

Lemelson–MIT Program

The Lemelson–MIT Program (LMIT) is administered within the School of Engineering by director Merton Flemings, Toyota professor emeritus of materials processing, and executive director Kristin Finn. With support from the Lemelson Foundation, LMIT seeks to raise the stature of inventors and innovators and foster invention and innovation among young people.

LMIT marked its 10th anniversary by undertaking a broad investigation into the sources of inventiveness, compiling policy recommendations for enhancing inventive creativity in the United States and abroad, and challenging stakeholders in Washington, DC, and elsewhere to make technological innovation a societal imperative. The yearlong initiative added an important intellectual component to the program's thrust and an unprecedented programmatic effort to reach out and influence policy makers.

Looking forward to the next decade, the program launched its InvenTeams high school grants program on the national level with the intention of increasing the number of grantees and states represented each year. It also began laying the groundwork for a strategic plan that will yield options for greater involvement in promoting technologies for sustainable development in developing countries.

Each year LMIT awards a series of prizes recognizing outstanding achievement in invention and innovation. Awards include the \$500,000 Lemelson–MIT Prize, the \$100,000 Lemelson–MIT Lifetime Achievement Award, and the \$30,000 Lemelson–MIT Student Prize. The program also sponsors ongoing public education and informational activities designed to raise awareness about the importance of invention to the American economy. These include the following: *Inventing Modern America: from the Microwave to the Mouse*, a book profiling the life and work of 35 prominent inventors; a website at <http://web.mit.edu/invent/>, a clearinghouse for information on inventors and inventing; the Invention Index, an annual survey of Americans' perceptions about invention; and Inventory, a biannual newsletter promoting inventive creativity.

The Invention Study: Workshops and Assembly

With support from the Lemelson Foundation and the National Science Foundation (NSF), LMIT hosted a series of workshops to lay the intellectual foundation for an Invention Assembly in April 2004 at the National Academy of Engineering. Following the success of the first workshop on "Historical Perspectives on Invention and Creativity" in March 2003, four more workshops in FY04 focused on the following subjects: "Architecture of Invention"; "Advancing Inventive Creativity through Education"; "How Does Intellectual Property Support the Creative Process of Invention?"; and "Invention and Innovation for Sustainable Development."

A total of 56 individuals from a wide range of academic disciplines, as well as industry and foundation leaders and independent inventors, participated in the workshops. Each workshop yielded a detailed report and a position paper that was presented at the April 23 assembly. In addition, workshop chairpersons, led by Merton Flemings, produced a set of findings and policy recommendations that, with the five position papers, comprise the final report, “Invention: Enhancing Inventiveness for Quality of Life, Competitiveness, and Sustainability.”

The daylong Invention Assembly drew over 280 attendees from government offices and agencies, foundations, industry, academia, think tanks, media, and the invention community. They received copies of the report, listened to presenters from each workshop and to an interactive panel on report recommendations chaired by President Charles Vest, and provided feedback on the findings and recommendations in breakout sessions and on the floor of the assembly.

A media strategy and several outreach activities were developed to publicize the report and stimulate further discussion and interest. Prior to the assembly, the report was released at a “Newsmaker” event at the National Press Club on April 21, with Dr. Flemings and Lester Thurow presenting to writers from at least 12 publications. The same day, the report was also the subject of a bicameral, bipartisan congressional briefing at the capitol, sponsored by senators McCain and Enzi and representatives Capuano, Inslee, and Bono. DC science writers received copies of the report and heard commentary by a panel of inventors selected by LMIT at a dinner event on April 22.

Dr. Flemings hosted a follow-up breakfast on April 24 at the Cosmos Club for 20 participants who were interested in outcomes from the study and report. These included representatives from the NSF, the US Department of Education, and the venture capital, academic, and inventor communities.

The full text of the report and summaries of the five workshops can be found on the web at <http://mit.edu/invent/report.html>.

Annual Invention Awards

The \$500,000 Lemelson–MIT Prize

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

Dean Thomas Magnanti presented the 10th annual Lemelson–MIT Prize to Nick Holonyak Jr. at the National Academy of Engineering in Washington, DC, on April 23. President Charles Vest welcomed attendees and Yo-Yo Ma and the Silk Road Ensemble provided entertainment.

A pioneer in semiconductor laser technology, Dr. Holonyak has had a profound influence on the lighting industry, global communications, and consumer products. Inventor of the first practical red LED (light emitting diode) in 1962, he also developed semiconductor lasers for use in CDs, DVDs, and global fiber optic communications systems.

More information about Dr. Holonyak can be found on the web at <http://mit.edu/invent/n-pressreleases/n-press-04LMP.html>.



2004 Lemelson–MIT Prize recipient
Nick Holonyak, Jr.

The \$100,000 Lemelson–MIT Lifetime Achievement Award

Designed to complement the Lemelson–MIT Prize, the Lifetime Achievement Award recognizes a distinguished American inventor for contributions to invention or innovation. The 2004 recipient was Edith Flanigen for her groundbreaking work in chemistry and materials science over the past four decades to help make petroleum refining cleaner, safer, and more efficient. While working as a research scientist at Union Carbide, she led a team that uncovered a new generation of synthetic molecular sieve zeolites, widely used in the chemical, petrochemical, and petroleum refining industries.

Dorothy Lemelson presented the award to Dr. Flanigen at the April 23 Lemelson–MIT Awards Ceremony in Washington, DC.

More information about Dr. Flanigen can be found on the web at <http://mit.edu/invent/n-pressreleases/n-press-04LAA.html>.

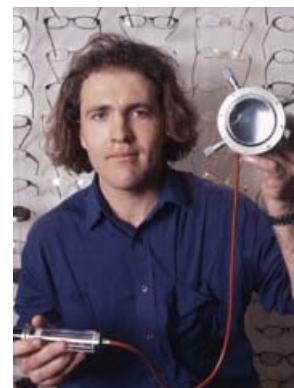


2004 Lemelson–MIT Lifetime Achievement Award recipient
Edith Flanigen

The \$30,000 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 has demonstrated remarkable inventiveness in other ways. This year's 19 Student Prize applicants came from the broadest representation of MIT departments (nine) to date.

At a press conference at Stratton Student Center on February 19, Dorothy Lemelson, chair of the Lemelson Foundation, announced doctoral candidate Saul Griffith as the 10th Lemelson–MIT Student Prize recipient. Griffith's inventions include an innovative device for manufacturing low-cost eyeglasses. His advances in low-cost lenses sprung from his interests in rapid prototyping technologies and efficient manufacturing. Using a process dubbed "programmable molding," he created a portable device similar to a desktop printer that can produce any prescription lens from a single-mold surface in 5 to 10 minutes. Griffith's doctoral thesis at



2004 Lemelson–MIT Student Prize recipient Saul Griffith

the MIT Media Laboratory explores the relationship between information and physical structure in materials and self-assembly.

The announcement received local, national, and international coverage via various media—broadcast (television and radio), newspaper, magazine, and internet—with the estimated number of people who read or heard the news totaling 22,606,219. Highlights of these announcements are as follows:

- Twelve broadcast news segments (television and radio), including national CNN Headline News, Tech TV, and local broadcasts in Boston, Chicago, and Hartford
- National and international Associated Press coverage
- International coverage in 13 outlets, including Discovery Channel Canada, *The Courier-Mail* of Australia, *The Sydney Morning Herald*, and the *National Post*, as well as some international internet sites
- Print coverage in a variety of markets, including the *San Jose Mercury News*, the *Houston Chronicle*, the *Boston Globe*, the *Pittsburgh Post-Gazette*, and the *Detroit Free Press*

Otherwise, the program received increased coverage and requests for interviews with Lemelson–MIT Student Prize alumni. Amy Smith was profiled in a December issue of the *New York Times Magazine*. James McLurkin was featured in June issues of *TIME Magazine* and *Fortune*.

More information about Saul Griffith can be found on the web at <http://mit.edu/invent/a-winners/a-griffith.html>.

Outreach Activities and Events

InvenTeams

InvenTeams, a grants initiative supporting high school invention teams, graduated from a New England pilot program last year to a full-fledged national program in FY2004. Grants were awarded on October 8 to 10 high schools in eight states. They represent a geographically and socially diverse set of communities: Baltimore, MD; Paso Robles, CA; North Miami Beach, FL; Marion, IA; Agawam, MA; Anchorage, AK; Miami, FL; Arlington, MA; Fort Washington, PA; and Norfolk, VA. Team projects included two environmental monitoring devices, three public safety devices, two consumer products, and three assistive devices for the physically impaired. Over 180 students and 59 teachers and mentors are involved in these projects.

Joshua Schuler was hired to manage the growing program and to begin cultivation of outside support. His full-time attention to the program strengthened its administrative underpinnings, personal support for the teams, event management (teacher workshop and showcase finale), recruitment of applicants, networking with educational entities, grantee selection process, and corporate in-kind support.

Teachers representing the 10 grantees came to campus in early October for a kickoff workshop featuring engineering design instruction with former Lemelson–MIT Student Prize winner Amy Smith and others.

Seven months later, over 90 high school students, teachers, and parents gathered at MIT June 17–19 for the program’s first national InvenTeams Showcase. The teams’ presentations and prototypes showed considerable hard work, ingenuity, and teamwork. As a bonus, seven of the teams/teachers talked about continuing their projects next year, after the life of the grant. (One is pushing for a regular engineering design/invention course.) Three plan to seek patent protection for their inventions. Former prizewinners James McLurkin and Kavita Shukla both gave inspiring presentations. Present for segments of the two-and-a-half-day event were representatives from the US Department of Education, the National Science Foundation, and the Massachusetts Department of Education. Feedback from the teams, their teachers, and parents was overwhelmingly enthusiastic.



High school students and teachers representing 10 grant recipients at the 2004 InvenTeams Showcase at MIT

All InvenTeams received some form of media coverage, whether in print, on television, radio, or online. Coverage was spread throughout the year, with the initial announcement of grantees in the fall of 2003, stories about grant availability in early winter, and InvenTeams Showcase/follow-up stories in the spring/early summer. The total estimated number of people who saw articles or broadcasts is roughly 12,000,000.

Looking ahead to an expanded 15-team program in AY2005, LMIT garnered 53 applicants from 26 states with a decided improvement in the representation of geographic areas that were weakly represented last year. In June, a panel of MIT evaluators whittled the applicant pool to 31 finalists, who have been asked to submit final applications next fall after teachers have been able to meet with their teams. Grantees will be selected on October 15.

More information about this year’s InvenTeams can be found on the web at <http://web.mit.edu/inventeams/>.

MIT IDEAS Competition

This spring LMIT was pleased to help sponsor the third annual MIT IDEAS Competition, organized by MIT’s Edgerton Center and Public Service Center. The team-based IDEAS Competition provides awards for student invention and innovation, 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 our \$10,000 contribution to that prize category was split evenly between two projects—both coincidentally related to providing safe drinking water in Central America. The first project, “Test Water Cheap,” produced an inexpensive device for testing local drinking water on a frequent basis. “Chlorination in Honduras,” the second recipient of a LMIT sponsored prize, designed a clever, low-cost system for regulating chlorine treatment of drinking water in Honduran communities that are plagued by waterborne illnesses. Both teams were formed in a relatively new D-Lab class, the brainchild of Amy Smith, the 2000 Lemelson–MIT Student Prize winner.

More information about the IDEAS Competition can be found on the web at <http://web.mit.edu/mitpsc/programs/ideas/>.

The Lemelson–MIT Invention Index

The Lemelson–MIT annual survey of American attitudes toward invention attracted the widest media coverage to date for the Invention Index around the globe, with numerous radio interviews and television segments. Although the survey asked a variety of questions about the perceived impact of inventions on our lives, about who is most responsible for encouraging invention and innovation in America, and about how competitive the United States will be in terms of new inventions in the future, the media mostly locked on to results showing that adults chose cell phones as the invention that they most hated but couldn’t live without.

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

LMIT–Supported Course

The Lemelson–MIT Program provides a total of \$50,000 in support of an invention-related course at MIT, 2.009 Product Engineering Processes, taught by David Wallace and Woodie Flowers.

Kristin Finn
Executive Director

More information about the Lemelson–MIT Program can be found on the web at <http://mit.edu/invent/>.