

Lemelson–MIT Program

The [Lemelson–MIT Program](#) (LMIT) successfully executed plans to meet several strategic goals in fiscal year 2013. Some of the program’s accomplishments are described below.

Annual Awards

Among the goals of LMIT’s annual awards program is to increase the number and diversity of high-quality nominations across all awards: the [\\$500,000 Lemelson–MIT Prize](#) (LMP), the [\\$100,000 Lemelson–MIT Award for Global Innovation](#) (LMA) and the [\\$30,000 Lemelson–MIT Collegiate Student Prize](#). Another goal specifically for the LMA was to continue to increase the number of inventors working on patentable technologies for developing countries in the nominee pool.

Separate screening committees composed of MIT faculty and alumni experts for the LMP and LMA reviewed a total of 28 LMP nominations and 23 LMA nominations. Seven of the 28 LMP nominations were new, and three of them were competitive nominations of female inventors—an increase of one from the previous year. LMA’s focus on technology-based inventors continued to pose a challenge to nominators who were interested in advancing candidates with social entrepreneur pedigrees. LMIT disqualified five new nominees who were more social entrepreneurs than technological entrepreneurs and disqualified others because they were not US citizens; this resulted in five new LMA nominations. A total of four LMP and four LMA nominations were advanced to LMIT’s national jury.

The national awards jury, comprising influential persons from the scientific world, the entrepreneurial sector, and the venture capital and media industries, met and selected the winners of the 2013 LMP (Angela Belcher of MIT) and LMA (Rebecca Richards-Kortum and Maria Oden of Rice University) in late January 2013.

LMIT executed a rigorous recruiting drive for the \$30,000 Lemelson–MIT Student Prize through the end of November, including sponsoring a talk, “Becoming an Innovator,” by MIT assistant professor (and former student prize applicant) Neri Oxman as part of the Graduate Women at MIT Leadership Conference to encourage female applicants. The pool of applicants, however, dropped from last year’s record-setting 27 to 24; the percentage of female applicants also decreased from 26% of the pool to 16%.

Additional events were held after the application deadline to build awareness and foster the applicant cohort. Events included an application celebration the week after the November 30th deadline so that applicants could meet one another, a panel discussion on invention and commercialization in January, and a session by Flagship Ventures—a venture capital firm in Cambridge, MA—about its summer fellowship opportunity.

The student prize jury, comprising MIT alumni with diverse expertise, selected Nikolai Begg (PhD student, Course 2) as the 2013 winner.

LMIT also continued to bolster publicity and improve communications for the Lemelson–MIT Collegiate Student Prize Program, a partnership with the University of Illinois at Urbana-Champaign and Rensselaer Polytechnic Institute. Media impressions increased to 272 million this year. LMIT aims to select award winners who are inspiring to young people and then connect them to youth through LMIT’s annual celebration at MIT, EurekaFest. The 2013 award winners and their “people of inspiration” — Evelyn Hu from Harvard for Angela Belcher and Dr. Elizabeth Molyneux from the Queen Elizabeth Hospital in Malawi for Rebecca Richards-Kortum and Maria Oden — inspired EurekaFest attendees and were themselves inspired.

Invention Education

The list of 16 2012–2013 InvenTeams representing 10 US states from public (12), private (two), and other learning environments (two) was announced in October 2012 and included three from all-girls’ schools. The teams from girls’ schools meant that InvenTeams achieved the highest percentage of female participation in InvenTeam history — 44% of the 216 students. One-third of InvenTeams — two from girls’ schools and three other teams — are located in high-poverty communities, where more than 40% of the student population is eligible for free and reduced price meals.

LMIT began formal development of Junior Varsity (JV) InvenTeams, its Invention Education initiative focused on inventive skill-building for low-income students in 9th and 10th grades, in December 2012. Sites in Massachusetts and Texas will pilot-test the activities starting in January 2014.

One of LMIT’s goals for Invention Education was to “three-peat” at the White House Science Fair — and InvenTeams received an invitation to participate in the third annual White House Science Fair. LMIT was the most-represented science, technology, engineering, and mathematics (STEM) initiative at the science fair, with seven students representing three InvenTeams from the 2011–2012 cycle: Williamston High School InvenTeam (Williamston, MI), Northeast High School InvenTeam (Oakland Park, FL), and Bishop Kelly High School InvenTeam (Boise, ID). Media coverage was significant, including a *New York Times* photograph featuring President Obama riding the bicycle of Northeast High School InvenTeam’s bicycle-powered water purification system.

The majority of LMIT’s additional Invention Education activities involved the Inventing merit badge developed by LMIT and offered by the Boy Scouts of America (BSA), and LMIT participation in other MIT kindergarten to 12th grade (K–12) STEM efforts.

Communications

LMIT continued to focus on its communications goal of increasing overall media coverage. This year media impressions again passed 1.5 billion impressions; given the ease with which websites post and re-report press releases, however, LMIT now reports on and places greater weight on proactive impressions numbers, that is, those without press release pick-up. LMIT garnered more than 605 such million impressions in FY2013.

LMIT hired a web design firm, Digital Loom, and started a redesign of its website. A request for proposals for a strategic communications firm was also issued, given that LMIT has had a contract with Cone Communications for nearly nine years.

Administration

LMIT contracted with the Monitor Institute to carry out a formal evaluation this year, which resulted in a revised proposal to the Lemelson Foundation for years two through four of the current four-year grant period (FY2014–FY 2016). The foundation subsequently accepted this revised proposal and changes are discussed in the relevant sections below. An amendment to the FY2012–FY 2016 award letter is under development.

Initiatives

Annual Awards

2013 \$500,000 Lemelson–MIT Prize

Presented to an outstanding mid-career American inventor who is dedicated to improving our world through technological invention, the \$500,000 Lemelson–MIT Prize is the program’s most prestigious vehicle for creating excitement about invention. This is the seventh year in which LMIT has honored a mid-career individual.

Ongoing efforts to secure competitive female candidates resulted in one additional female nominee and finalist this year; efforts will continue. The abundance of academic candidates in the nomination pool for LMP continued. Greater emphasis was placed on candidates’ commercial interests and mentorship activities during the selection process and the announcement of the winner announcement. LMIT hopes to encourage nominations from the most entrepreneurial and inventive academics and not discourage nominations from the private sector.

The Lemelson–MIT Prize Committee awarded the Lemelson–MIT Prize to Dr. Angela Belcher, a professor of materials science and biological engineering at the David Koch Institute for Integrative Cancer Research. Belcher’s work is focused on convincing biologists to work with elements in the periodic table to create new, advanced, and environmentally safe materials.

The process has resulted in one of Belcher’s most encouraging inventions to date: a high-powered, biologically based battery. The battery is inexpensive to produce and nontoxic. It can currently power small electronic devices such as a laser pointer or a lamp that uses a light-emitting diode (LED), although Belcher’s goal is to scale the battery up to the point of running a hybrid car.

Belcher has applied the same process to improve the efficiency of solar cells by genetically engineering viruses to more efficiently collect electrons in the solar cell system, improving energy production by 33 percent. Belcher’s method adds just one simple step to the standard solar cell manufacturing process, making it easy to implement in existing solar cell production facilities. Several materials companies are

currently testing the technology. Belcher co-founded Siluria Technologies in 2007; this firm leverages her process to convert low-value methane gas cheaply into high-value liquid transportation fuel. Siluria is the first company to offer a commercially viable path for the use of natural gas as a real alternative to petroleum.

Belcher's process is also being used in medical imaging devices to detect cancer in its earliest stages as well as to develop clean processing for electronics manufacturing, solar fuels, and carbon dioxide sequestration and storage. She co-founded Cambrios Technologies, which develops electronic materials for transparent coatings used for touch screens, liquid crystal displays, electronic paper (or ePaper, a display technology meant to mimic the appearance of ordinary paper), and more. Cambrios Technologies is working with some of the world's largest electronics corporations, and its technology is used in several commercially available consumer devices, including desktop monitors, smartphones, and all-in-one computers.

The Lemelson–MIT Prize received the second highest amount of media coverage of LMIT's initiatives in FY2013, with more than 117 million impressions and placements in the *Boston Globe*, NBCNEWS.com, and *Forbes*. It was also picked up by the Associated Press.

2013 \$100,000 Lemelson–MIT Award for Global Innovation

The \$100,000 Lemelson–MIT Award for Global Innovation recognizes individuals whose technological innovations improve the lives of impoverished people in the developing world. The award also establishes (or creates) inventor role models who can inspire youth to solve challenges in the developing world through invention.

The 2013 co-winners, Dr. Rebecca Richards-Kortum and Dr. Maria Oden, established the Beyond Traditional Borders (BTB) engineering design initiative at Rice University in 2006 with the goals of developing and improving access to health innovations for the world's poorest communities. The professors of bioengineering have guided more than 3,000 students through the program's invention process, resulting in 58 health technologies that are helping 45,000 people in 24 countries. Richards-Kortum has two degrees from MIT, an SM in physics (1987) and a PhD in health science and technology (1990).

Richards-Kortum's and Oden's multidisciplinary educational program is changing the way low-cost health solutions are delivered to the developing world by providing undergraduate students with a roadmap of how to become inventors and innovators of life-saving technologies. Through BTB, Richards-Kortum and Oden work with their students and clinical partners around the world—such as those at the Queen Elizabeth Central Hospital in Blantyre, Malawi—to identify health challenges and design solutions. After building and testing prototypes, they team up with the private and public sectors to put their inventions to use. BTB is supported by the Howard Hughes Medical Institute.

A fundamental component of BTB is an eight-week international implementation internship program in Africa and Latin America. Through their experiences in the field, BTB students are able to overcome unanticipated challenges and adapt their inventions

accordingly under the guidance of trained clinicians and on-site mentors. On a broader scale, the internships improve undergraduate students' understanding of global health challenges and help inspire new ideas for health innovations for resource-poor communities. Ninety% of BTB summer interns incorporate global health activities into their careers.

BTB students, led by Richards-Kortum and Oden and mentored by physicians in Malawi and Houston, developed a rugged bubble continuous positive airway pressure (bCPAP) system to combat a leading cause of global child mortality – acute respiratory infection. Studies show that BTB's bCPAP model delivers oxygen therapy that is identical to that of the therapeutic delivery systems used in leading US hospitals, but at a fraction of the cost. The program's small-batch production unit can be sold for an estimated \$400, compared with \$6,000 for existing commercial bCPAP devices. The team recently received a grant from the Saving Lives at Birth partners (including the US Agency for International Development, the government of Norway, the Bill & Melinda Gates Foundation, Grand Challenges Canada, and the UK's Department for International Development) to develop a commercial prototype. The team is also working with stakeholders in Malawi as well as with private industry partners to test, refine, and scale the low-cost system to rural hospitals throughout the African country. It is estimated that nearly 178,000 babies could be saved each year if the bCPAP device were distributed throughout Africa.

Other BTB invention projects headed by Richards-Kortum and Oden include DoseRight dosing clips, designed to provide accurate dosing of liquid oral medication in response to the common mis-dosing of medicine in children, and the global focus microscope, a microscope using battery-operated LED lighting to achieve fluorescent microscopy, which can quickly and easily diagnose diseases such as tuberculosis and malaria. In comparison with fluorescent microscopes sold in the developing world for more than \$40,000, the global focus microscope can be manufactured for \$240. Richards-Kortum and Oden and their students have filed patent applications for all three inventions.

Richards-Kortum and Oden donated all of the prize money from the Lemelson–MIT Award for Global Innovation to the Day One Project, which will renovate the neonatal ward at their partner hospital in Malawi. This gift will create an innovation site where a suite of appropriate technologies that reduce neonatal mortality in low-resource district hospitals can be developed, refined, tested, and scaled.

The 38 million impressions for the 2013 \$100,000 Lemelson–MIT Award for Global Innovation included coverage in *Science*, the *Washington Post*, and NBCNEWS.com.

The evaluation activity informed two significant decisions made with respect to the Lemelson–MIT Prize and Lemelson–MIT Award for Global Innovation. Specifically:

1. The annual celebration of the Lemelson–MIT Prize winner will be changed to a peer-level event, distinct from the EurekaFest activity. LMIT is now partnering with *MIT Technology Review* and its Emerging Technologies (EmTech) Conference to celebrate the 2013, 2014, and 2015 winners at the EmTech conference; and
2. To phase out the Lemelson–MIT Award for Global Innovation in 2013.

2013 \$30,000 Lemelson–MIT Student Prize

Awarded annually since LMIT's inception, the Lemelson–MIT Student Prize is awarded 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. The \$30,000 Lemelson–MIT Student Prize remains a highlight of our recognition activities.

LMIT stimulated interest around the March 5th Student Prize announcement by co-promoting the three finalists: Nikolai Begg—the winner—and finalists Benjamin Peters and Ahmed Kirmani. The first-ever all-applicants showcase provided exposure for all applicants, increased awareness, and the opportunity for Dorothy Lemelson and MIT chancellor Eric Grimson to interact with a broader array of inventive students. Nearly 150 people attended the announcement and showcase. MIT's partner schools, the University of Illinois at Urbana-Champaign and Rensselaer Polytechnic Institute, also announced their winners and finalists in early March with media support from LMIT's communications firm.

Begg was recognized for inventions that are making surgical procedures less invasive. He first became interested in medical device engineering during junior high school after studying surgical robots and realizing their profound impact on human health. Today he works with doctors and nurses across medical disciplines in hospitals throughout Boston to understand better how he can have a positive effect on medicine.

Begg's most recent inventive breakthrough, after he spent year observing laparoscopic surgeries first-hand, is a puncture access mechanism with a blade that retracts at the moment it passes completely through skin tissue. A "force-sensing" instrument, the tip withdraws within 1/100 of a second. The mechanism, which is purely mechanical in nature with only a few parts, is scalable for use in nearly any medical puncture device.

2013 Lemelson–MIT Collegiate Student Prize

This marked the seventh year of the Lemelson–MIT Collegiate Student Prize Program. It was also LMIT's seventh year with Rensselaer Polytechnic Institute and the University of Illinois at Urbana-Champaign. LMIT decided to defer discussions with a third partner school.

\$30,000 Lemelson–MIT Rensselaer Student Prize: Ming Ma

Ming Ma has developed a new method to manufacture LEDs that are brighter, more energy efficient, and have superior technical properties than those on the market today. His innovation holds the promise of hastening the widespread adoption of LEDs and reducing the overall cost, energy consumption, and environmental impact of illuminating homes and businesses.

\$30,000 Lemelson–MIT Illinois Student Prize: Eduardo Torrealba

Eduardo Torrealba launched the Plant Link platform in 2013, which monitors the moisture needs of plants and delivers water on an as-needed basis using smart valves, interconnected sensor systems, and mobile devices. This wireless platform will make

agricultural water resource management easier and more affordable, impacting the sustainability of water usage on a global scale.

Ming and Eduardo, along with finalists from Rensselaer Polytechnic Institute, attended EurekaFest 2013.

The Lemelson–MIT Collegiate Student Prize received the most media coverage of all LMIT’s activities this year, totaling more than 154 million impressions in top-tier media outlets, including the *Huffington Post*, Boston.com, ABC News, and the Associated Press.

The evaluation activity informed LMIT’s decision to propose an expanded national student prize competition that is open to teams of undergraduate students and to individual graduate students from any US college or university. There will be several categories for the new competition, including healthcare, transportation, agriculture, and consumer products. Prizes will be awarded at both the undergraduate and graduate levels. The new competition will launch in fall 2013 with two categories: healthcare and food and agriculture. Additional sponsors will be sought to fund the greater expense of the activity, probably as prize category supporters.

Invention Education

InvenTeams

InvenTeams, LMIT’s grants initiative supporting high-school invention teams, continued as a national program in FY2013 with 16 new grants. A record-setting four of the 16 teams were from Massachusetts. As had been the case in previous years, teams were composed predominately of juniors (32%) and seniors (34%). Surveys conducted during the beginning of the year revealed that 26 educators and 27 mentors were involved in the projects; 16% of students self-identified as Hispanic or Latino; and the top four reasons for involvement in InvenTeams were to “make or invent something” (69%), “help people or make a difference” (63%), “explore engineering” (58%), and “gain or develop real-world skills (56%). These altruistic tendencies were revealed in the teams’ project selections, which included two assistive devices, seven health or safety ideas, three energy-related inventions, three affordable technology devices for developing country applications, and one consumer product.

A local community engagement and showcase event was held at Natick High School in April 2014 for all four of the Massachusetts InvenTeams. More than 150 people attended, including 2013 \$500,000 Lemelson–MIT Prize Winner Angela Belcher (who was incognito, as she had not yet been announced as the winner).

InvenTeams received 83 million impressions in FY2013, including coverage on MSNBC and ABC World News and in the *New York Times*.

Junior Varsity InvenTeams

LMIT’s experience working with InvenTeams from schools with high percentages of students who received free or reduced-price meals encouraged the creation of a stepping-stone initiative. This effort specifically focused on helping students and

educators at schools with few resources develop the skills and ways of thinking needed to participate in InvenTeams or other hands-on STEM programs.

A team of three MIT undergraduate students and a Tufts graduate student with classroom experience, guided by the invention education officer, began to develop the thinking and building content for the JV InvenTeams activity in fall 2012. LMIT brought an invention education associate on board in mid-December 2012 to complete content development and launch the initiative. Inspiration for the content— unique activities to cultivate inventive thinking and build skills—was drawn from the MIT community.. The team has concentrated on developing ideas for hands-on activities, fostering connections to science and mathematics, and aligning content with national and state standards.

A framework for the JV InvenTeam activity's content was determined and several units were tested and written. The content is divided into units that focus on different ways in which invention improves lives, paralleling the Lemelson Foundation's mission to improve lives through invention. The content will also cover topics that align with the proposed Lemelson-MIT National Collegiate Student Prize categories. The units include:

- Unit 1: students make shoe soles
- Unit 2: students make electronic textiles
- Unit 3: students make a hydroponic gardening system
- Unit 4: students make a basic robotic product

The units will be augmented with online and video content, including a series of relevant how-to videos for hands-on projects being created by a MIT Course 2 PhD student.

LMIT has identified networks and potential educators in Massachusetts and Texas who could apply for JV InvenTeams in 2014. LMIT has also reached out to Stanley Black & Decker and Lowe's for potential sponsorships and in-kind support for the JV InvenTeams activity.

LMIT will test activities with selected schools in fall 2013 and then conduct pilot programs in Massachusetts and Texas in winter 2013 and spring 2014. Implementation is planned to extend to sites in California and the Pacific Northwest in winter 2014 and spring 2015.

Invention Education Outreach

LMIT's most active invention education outreach is through the Inventing merit badge of the Boy Scouts of America. LMIT was instrumental in planning the first STEM-based merit badge camp through the Boston Minuteman Council of the BSA. Three hundred scouts attended, 30 of whom learned about the Inventing merit badge alongside the Engineering and Drafting badges. The five-day camp culminated in the group receiving the BSA NOVA Award from astronaut Dr. Bernard Harris. LMIT also hosted 24 scouts from various New England councils during STEM Expo 2013. The scouts came to MIT to

showcase their invention projects and tour the MIT Museum. LMIT representatives were directly involved in scouts earning 65 Inventing merit badges. A total of 2,592 Inventing merit badges were earned nationwide in 2012.

LMIT also provided consulting and advising to MIT's Lincoln Laboratory, who developed the Game Design merit badge this year. Lincoln Laboratory used LMIT's badge development process and was able to introduce the new badge in 2013.

LMIT has continued to be a leader in MIT K–12 outreach activities, including active engagement with the Edgerton Center and the Office of Engineering Outreach Programs; at the MIT museum and MIT K-12 meetings; at the 2013 annual meeting of the American Association for the Advancement of Science, held in Boston; and through MIT alumni interest groups.

Invention education received 92 million impressions in FY2013, mostly from LMIT's participation in the third annual White House Science Fair.

Community Engagement

LMIT brought a consultant on board to support the community engagement activity in late January 2013. The consultant helped research, conduct outreach, and plan and execute three events in Massachusetts, Ohio, and California.

LMIT secured contact information of more than 1,600 elected officials, civic leaders, and school district administrators or officials from the 10 different states that were home to this year's 16 InvenTeams. LMIT sent letters and emails to introduce the InvenTeams initiative, to make people aware of the specific InvenTeam in their area, and to invite them to events. Eight elected officials, including the governor and lieutenant governor of Massachusetts, issued 14 citations and letters to the InvenTeams and educators in recognition and support for their work. The three official community engagement events—where a LMIT representative was involved and InvenTeams showcased their projects and talked about their inventing experience—were well attended, with more than 130 people joining LMIT in Natick, MA (mentioned above) and 35 and 23 coming to events in Columbus, OH, and Palo Alto, CA, respectively. The event in Ohio garnered funding from the MIT Club of Ohio to support an InvenTeam's travel to EurekaFest.

EurekaFest 2013

LMIT held its seventh annual EurekaFest event on June 19–22. EurekaFest is a multiday celebration designed to empower a legacy of inventors through activities that inspire youth, honor role models, and encourage creativity and problem solving.

EurekaFest comprises four major components:

- A series of events held at MIT across three weekdays that serve as a capstone for InvenTeams students
- Training for prospective InvenTeams educators

- A celebration of the year's award winners
- An all-day design challenge and public engagement event, which was held at MIT and at the Boston Museum of Science this year

Award winners and Lemelson-MIT Collegiate Student Prize winners and finalists were presenters and mentors to the InvenTeams students who underwent "next steps" training. Excite Award recipients (finalists for InvenTeams grants) participated in active learning workshops on tools, electronics, and the invention process. They were also able to learn firsthand about the InvenTeams experience from teachers and students.

Dorothy Lemelson and the rest of the board of the Lemelson Foundation were unable to attend EurekaFest again this year because of personal obligations. Carol Dahl, executive director of the Lemelson Foundation, attended and spoke on the family and the foundation's behalf.

One InvenTeam from China showcased at EurekaFest.

Rebecca Richards-Kortum and Maria Oden gave an outstanding master class on international health that included demonstrations of several medical devices. Their evening presentation encouraged attendees to think about the world's problems and what they can do to solve them. MIT chancellor Eric Grimson lauded Richards-Kortum and Oden as the winners of the 2013 \$100,000 Lemelson-MIT Award for Global Innovation.

LMIT faculty director professor Michael Cima and School of Engineering dean Ian Waitz presided over the 19th annual awards ceremony on Friday, June 21, during which Angela Belcher was awarded the 2013 Lemelson-MIT Prize. Angela's acceptance speech covered her approach to invention, current work, and the people with whom she collaborates. She spent a significant amount of time speaking about and thanking her students. Angela's master class earlier in the day was a tour de force of her current work and featured a model of a phage (ten million times its actual size) with LEDs showing the connection between specific genes and their expression.

LMIT's partnership with the Boston Museum of Science continued in academic year 2013. This year's EurekaFest featured a new large-scale design challenge, *Duck and Hover*, that required teams of InvenTeam students, Minority Introduction to Engineering and Science students, and local young people to build a device to lift a payload and reach and maintain a height for a period of time. The morning session of building and testing took place in Walker Memorial. The teams' devices were transported to the Museum of Science for the afternoon competition. Hands-on invention activities for the public were featured throughout the day at the museum.

Continuum, an international design consultancy, helped LMIT and the museum develop the new design challenge and had a "meet the inventor" station where they showcased many of the products they helped bring to market.

LMIT aggressively marketed EurekaFest, and especially EurekaFest at the Museum of Science, with expanded radio spots on WBUR, announcements in local events calendars, on-campus promotions for the broader MIT community, and large MBTA bus-stop posters around Kendall Square that featured winners Angela Belcher, Rebecca Richards-Kortum and Maria Oden, and Nikolai Begg.

EurekaFest garnered more than 65 million media impressions and prominent event listings, including the *Boston Globe*, BostonInno, the *Huffington Post*, and Time Tech.

The evaluation activity led LMIT to focus future EurekaFests on youth and collegiate inventors—that is, on the Lemelson–MIT National Collegiate Student Prize winners and finalists and InvenTeams and JV InvenTeams. The phase-out of the \$100,000 Lemelson–MIT Award for Global Innovation and moving of the annual celebration of the \$500,000 Lemelson–MIT Prize winner away from EurekaFest will allow LMIT to adopt a shorter EurekaFest program. The Lemelson–MIT Prize winner will be invited and encouraged to attend future EurekaFests, but the practice of award winners inviting a “person of inspiration” will be discontinued.

Lemelson–MIT Program Support of MIT Programs and Classes

LMIT aims to cultivate a larger community of student inventors at MIT through sponsorship opportunities. Support for organizations that promote projects at different stages of the invention process creates stories and resources that can be leveraged as inspirational and informative content for youth. The new, non-school-based structure and LMIT’s introduction of a team undergraduate tier to the Lemelson–MIT National Collegiate Student Prize underscores the importance of supporting opportunities for MIT undergraduates to invent.

Product Engineering Processes

In the senior-level mechanical engineering class 2.009 Product Engineering Processes, teams of 15 to 19 individuals design and build working alpha prototypes of new products while developing skills in product design, creativity, innovation, group dynamics, team management, consensus building, and communication. Working within a budget, they engage in a unifying engineering experience.

This year’s theme was “outdoors.” Guided by professor David Wallace, students designed and built prototypes for a variety of projects, presented in early December in what is a highly educational, thought-provoking and entertaining evening event for the MIT community and class sponsors.

LMIT funds are used primarily for team project budgets, but they also provide resources for the students to participate in a number of engaging, creativity-enhancing, and hands-on learning experiences.

Finances and Funding

Fiscal year 2013 was the first year of LMIT’s current, four-year funding cycle with the Lemelson Foundation. The FY2013 grant was approximately \$3.25 million, plus \$71,500 in carryover from the previous grant period. Additional sources of funding were obtained through smaller sponsorships and gifts of up to \$10,000 each from Time Warner Cable for executive director Joshua Schuler’s service on the board for Connect a Million Minds.

Future Plans

The Lemelson–MIT Program plans to:

- Execute the revised proposal to the Lemelson Foundation for FY2014–FY2016, which includes the two new major initiatives (the Lemelson–MIT National Collegiate Student Prize and JV InvenTeams), the refined EurekaFest, and a partnership with *MIT Technology Review* to celebrate the \$500,000 Lemelson–MIT Prize winner
- Continue to increase female representation in InvenTeams through outreach to more all-girls’ schools and, in invention education, through renewed efforts to engage with the Girl Scouts
- Further refine the annual awards program, including continued emphasis on recruiting nominations from the private sector and of women for LMP and the new Lemelson–MIT National Collegiate Student Prize
- Celebrate the 20th anniversary of LMIT
- Cultivate additional sources of funding
- Redesign the LMIT website and online nomination and application processes

Personnel Changes

LMIT filled two positions in FY2013. Liza Goldstein joined LMIT in December 2012 as the second invention education associate to develop and run JV InvenTeams. Connie Wang replaced Michael Perry as our communications associate in February 2013.

Joshua Schuler
Executive Director