

## Lemelson–MIT Program

In its eleventh year, the Lemelson–MIT Program (LMIT) undertook a yearlong strategic planning initiative under the leadership of Merton C. Flemings, director, and Kristin Finn, executive director. Ensuing programmatic changes will build on LMIT's strengths as an established invention recognition and educational outreach program. However, planning initiatives also will likely result in a stronger commitment to young and rising inventors and a new dimension that supports the goals of sustainable development.

Administered by the School of Engineering with support from the Lemelson Foundation, LMIT modified its mission to enable and inspire young people to pursue creative lives and careers and to inspire them to engage in the invention process and pursue sustainable new solutions to real-world problems.

The proposed goals and activities of the revised program were developed in consultation with the Lemelson Foundation and the MIT administration, as well as an independent consultant, the TCC Group. Input from these key sources helped shape a plan that presents exciting opportunities for greater impact.

With three new overarching goals, the program will

- Identify, reward, and nurture young inventors and innovators and establish them as role models for other young people
- Create learning environments for high school students that encourage and support inventiveness and independent thinking and bring creativity back into the classroom
- Increase interest in and capacity of faculty and students at the university level to impact sustainable development in the United States and abroad

LMIT anticipates approval and early-stage implementation of these goals and related programmatic activities in the year ahead. LMIT's achievements in fiscal year 2005 are highlighted below.

### Annual Invention Awards

#### Lemelson–MIT Prize

Presented to an outstanding living American inventor-innovator who has significantly benefited society, the \$500,000 Lemelson–MIT Prize is the program's most prestigious and visible vehicle for creating excitement about invention and innovation.

Dean Thomas Magnanti presented the eleventh annual Lemelson–MIT Prize to Elwood Norris at the Oregon Museum



*Dorothy and Robert Lemelson, trustees of the Lemelson Foundation, with MIT president Susan Hockfield*



2005 Lemelson–MIT Prize recipient Elwood Norris

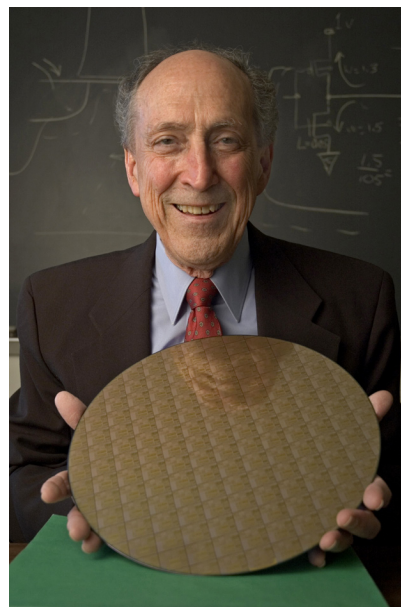
of Science and Industry in Portland. President Susan Hockfield welcomed attendees and Christopher Elias, president of the Program for Appropriate Technology in Health, provided keynote remarks.

A self-educated, independent inventor, Norris revolutionized acoustics when he developed HyperSonic Sound®, enabling sound to be targeted to an individual listener. Some of his other inventions include Flashback®, the first digital recording technology, and an ear-mounted speaker/microphone that evolved into the worldwide Jabra headset product family. Norris also developed a transcutaneous Doppler system, a precursor of sonogram devices, and the AirScooter®, a unique personal flying craft. More information about Norris can be found on the web at <http://mit.edu/invent/a-winners/a-norris.html>.

### Lemelson–MIT Lifetime Achievement Award

Designed to complement the Lemelson–MIT Prize, the \$100,000 Lifetime Achievement Award recognizes a distinguished American inventor for contributions to invention or innovation. The 2005 recipient was Robert Dennard, an IBM engineer who developed the one-transistor dynamic random access memory (DRAM)—the paragon for low-cost digital memory, ubiquitous in the computer industry today. At IBM, Dennard also developed a significant theory on electronic device scaling, which has been a driving force in microelectronics.

Dorothy Lemelson, chair of the Lemelson Foundation, presented the award to Dennard at the awards ceremony in Portland on April 22. More information about Dennard can be found on the web at <http://mit.edu/invent/a-winners/a-dennard.html>.



2005 Lemelson–MIT Lifetime Achievement Award recipient Robert Dennard

### Lemelson–MIT Student Prize

The \$30,000 Lemelson–MIT Student Prize is awarded annually to an MIT senior or graduate student who has created or improved a product or process, applied a technology in a new way, redesigned a system, or demonstrated remarkable inventiveness in other ways.

At a press conference at the Stratton Student Center on February 26, Dorothy Lemelson, chair of the Lemelson Foundation, announced 27-year-old David Berry the prizewinner. A PhD/MD candidate in the Harvard–MIT Division of Health Sciences and Technology, Berry was recognized for inventing a synthetic protein that holds promise for treating both stroke and cancer patients. More information about Berry can be found on the web at <http://mit.edu/invent/a-winners/a-berry.html>.

Following the press announcement, a celebratory luncheon was held at the MIT Museum, where a special exhibit on LMIT Student Prize winners had opened in January for a nine-week run. “Young Inventors at MIT” chronicled the past decade of Student Prize winners and their prototypes, including James McLurkin’s SwarmBots, Andrew Heafitz’s aerial surveillance rocket, and Saul Griffith’s device for creating low-cost eyeglasses.

Coinciding with the exhibit was a March 8 panel discussion for the MIT Chairman’s Salon at the museum featuring former prize recipients Amy Smith, Dan DiLorenzo, James McLurkin, and David Berry, moderated by National Public Radio talk show host Dick Gordon of *The Connection*.

The Lemelson–MIT Student Prize announcement received local and national coverage this year, with an estimated 8.4 million impressions. Highlights include the following:

- National and state Associated Press coverage, with print and/or online pickup in more than 40 markets, including *Orlando Sentinel* (circ. 367,092); *Pittsburgh Post-Gazette* (circ. 245,065); *cbs.marketwatch.com* (circ. 153,000); *abc.com* (circ. 139,000); *nytimes.com* (circ. 136,330); and the *Post and Courier* (Charleston, SC) (circ. 102,182)
- Local Boston print coverage in the *Boston Globe* (circ. 692,430); the *Boston Herald* (circ. 242,063); the *Boston Metro* (circ. 170,053); *Mass High Tech* (circ. 20,000); and the *Boston Business Journal* (circ. 15,847)
- Local Boston broadcast coverage on *NECN* and *WBZ-AM*



2005 Lemelson–MIT Student Prize recipient David Berry

### Lemelson–MIT InvenTeams

InvenTeams, LMIT’s grants initiative supporting high school invention teams, continued as a national program in FY2005. Grants were awarded on October 15 to 13 high schools in 12 states. They represent a geographically and socially diverse set of communities: West Salem, OR; Colfax, CA; Greenville, TX; Naples, FL; Miami, FL; Greenville, SC; Alexandria, VA; Ellicott City, MD; Avon, CT; Bow, NH; Essex Junction, VT; Saginaw, MI; and Minneapolis, MN. Their projects included six consumer products, two assistive devices, one health/safety device, and four environment-related devices.

Over 250 students and more than 50 teachers and mentors were involved in these projects. Thirty percent of the schools were urban based, 40 percent suburban, and 23 percent rural (up from 0 last year). This year, all grantees were public high schools (including one vocational training magnet, one science and technology magnet, and one charter school). We noted a creditable 30 percent female participation on the teams. Young women led four teams; female teachers coached two teams. MIT alumni participated as mentors with five teams, and local companies provided mentors or funding to three teams.

Teachers representing the 13 grantees came to MIT in early November for a kickoff workshop featuring engineering design instruction with former Lemelson–MIT Student Prize winner Amy Smith and Minority Introduction to Engineering, Entrepreneurship, and Science instructor Marc Graham, technical reporting pointers from an MIT writing instructor, lessons learned from '04 InvenTeams teachers and students attending area universities, and more. LMIT staff followed up the full-day workshop with personal site visits in early 2005, which were used to reinforce progress, troubleshoot problem areas, improve reporting techniques, and build connections with local mentors and school administrators.

Over 150 high school students, teachers, mentors, and parents gathered at MIT June 8–11 for our second InvenTeams capstone event, now called the InvenTeams Odyssey. The teams' presentations and prototypes showed considerable hard work, ingenuity, and teamwork. At least teams five plan to seek patent protection for their inventions. Former and current Student Prize winners James McLurkin and David Berry and 2004 MIT graduate and current Miss Massachusetts Erika Ebbel gave inspiring presentations. Feedback from the MIT community, MIT Enterprise Forum, teams, their teachers and parents was overwhelmingly enthusiastic.

Following the InvenTeams Odyssey, all of this year's projects were brought to the MIT Museum for an exhibit displayed through August 15. More information about InvenTeams can be found on the web at <http://web.mit.edu/inventeams/> or <http://www.inventeams.org/>.



*High school students and teachers representing 13 InvenTeams at the InvenTeams Odyssey at MIT*

## **Lemelson–MIT Invention Index**

LMIT's annual survey of American attitudes toward invention focused on the notion that in order to encourage future generations to invent, it is important to recognize and celebrate the role invention plays in our everyday lives. LMIT asked teens and/or adults a variety of questions about their own creative impulses, presidential priorities for supporting scientific research, inventions most likely to impact their future, and so on, but the media were most interested in questions relating to where and why respondents think creatively.

Strong national and regional media attention played on the finding that most people feel they are most creative in their cars. Though the press release was issued in January of 2005, coverage continues to come in. To date, the news has reached an estimated 33.1 million people. Highlights include the following:

- National weekly magazines, including *TIME* (circ. 4,034,491) and *BusinessWeek* (circ. 991,757)
- National daily print coverage, including *Chicago Tribune* (circ. 972,582); *Boston Globe* (circ. 692,430); *Boston Herald* (circ. 242,063); *Houston Chronicle* (circ. 558,150); *Newsday* (circ. 481,816); and *Orlando Sentinel* (circ. 272,114)
- An online *USA Today* "Snapshot" (circ. 4,760,000)

A press release with more information about the Lemelson–MIT Invention Index can be found on the web at <http://mit.edu/invent/n-pressreleases/n-press-04index.html>.

## **Other Public Outreach and Education**

LMIT's most significant outreach effort was the successful three-month collaboration with CNN producers that resulted in two January broadcasts. LMIT had the unique opportunity to help CNN kick off its 25-year anniversary celebration by providing a list of significant technological innovations of the past quarter century for a special *CNN Presents* segment, "CNN's Top 25: Innovations."

The hour-long special was preceded by a series of short weekday segments. CNN enlisted LMIT's aid in preparing the list of the "Top 25 non-medical innovations that have become widely used since 1980, are readily recognizable by most Americans, have had a direct and perceptible impact on everyday life, or could dramatically affect the future." Included in the broadcasts were taped interviews with Professors Merton Flemings, Eugene Fitzgerald, Sanjay Sarma, and senior research scientist Tim Berners Lee.

## **Lemelson–MIT Support for MIT Programs and Classes**

### **MIT IDEAS Competition**

LMIT helped sponsor the fourth annual MIT IDEAS Competition, organized by MIT's Edgerton Center, Public Service Center, and International Development Initiative. The team-based competition provides awards for student inventions and innovations targeting community needs. Projects are in early stages of implementation and winners typically use their prize money to refine their ideas or products and test them in the field.

While the competition invites creative solutions to community problems locally, nationally, and internationally, LMIT focuses its support on technological innovations for the developing world. This year, LMIT's \$10,000 contribution was split between three projects: Bicilavadora (\$5,000 award), VacPac (\$3,000 award), and Parabolic Power (\$2,000 award).

### **MIT International Development Initiative**

Under the auspices of MIT's Edgerton Center and Public Service Center, the International Development Initiative (IDI) provides opportunities for MIT students to travel to developing countries, work with partner organizations to identify needs and design challenges, and develop solutions that address these issues.

LMIT support for IDI this year helped expand staffing to accommodate the growing student demand for Draper Laboratory (D-Lab) offerings. In addition, much of the money was used to cover student travel expenses of the D-Lab field trips during January. Students spent several weeks in seven different countries—Brazil, Ghana, Honduras, India, Lesotho, Samoa, and Zambia—working with community partners. Finally, LMIT funds were used for starting a U2U (University to University) small field trial in summer 2005. A group representing MIT, the Harvard Medical School, and the University of Zambia met for several weeks in Mwape, Zambia, to field-test a bicycle ambulance and pool their expertise in redesigning a newly developed prototype.

### **Product Engineering Processes**

In subject 2.009 Product Engineering Processes, students work in large E-teams to design and build working alpha prototypes of new products. They learn about product design and working within a budget, and they gain unifying engineering experience. This year, projects were focused on an energy theme. Students designed products that conserve energy, use alternative energy, and/or provide cleaner energy. At the end of the course, teams presented their work to an audience of nearly 300, including 100 practicing product designers and entrepreneurs.

LMIT funds provided each team with a budget of \$6,500 to purchase materials for their project. Funds were also used to improve prototyping resources used by students.

**Kristin Finn**  
**Executive Director**

*More information about the Lemelson-MIT Program can be found online at <http://mit.edu/invent/>.*