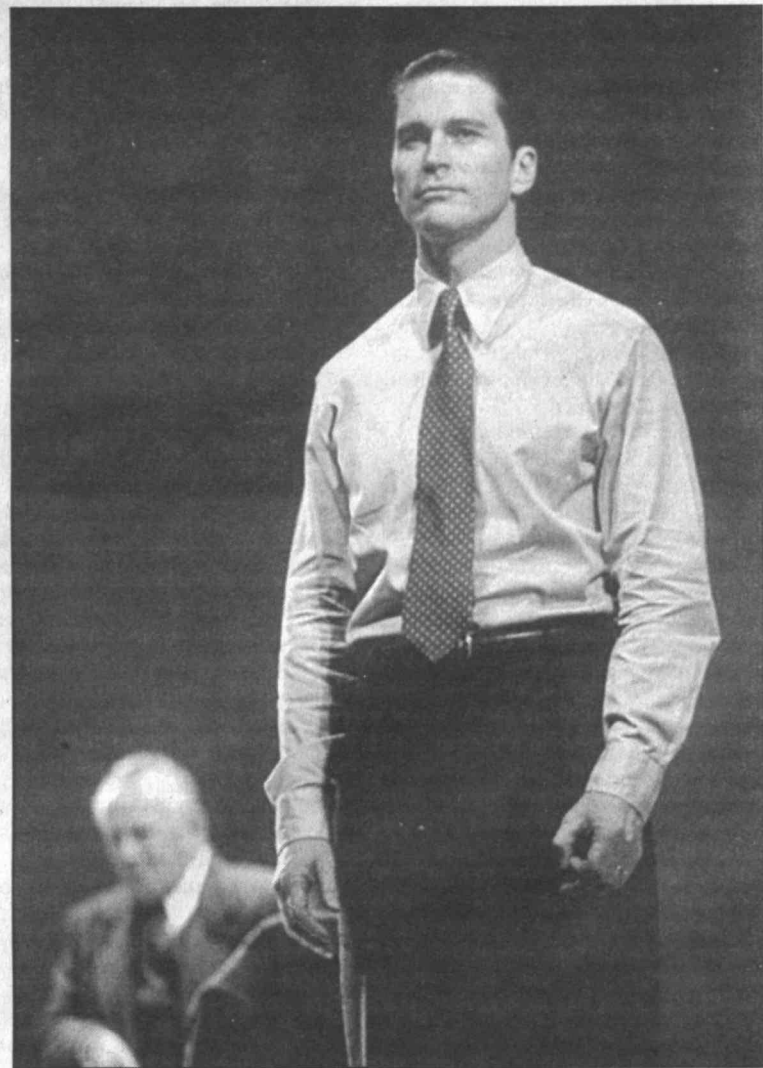
Associate Provost for the Arts Alan Brody will moderate a discussion as physicists, actors, family and colleagues of the protagonists consider the scientific, historical, philosophical and artistic dimensions of this encounter. Professor Emeritus Laszlo Tisza, who taught physics at MIT from 1941-1973, will offer personal reminiscences of Bohr and Heisenberg.

Tisza learned quantum mechanics in 1928 when the field was in its infancy. He spent a semester in Heisenberg's department in Leipzig in 1930 and met Bohr for the first time in 1934. Although Tisza admits he doesn't have personal knowledge of the Copenhagen encounter he said, "I have a good sense of Heisenberg's scientific style and have an opinion of why he failed to achieve more in the Uranium Project. My early sense of the individual styles of the protagonists was reinforced by my later interest in the history and philosophy of physics."

The symposium also will include discussion of the letters Bohr wrote but never sent to Heisenberg, which were released by Bohr's family last February. Each panelist will speak individually, followed by a group discussion and a question-and-answer period. For more information, call x3-2341.

Panelists are Jochen Heisenberg, professor of physics at the University of New Hampshire; Gerald Holton,

professor of physics emeritus at Harvard University; Mariette Hartley, the actor who portrays Margrethe Bohr in the play; Hank Stratton, the actor who portrays Werner Heisenberg; and Tisza.



Hank Stratton, who portrays Werner Heisenberg in "Copenhagen," will take part in a symposium at MIT on May 13. Photo by Joan Marcus

Arts News

Dante Anzolini, recently promoted to Associate Professor of Music, will spend a sabbatical year across the river as director of orchestral activities at the New England Conservatory of Music. In addition, he will pursue conducting engagements in Europe, including a lengthy engagement at the Oper

du Rhin in Strasbourg. Anzolini is currently music director of the MIT Symphony and chamber orchestras. This month, he'll lead the symphony orchestra on a tour of England with performances in important venues in London, Cambridge and Bath as part of the Cambridge-MIT Institute.

Institute Arts

* Open to public
** Open to MIT community only

For more arts-related information, call the 24-hour hotline at 253-ARTS or consult the web site at <http://web.mit.edu/arts>.

INSTRUCTIONS: To submit an item to the Arts Calendar, please contact the Office of the Arts at heine@media.mit.edu or x3-4003.

May 8 - 19

MUSIC

Resonance Spring Concert*—May 10. MIT's newest secular, coed a cappella group w/guests the Dartmouth Subtleties. 8pm. Rm 54-100. More info: resonance-request@mit.edu or <http://web.mit.edu/resonance/www>.

The Musical World of Joe Lovano*—May 10. (MIT American Music Series). MIT Festival Jazz Ensemble w/Joe Lovano pay tribute to his career w/music from his Woody Herman days to the present. \$5 at door. Pre-concert talk: 7:15pm, Concert: 8pm. Kresge Aud. x2-2283.

MIT Chamber Music Society Student Concerts*—May 10, May 12-13, May 10 at 4pm, May 12 at 5 and 7pm, and May 13 at 5 and 7pm. Killian Hall. x3-2826.

"sing forevermore"—May 11. Anne Rhodes (sr office asst in architecture) in a solo voice recital of music of the 20th century. 8pm. Killian Hall. arhodes@mit.edu.

MIT Symphony Orchestra*—May 11. Dante Anzolini, music director. Marcus Thompson, soloist. \$3. 8pm. Kresge Aud. x3-2826.

Logarithms Spring Concert*—May 11. MIT's only all-male a cappella ensemble w/guests the Tufts Jackson Jills and the Dartmouth Decibels. 8pm. Rm 10-250. More info: 617-359-8656 or <http://web.mit.edu/logs/www>.

MIT Women's Chorale Spring Concert*—May 19. Selection of Japanese folk songs and other works. 3pm. Killian Hall. More info: 617-489-4497 or <http://web.mit.edu/womensleague/womenschorale>.

THEATER

Chinese Dramatic Storytelling by World-Class Performers and Scholars**—May 8. With translation and commentary. 3pm. Killian Hall. More info: x3-4771 or <http://web.mit.edu/fil/www>.

Playwrights-in-Performance*—May 9-11. Plays by Dan Tortorice (economics), Carolyn Chen (architecture) and David Ngo (aero/astro). 8pm. Kresge Rehearsal Rm B. More info: 617-661-4111 or x3-4892.

"The Dining Room"—May 10-12, May 16-18. MIT Community Players production of play by A.R. Gurney. Directed by Megan Bell. \$10, \$8 other students, MIT community and seniors, \$6 MIT/Wellesley students. 8pm (2pm on May 12). Kresge Little Theater. More info: x3-2530 or <http://web.mit.edu/mitcp>.

DANCE

MIT Artists Behind the Desk: Kelley Donovan and Dancers: "Changing Skin"—May 8. Kelley Donovan, admin asst in economics, leads contemporary dance works by women.

Noon-1pm. Killian Hall. More info: x3-1694 or <http://web.mit.edu/kdonovan/www>.

"Afro-Brazilian Celebration"—May 9. Final performance by students taking Advanced Topics in Theater: Afro-Brazilian Dance. 7pm. McCormick Dorm, Amherst Alley across from Kresge Oval.

"BollySpace"—May 11. See article above.

READINGS

Women and Writing: Panel Discussion with MIT Professors and Writers*—May 8. Isabelle de Courtivron, Anita Desai and Eva Hoffman. Emma Rogers Rm (10-340). Noon-1:30pm. More info: esdeb@mit.edu.

FILM/VIDEO

Mostly Asian Film Series*—May 8: "Rashomon" (dir Akira Kurosawa, Japan, 1950). 7pm. Rm 26-100. More info: x3-3599.

MIT Anime Club Weekly Screening*—May 10: "Porco Rosso." 7pm. Rm 6-120. x3-3599. More info: anime-request@mit.edu or <http://anime.mit.edu>.

EXHIBITS

List Visual Arts Ctr (E15)*—"tele-journeys" Exhibition focusing on young artists who live in Western Europe and expand the vocabulary of performance- and installation-based conceptual art. Through July 7. Regular hrs: Tues-Thurs and wends noon-6pm, Fri noon-

8pm, closed holidays. May 11: "tele-journeys" panel discussion w/participating artists. 11am-12:30pm. Wong Aud. x3-4400. Also: Opening reception. 5:30-7:30pm. May 17: Curator's talk by List Visual Arts Center Director Jane Farver. 2pm. Meet at gallery front desk. More info: x3-4680 or <http://web.mit.edu/lvac/www>.

MIT Museum (N52)*—"Perils of the Sea." Exhibition accompanying lecture series exploring historic shipwrecks and disasters at sea. Through Nov 3. Also, many ongoing exhibits. Admission: \$5, \$2 students/srs, \$1 children 5-18, free w/MIT ID. Tues-Fri 10am-5pm, Sat-Sun noon-5pm. 265 Mass Ave. x3-4444 or <http://web.mit.edu/museum>.

Institute Archives and Special Collections*—"Minutes of MIT's First Faculty Meeting, Sept 25, 1865." Hallway exhibit case across from Rm 14N-118. x3-5136 or <http://libraries.mit.edu/archives/about/project.html>.

The Dean's Gallery*—"Edith Green: Manuscript Series Continued." Green combines map fragments, sheet music, hand made papers, foreign languages and stamps and coins to create geometric works. May 9: Opening reception. 5-7pm. Through June 12. Rm E52-466. Wkdays 9am-5pm. x3-9455 or <http://mitsloan.mit.edu/deansgallery>.

Building 56 Media Test Wall*—"Competitive Edges." Thematic videos by contemporary artists (Risk Hazekamp, Jesal Kapadia, Ingeborg Lüscher and Euan Macdonald). Administered by List Visual Arts Center. x3-4680 or <http://web.mit.edu/lvac/www>.

Wiesner Student Art Gallery*—"Constructing History: A Reflection of Fractured Personal

History and the Composition of the Self* Collages by architecture senior Nicole Vlado. Through May 9. Harold and Arlene Schnitzer Prize in the Visual Arts Award Winners Exhibit. Featuring the winners of the 2002 (Seventh) Schnitzer Prize in the Visual Arts. May 13-June 28. Wiesner Student Art Gallery, Stratton Student Center. x3-7019.

Wolk Gallery*—"Harry Ellenzeig at MIT: A 35-Year Collaboration." For the past 35 years architect Harry Ellenzeig has been involved in the evolution of the MIT campus. Through Sept 20. Wolk Gallery (Rm 7-338). Hrs: Mon-Fri, 9am-5pm. May 9: Opening reception. 5pm. Wolk Gallery (Rm 7-338). More info: Sarah Wicki, x2-2815.

spouses&partners@mit Art Show. Artwork by members of spouses&partners@mit. 1-6pm. Artists' reception: 4-6pm. E25 Lobby. x3-1614.

OTHER

"A Tale of Two Symbols"—May 9. Lecture by Adnan Morshed, recent PhD graduate of HTC and currently Wyeth Fellow at the Ctr for Advanced Study in the Visual Arts. 5:30pm. Rm 3-133. x8-8438.

Call for Works for the 8th Annual MIT-made Media Spectacle*—May 13. Films/videos/hypertext produced by MIT staff, students and faculty. Any format, style, subject and duration. Works-in-progress acceptable. Send Title, Format, Brief Description and Running Time to cpomicko@mit.edu.

New Thoughts on Interpreting "Copenhagen": A symposium in association with the play "Copenhagen"—May 13. See article above.

Earth-based tools used to see weather in space

“Following scattered solar explosions, we’re in for some severe space weather over most of North America.”

It’s not your typical forecast, but owners and operators of the hundreds of active satellites would be very interested in hearing it. Using ground-based instruments, MIT researchers can now provide real-time images of space weather—a new view of the same information NASA gets from space-based sensors looking back at the Earth. The work, by scientists at MIT’s Haystack Observatory and Lincoln Laboratory, will appear in an upcoming edition of the American Geophysical Union’s Geophysical Research Letters (GRL).

It also will be featured at a space science update on May 9 at NASA headquarters in Washington, D.C.

Unexpected disturbances in the plasmasphere—the cloud of charged particles extending 10,000-plus miles above Earth—affect satellite transmissions and result in damage to satellites and spacecraft. Satellite communications are used for everything from TV to military operations such as locating soldiers in Afghanistan or steering tanks during a sandstorm.

“The ionospheric radar measurements from Haystack show how space weather effects far out in the magnetosphere are directly connected to the upper atmosphere, where they can disrupt systems such as GPS (Global Positioning System),” said James Burch of Southwest Research Institute of San Antonio, a principal investigator for NASA.

“Phenomena known as plasmaspheric tails that develop during magnetic storms were thought to be relatively benign, but the Haystack observations have shown that in fact they have strong ionospheric effects,” he said.

“What we see goes far beyond our wildest expectations,” said John C. Foster, associate director of Haystack and lead author of the upcoming paper. “We are looking with new eyes, ground-based eyes, at the phenomena that give us space weather effects. We are just at the beginning of a very rich area for research.”

Pairing information gleaned from hundreds of special dual-frequency GPS receivers with data from Haystack’s ionospheric radar, researchers at MIT were able for the first time to map the ever-changing plasmasphere from the ground.

In addition to Foster, authors of the paper are Philip J. Erickson, research scientist with Haystack’s Atmospheric Sciences Group; Anthea J. Coster, technical staff member at the Lincoln Space Surveillance Complex, MIT Lincoln Laboratory; Jerry Goldstein of Rice University; and Frederick J. Rich of the Air Force Research Lab at Hanscom Field.

The researchers say they have

achieved a breakthrough in using new methods to study and map the Earth’s atmosphere, with results directly applicable to the very young field of space weather prediction.

“The scientific and applications interests overlap,” Foster said. “With our GPS maps and the high-altitude NASA imagery, we can construct a global picture of the plasmasphere. Detailed low-altitude radar and satellite observations then guide our interpretation of the physics involved. By putting together multiple views, we can come up with a consistent picture.”

The Earth is rotating under an ever-changing system of interacting electric and magnetic fields, electric currents and charged particles called the magnetosphere. Ionization of our upper atmosphere by ultraviolet sunlight produces a plasmasphere nearest the Earth. Here, particles are a cold, dense mixture of electrons and ions called a plasma. Based on local conditions, the plasma can be dense with electrons or diffuse.

The magnetosphere provides a barrier to the solar wind, which explodes earthward from the sun’s outer atmosphere during violent solar storms. These outbursts result in dramatic changes through the geospace environment.

Plasmaspheric tails—long plumes with increased electron concentrations—can result. Radio waves originating on the ground can move through homogenous areas easily, but the edge of the tails, where low- and high-density areas of electrons collide, is like a brick wall to radio waves.

This disrupts satellite transmissions, but “knowing there is a problem (such as the location of a plasmaspheric tail) allows the user to change to another communications link,” Erickson said.

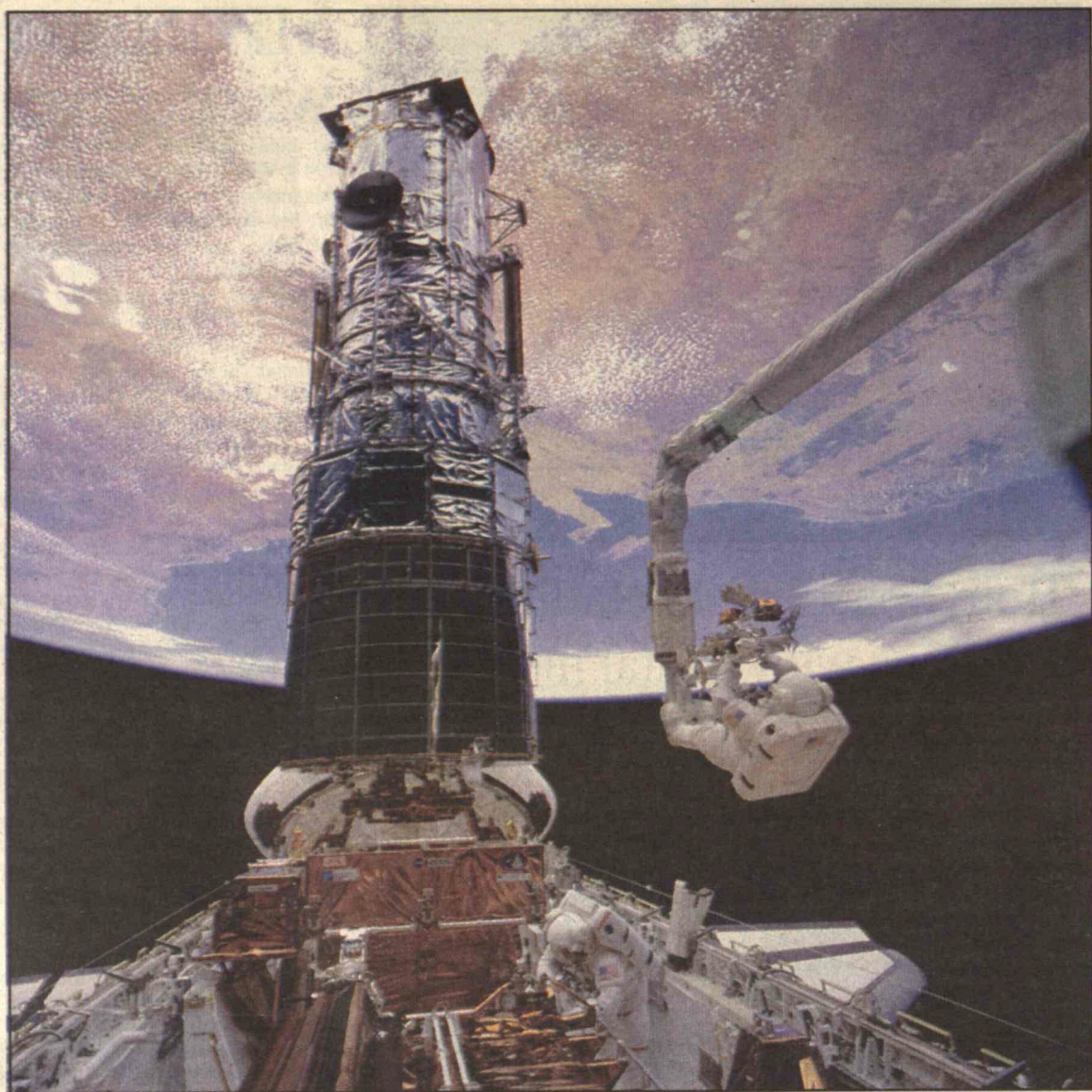
SCANNING THE SKIES

Haystack’s Millstone Hill radio antenna in Westford looks like a giant metal spider web. Its large size, combined with sensitive receivers and a powerful transmitter, provides researchers with detailed diagnostics of the charged upper atmosphere from the ground. The only system of its kind in the continental United States, it is in a prime location to monitor space weather over eastern North America.

Lincoln Laboratory has been pursuing GPS ionospheric investigations since 1985.

“These MIT programs provide a unique environment for combining basic and applied research. People doing GPS need to know about the physics, and people doing the physics need GPS to understand what they are seeing,” Foster said.

The work is funded by the National Science Foundation through a cooperative agreement with MIT and by the U.S. Air Force.



Jeffrey Hoffman, now a lecturer in aeronautics and astronautics, walked in space during the first Hubble Space Telescope servicing mission in December 1993. He said in a talk on campus, that being at the end of the shuttle’s robotic arm was one of his more spectacular experiences. Photo courtesy NASA

Exhilaration of space flight, walk described by astronaut Hoffman

■ By John Tylko
S.B. 1979

Jeffrey A. Hoffman, a former astronaut who is now a lecturer at MIT, described the experience of space flight to an MIT audience at last week’s annual Massachusetts Space Grant Consortium lecture.

“The physical freedom of weightlessness is an utter delight ... it has psychological, emotional and maybe even spiritual dimensions. Unfortunately, we don’t really possess the language to adequately express this because we don’t have the shared experience,” Hoffman said.

He said that being attached to the end of the shuttle’s robot arm at the top of the Hubble space telescope was “one of the most spectacular and emotional moments that I experienced in space, floating between heaven and earth. I could let go and become a free-floating satellite. It was quite an extraordinary feeling, especially when I turned my back to the shuttle ... I really had the feeling of being lost in space.”

Hoffman became an astronaut in 1978 and flew on five space shuttle missions between 1985 to 1996. Prior

to joining NASA, he was a project scientist at MIT’s Center for Space Research working in the field of X-ray astronomy. He returned to MIT last fall as a senior lecturer in the Department of Aeronautics and Astronautics. “Twenty-first Century Space Exploration with Humans and Robots” was the subject of his May 1 talk.

Hoffman participated as a spacewalker in the first Hubble servicing mission in 1993, one of the most ambitious missions ever launched by NASA.

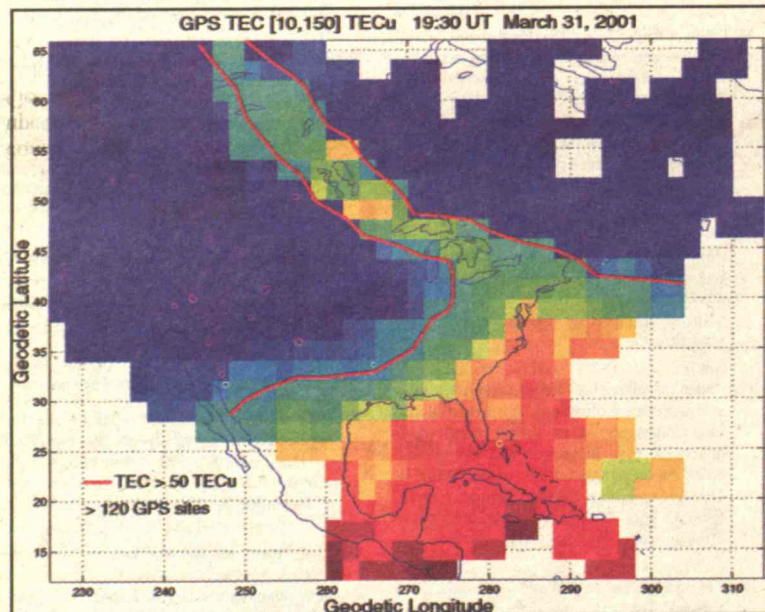
“Having been both an astronomer and an astronaut, for me one of the most satisfying aspects of working on Hubble was being able to unite the world of space astronomy, which generally prefers automated spacecraft, with the world of human spaceflight,” said Hoffman. “Our telescopes are the metaphorical vessels which carry our minds to the stars, and Hubble is the flagship of the fleet because it has taken us deep into space and back in time to the youth of the universe.”

“Modern technology has really made it possible to use tools to project human presence,” he said about the Sojourner Pathfinder rover that explored Mars’ surface in 1997. “Even

when we get to Mars, human beings will still have reached only a fraction of the domain which is already accessible today to our robotic probes, just as our robots have only reached a fraction of the domain explored by our telescopes. Most space exploration has been, and always will be, done by machines: telescopes, satellites, probes and robots,” he said.

“But where people have gone, we’ve done things that machines could not do,” said Hoffman. “If exploration is ultimately the expansion of human consciousness, then we need to do everything we can do to enable our minds and our spirits to follow our robots where our physical bodies can’t go. We need to use robotic presence to extend our sensory experience, because our consciousness of the world is ultimately tied to our sensory experience of the world.”

“The parallel challenges of future space exploration are going to be to push the outer boundaries of robotic exploration into realms previously explored only by telescopes, and at the same time, push the boundaries of human presence into realms previously explored only by robots,” said Hoffman.



Analysis of GPS navigation signals monitored at over 120 sites provides a snapshot of ionospheric total electron content (TEC) over North America during a major geomagnetic disturbance. A large-scale plume of storm enhanced density spans the continent from a source region in the eastern U.S. The bold red outlines the low-altitude footprint of the TEC plume.

Microwave breast cancer treatment shows promise in clinical trials

(continued from page 1)
nals of Surgical Oncology.

Principal investigators for the phase II clinical trials are Gardner at Columbia Hospital; William C. Dooley at OU; Hernan I. Vargas of Harbor-UCLA; Sylvia H. Heywang-Kobrunner at Martin Luther University; and Mary Beth Tomaselli at Comprehensive Breast Center. The Department of the Air Force funded the original MIT Lincoln Laboratory research by Fenn.

Viruses put to work making high-tech nanomaterials

(continued from page 1)
materials on the nanometer scale is essential for the construction of new devices for optics and electronics. Researchers have been looking at ways to use organic materials to organize molecules of inorganic materials on the nanoscale. Fabricating viral films, Belcher said, may provide new pathways for organizing molecules to help create electronic, optical and magnetic materials.

“We showed that engineered viruses can recognize specific semiconductor surfaces, and these recognition

properties can be used to organize molecules in inorganic nanocrystals, forming ordered arrays,” she said. “In this system, we can easily modulate the length of the bacteriophage (the type of virus) and the type of inorganic materials through genetic modification and selection. One can easily modulate and align different types of inorganic nanocrystals in 3D layered structures.”

This work is supported by the Army Research Office, the National Science Foundation and the Welch Foundation.