

Deshpande Center for Technological Innovation

The Deshpande Center for Technological Innovation serves as a catalyst for innovation and entrepreneurship by supporting research by MIT faculty and students and facilitating collaboration with entrepreneurs, venture capitalists, and innovative businesses. It carries out its mission through several activities, including the grant program, catalyst program, innovation teams (“i-Teams”) course, and sponsored events.

The Deshpande Center was founded in 2002 through a generous gift of \$20 million from Jaishree and Desh Deshpande, cofounder and chairman of Sycamore Networks, Inc. The Center depends on the generous support of the entrepreneurial community and seeks additional support to sustain its programs beyond the initial five years made possible by the Deshpande gift.

The Center welcomed a new executive director, Leon Sandler, in May 2006. Sandler brings to the center more than 25 years of experience in general management, marketing, finance, and business development at companies including Boston Consulting Group, Eastman Kodak, Texas Instruments, and Digital Equipment. He also has spent several years with MIT through his work with the MIT Venture Mentoring Service and MIT Enterprise Forum. He holds a bachelor of science and master’s in science in chemical engineering from Natal University in South Africa and an MBA from the Stanford Business School.

In October 2005, MIT provost L. Rafael Reif and Institute Professor Robert S. Langer joined the steering committee, rounding out a leadership group that includes:

- Gururaj “Desh” Deshpande, cofounder and chairman of Sycamore Networks, founder of Cascade and other successful technology companies, and a member of the MIT Corporation
- Alex d’Arbeloff, honorary chairman of the MIT Corporation, the retired founder, CEO, and chairman of Teradyne, and recipient of a lifetime achievement award from the Institute of Electrical and Electronics Engineers
- Thomas L. Magnanti, dean of engineering and Institute Professor at MIT and a leader in integrating educational programs combining engineering and management
- Edward T. Anderson, managing general partner and cofounder of North Bridge Venture Partners and a leader in creating and supporting numerous successful technology ventures
- Charles L. Cooney, professor of chemical and biochemical engineering, who continues as the Deshpande Center’s faculty director

Highlights

In academic year 2005–2006, a number of the research teams the Deshpande Center has supported since 2002 began to realize significant commercial success. From the 51 projects that have received \$6 million in Deshpande Ignition and Innovation Grants to date, nine new companies have been formed, raising \$40 million in outside financing.

Awards and Recognition for Deshpande Center Grantees

Deshpande Center grant recipients received notable media attention for their work.

In a special section called “Fortune 75: How the World Will Work,” *Fortune* magazine named Angela Belcher, professor of biological engineering and materials science and engineering, one of “ten people to watch” for her work “investigating how nature grows things and then trying to replicate the process in the lab.”

BBC News profiled chemical engineering professor Paula Hammond’s work in “smart” polymer coatings that deliver drugs precisely where and when they are needed in the body.

Materials science and engineering professor Francesco Stellacci made the TR35–Technology Review’s list of the top technology innovators under age 35, thanks to his faster method of producing DNA microarrays.

Avanti Metals Corporation, based on Donald Sadoway’s Deshpande-funded work using molten oxide electrochemistry to produce liquid titanium, was the runner up in the MIT \$100K Business Plan Competition’s Business Venture category.

Deshpande Grant Program Awards

The program provides research funds that permit MIT faculty and students to create and investigate new technologies and supports the transfer of new knowledge and technologies from the Institute to young companies. The grant program consists of two types of awards: Ignition Grants of up to \$50,000 and Innovation Grants of up to \$250,000. Multiple experts in academia and industry review each application in two stages: preproposal and full proposal. The Center announces awards twice annually.

The Deshpande Center awarded 12 grants in FY2006, totaling almost \$1.1 million. The awards support a wide range of emerging technologies.

Ignition Grants

Ignition Grants, which can be up to \$50,000, target projects focusing on novel, enabling, and potentially useful ideas in all areas of technology. Though it might enable only exploratory experiments to establish proof of concept, an Ignition Grant can position projects to receive further funding, such as an Innovation Grant, to take a concept to full development.

Academic Year 2005 Ignition Grant Recipients

Michael Cima: *Medicine delivery method for bladder disorders*

A new technology to deliver drugs directly to the bladder via a small device inserted by minimally invasive means. This technology could potentially lead to better patient outcomes for the more than 33 million people with various bladder disorders.

Karen Gleason: *Novel conductors for flexible, robust electronic devices*

This bendable transparent conductive material could enable production of next-generation folding displays, solar cells, and solid-state lighting panels and add robustness to interface devices like touch screens.

Paula Hammond: *Smarter drug delivery via tunable implant coatings*

“Smart” drug coatings that can conform to medical devices of any shape (e.g., stents, bone implants, pills, and microparticles) and that allow multiple drugs to be released at different times would make multiple surgical procedures and drug-dosing schedules a thing of the past.

T. Alan Hatton: *Catalytic particles for rapid decontamination in carbon filters and clothing*

When added to carbon filters in gas masks, garments, and ventilation and filtration systems, these catalytic particles can quickly neutralize toxins in air and water.

Michael Stonebraker: *Next-generation data transformation tool*

A next-generation data transformation tool to facilitate the extraction and transformation of data into a common format that could simplify this complex and expensive process.

Laurence R. Young: *Improved safety helmets*

This project proposes to develop a new safety helmet, with novel and reusable materials, that could possibly reduce the effect of localized head injuries by up to 40 percent.

Innovation Grants

An Innovation Grant, up to \$250,000, benefits projects that have established proof of concept and identified a research and development path and an intellectual property strategy. Each grant helps a project build a package to bring to venture capitalists or companies that might invest in its technology. Some projects require additional funds to reach the venture funding or licensing stage, and these renewals go through the same rigorous application process as new grant requests, as the Deshpande Center aims to minimize the financial support needed to get the technologies out the door.

Academic Year 2005 Innovation Grant Recipients

Angela Belcher and David Clapham: *Nanotechnology process enabling fast discovery of drugs targeting ion channels*

This nanotechnology-based approach to monitoring key proteins could make possible a systematic and commercially viable search for drugs targeting ion channels, dramatically accelerating the availability of new therapies.

Clark Colton: *Finding early-stage cancers using novel contrast agents for enhanced magnetic resonance imaging*

This technology could help pinpoint early-stage tumors, dramatically improving the chances of surviving cancer.

Rutledge Ellis-Behnke: *Realizing modern medicine's dream of immediate hemostasis*
A new transparent compound that not only stops bleeding instantly but that can be operated through and breaks down harmlessly within the body has the potential to revolutionize surgery and trauma care.

Lionel Kimerling and Anuradha Murthy Agarwal: *Low-cost multispectral infrared detector arrays*

The large potential for infrared sensors may be unlocked by this novel approach for making commodity-priced multispectral photodetector arrays.

Amy Smith: *New method for water purification*
More than one billion people lack access to clean drinking water. The vast majority of those people have no easy way to test water levels for bacterial contamination that may cause diseases such as cholera. This project proposes to create a new class of testing incubators that do not need electricity and can be made at a fraction of the current cost, addressing a fundamental public health need in developing communities.

Catalyst Program

Volunteers from the business community are central to achieving the Deshpande Center's mission of helping MIT innovators achieve market impact. To that end, the Center launched the Catalyst Program in 2003 and expanded it to include more than 50 Catalyst volunteers in fall 2005. The Catalyst Program aims to catalyze its market-driven research programs and accelerate the process of commercialization.

Catalysts are a highly vetted group of individuals with experience relevant to innovation, technology commercialization, and entrepreneurship. "Lead" catalysts commit a minimum of one day a month and work directly with grant recipients to help them define the market opportunities for their technology. Other catalysts serve on the "Grant Review Team," helping review grant proposals. Catalysts serving on the "IdeaStream Advisory Committee" help shape the content for the IdeaStream Symposium.

Catalysts provide individual contributions to the center for a one-year period and do not represent any company interests in their role as catalysts.

Innovation Teams (i-Teams)

The i-Teams course, taught jointly by the School of Engineering and the Sloan School of Management, is for entrepreneurial and highly qualified graduate students throughout the Institute who want to help bring innovations from Deshpande Center-funded research projects to the marketplace. Guided by the project's principal investigators, faculty from MIT's Entrepreneurship Center, and Deshpande catalysts, each team is expected to create a go-to-market strategy for a technology developed by Deshpande Center-funded research.

Deshpande Center Events

Through its sponsored events, the Deshpande Center seeks to bring together the components needed for MIT technologies to reach commercialization. These events

connect faculty members and students with members of the emerging technology industry.

IdeaStream Symposium

On April 13, 2006, the Deshpande Center held its annual IdeaStream Symposium, aimed at connecting MIT researchers with the entrepreneurial community. The symposium included presentations highlighting the “lifecycle of a Deshpande Grant recipient;” the Innovation Showcase, where MIT researchers pitch their innovative technology ideas to and get market feedback from venture capitalists and successful entrepreneurs attending the symposium; and addresses by MIT Provost Rafael Reif and Eric S. Lander, founding director of the Broad Institute. More than 300 entrepreneurs, industry executives, venture capitalists, and MIT researchers attended this year’s conference, which had the generous support of 14 corporate sponsors.

Catalyst Events

Each semester, the Deshpande Center organizes a small reception to celebrate the latest grant recipients in advance of announcing the grant round. It’s an opportunity for grant recipient teams and catalysts to get to know each other, and all new grant recipients are asked to give a brief “elevator pitch” of their project. It is not unusual for MIT collaborations to evolve from this event.

Open House

The Deshpande Center hosted its open house event in December 2005, which brought together members of the MIT Corporation as well as members of the Deshpande community for an evening of networking among poster presentations of the active grant projects. The event was held in conjunction with the \$100K Entrepreneurship Competition’s \$1K Awards Ceremony.

Other Collaborations

The Deshpande Center teamed with the MIT Venture Capital and Private Equity Club, MIT \$100K Entrepreneurship Competition, MIT Innovation Club, MIT Enterprise Forum of Cambridge, the Entrepreneurship Center, the Science and Engineering Business Club, and MIT TechLink to present “Innovation Week,” November 29 to December 6, 2005. Activities included the Deshpande Center VIP Open House, the MIT \$1K awards, the Enterprise Forum’s Startup Clinic, the MIT Venture Capital Conference (including a Deshpande Center Emerging Technology Showcase, modeled after the Innovation Showcase and featuring the fall term i-Teams), and the Innovation Club’s “Lego Challenge.”

Leon Sandler
Executive Director

More information about the Deshpande Center for Technological Innovation can be found at <http://web.mit.edu/deshpandecenter/>.