The State of New Jersey

2007 - 2008





P.O. Box 832, Trenton, NJ 08625-0832 www.nj.gov/scitech Phone: 609-984-1671 • Fax: 609-292-5905 Investing In Tomorrow's Technology Economy www.nj.gov/scitech

ANNUAL REPORT

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NJCST Results FY 2007			
Grants Awarded	92		
Companies Directly Assisted	56		
Companies Indirectly Assisted	926		
mount Awarded	\$ 21,218,639		
unds Leveraged	\$ 26,190,907		

Mission Statement

Our Mission:

To encourage economic development and job growth in New Jersey by:

- 1 promoting strong ties between industry and universities in order to accelerate commercialization of technology
- **2** supporting entrepreneurial technology businesses in areas of strategic importance to the state and
- 8 strengthening research collaborations among universities to create new potential for increased federal funding and private investment.

New Jersey Commission on Science and Technology

Established in 1985, the New Jersey Commission on Science and Technology is responsible for the development and oversight of policies and programs promoting science and technology research and entrepreneurship in New Jersey. Commission members include business leaders, university leaders, scientists, the Director of the Commerce Commission, the Commissioner of Education, a representative of the Governor and four legislators.



Commission Members

DECEMBER 2007

Chairman's Letter

James Coleman Jr., Chairman

Mr. Coleman, Jr. is chairman of International Matex Tank Terminals (IMTT). IMTT's terminals serve North America's dynamic distribution centers at both ends of the Mississippi Valley, at both ends of the Great Lakes/St. Lawrence River System, on the Atlantic Coast in New York and Virginia, and on the Pacific Coast. Mr. Coleman, Jr. also served as chairman of NJCST from June 2003 to October 2004.

Mario M. Casabona is founder, President & CEO of Casabona Ventures; a New Jersey based company providing management services, strategic planning, and early stage investment capital to technology driven start-up companies. Prior to this, Mr. Casabona was the founder and CEO of Electro-Radiation Inc. (ERI), a developer of Radar, Navigation and Communications technology for the Defense Industry. In 2004, ERI was acquired by Honeywell International. Mr. Casabona maintained a steady stream of innovations and products by utilizing the SBA's SBIR program and investing in technology driven companies. In 1998, he was awarded the SBA National Tibbetts Award which recognizes contributions in technology. Mr. Casabona, Chairman Emeritus of the Research and Development Council of New Jersey, also serves on several industry advisory boards. Mr. Casabona holds 11 national and international patents - with 7 pending - in the field of Satellite based Navigation and Communications.

Peter Eisenberger, Ph.D., professor, Earth and Environmental Sciences Department, Columbia University and former head of the Princeton Materials Institute, Princeton University. Dr. Eisenberger is co-chair of the National Advisory Board for a new science center in Tucson, Arizona. A fellow of the AAAS and the APS, he is leading an effort to devise a new way for professional societies to advise Congress.

Richard Goldberg, Vice President of Public Affairs for DRS Technologies, Inc., one of the nations leading defense contractors, headquartered in Parsippany, New Jersey. He was formerly the president of the Commerce and Industry Association of New Jersey and the former Executive Director of the American Electronics Association (AeA), and vice president of the Association of Food Industries, Inc. Mr. Goldberg's areas of expertise include media and government relations, business development, and marketing communications.

Alain L. Kornhauser, Ph.D., professor of Operations Research and Financial Engineering, Director of the Interdepartmental Transportation Research Program, and Co-Director of the Center for Transportation Information and Decision Engineering at Princeton University. He is also founder of ALK Technologies, a transportation technology company based in Princeton, New Jersey. Dr. Kornhauser's recent research includes the application of large-scale network models, stochastic optimization techniques, and computer graphics to transportation problems.

S. Yee Lee, Ph.D., Chairman and CEO of Yee Enterprise

Solutions, Inc. (YES). Dr. Lee is a former AT&T Vice President of Software Systems, named an AT&T Fellow in 2001 for his long standing exemplary contributions. Dr. Lee holds a Master's and PhD in Electrical Engineering and Computer Science from the University of Pennsylvania. He has completed Advanced Management and Executive MBA programs at the Harvard University School of Business. Dr. Lee recently formed partnerships with Global Consultants, Inc. (GCI), SunWah Group and University of Minnesota promoting US-China relations regarding IT training, health care and technology development. Dr. Lee received the Outstanding Lifetime Achievement Award in 2006 from the New Jersey Chinese American Chamber of Commerce.

Gregory Olsen, Ph.D., President, GHO Ventures in Princeton, NJ where he manages his "angel" investments. Dr. Olsen received a BS Physics (1966), a BSEE and MS Physics (1968) from Fairleigh Dickinson University, then was awarded a Ph.D. in Materials Science from the University of Virginia (1971). Dr. Olsen co-founded EPITAXX, a fiber-optic detector manufacturer in 1984. It was sold in 1990 for \$12 million. He then co-founded Sensors Unlimited, a near-infrared camera manufacturer in 1992. Sensors was sold to Finisar Corp. for \$600 million in 2000, repurchased by the management team in 2002 for \$6 million, and then sold again to Goodrich, Corp. in 2005 for \$60 million. In October, 2005 Dr. Olsen became the third private citizen to travel to the International Space Station where he performed more than 150 orbits of the earth and logged almost 4 million miles of weightless travel during his 10 days in space.

Senator Robert W. Singer represents District 30, including parts of Burlington, Mercer, Monmouth and Ocean counties.

Assemblyman Upendra J. Chivukula represents District 17, including parts of Middlesex and Somerset counties.

Assemblyman John E. Rooney represents District 39, including towns in Bergen County.

Kevin Drennan, Director of the New Jersey Commerce Commission

Lucille Davy, Commissioner of the New Jersey Department of Education

Angie McGuire, Governor's Office

Robert Altenkirch Ph.D., President, New Jersey Institute of Technology. Under Dr. Altenkirch's leadership, NJIT has developed a focused strategic plan emphasizing national prominence for a number of NJIT's academic and research strengths, recruiting high-achieving students from diverse backgrounds, increasing research funding, improving campus quality of life, and community engagement.

Harold Shapiro Ph.D., President Emeritus, Princeton University; University of Michigan. Dr. Shapiro served as Princeton University's 18th president and as chair of the President's Council on Bioethics for President Clinton. He is chair of the New Jersey Stem Cell Ethics Advisory Panel.

Dear Friends,

New Jersey has long been a state that encourages the best of innovation. As part of this encouragement our goals at the Commission on Science and Technology are to support the advancement of new technologies and foster collaborations between industry and academia. As you will see in this report, the Commission has been hard at work to achieve these goals.

Together with the Office of Economic Growth and the New Jersey Economic Development Authority, the Commission has actively implemented the Governor's Economic Growth Strategy, nurturing the development of new technologies. Through the Edison Innovation Fund, the Commission has made strategic investments in promising New Jersey technology companies, encouraging and enhancing innovation.

The Commission's most popular program, the Edison Innovation R&D Fund, speaks directly to the needs of technology companies while developing collaborative research partnerships. Through Commission investment and company matching funds, much needed support has been provided to advance critical research of promising technologies. Demonstrating our partnership with the NJEDA, future funding cycles of this program will offer awarded companies the opportunity to receive additional equity-like financing.

Recognizing the importance of increasing federal research dollars in the state and encouraging partnerships at our state universities, the Commission created the Edison Innovation Centers of Excellence Federal Matching Program. Through this initiative the Commission looks to offer valuable matching funds to universities who submit and receive large federal research awards.

I applaud the work of the Commission in positioning New Jersey as a preeminent leader in the cutting-edge field of Stem Cell Research by administering the New Jersey Stem Cell Research Grant Program. In FY 07 the Commission awarded more than \$10 million for this life-saving research, doubling the amount granted in FY 06. This vital initiative will help ensure New Jersey's continuing status as the medicine chest of the nation and world and will improve the lives of people around the globe.

I thank the Commission members for continuing to offer their time, effort and expertise to keep New Jersey at the forefront of technology growth.



With regards,

James Coleman, Jr. Commission Chairman

Edison Innovation R&D Fund

ADVANCING TECHNOLOGY DEVELOPMENT IN NEW JERSEY

The Edison Innovation Research and Development Fund is a unique program designed to fund proofof-concept research opportunities at early-stage technology companies.

This highly competitive program offers companies grants of \$100,000 to \$500,000. It also encourages collaboration with either a New Jersey university or another New Jersey company. In 2007 the Commission awarded \$3.4 million to eight companies and leveraged \$2.4 million in matching funds for these projects.

Edison Innovation R&D Fund, supporting tomorrow's tech economy:

- To grow successful technology businesses in New Jersey
- To grow jobs in New Jersey
- To increase the amount of and the value of intellectual property
- To promote collaboration between New Jersey technology companies and New Jersey research universities, companies or institutions
- To provide early-stage financing and commercialization support for New Jersey technology companies at a higher-risk earlier stage than other state agencies or VCs are able to provide
- To advance companies to the point that they are eligible for lower-risk state financing and loans, especially Edison Innovation Fund through the New Jersey Economic Development Authority
- To increase corporate and venture capital investment in New Jersey technology companies

A SAFER HOSPITAL

In the United States the condition of Hospital Acquired Infection affects 3 million infections people and results in 100,000 deaths annually. Worldwide the problem is much greater and the number of deaths is comparable to those caused by malaria. Germgard Lighting, LLC is using their Edison Innovation R&D Fund award to develop infection prevention technologies for use in healthcare delivery environments. This award will be used to develop and test an ultra fast instrument sterilizer for use by doctors, dentists, veterinarians, military, and operating room personnel.

This innovation can greatly reduce the infections resulting from the treatment of patients in hospitals and operating environments. It also will reduce the cost of reusing surgical instruments. "Early stage technology companies require ample funding to prove their concepts before they can attract the attention of institutional investors and potential commercialization partners. This program is a vital piece of the funding puzzle," says Dr. Peter Gordon, Vice President for Marketing of Germgard Lighting.

EDISON INNOVATION FUND

Building on New Jersey's tradition of private sector creativity and ingenuity, the state has established the Edison Innovation Fund to help create, sustain, and grow high-tech businesses that will lead to high-paying job opportunities for New Jersey residents. This Fund is an integrated set of resources administered in partnership with the New Jersey Economic Development Authority. Programs include:

- Edison Innovation R&D Fund
- Edison Innovation Commercialization Fund
 Edison Innovation "Fund of Funds"
- Edison Innovation Growth Fund

HELPING TO ALLEVIATE BACK PAIN

A spin-off out of Princeton University, Orthobond Corporation was founded in 2003 with the goal of producing safe and effective bio-interfaces for current and future medical devices.

As an awardee of the Edison Innovation Fund, Orthobond Corporation is developing a new treatment for disc related back pain called Percutaneous Biological Fusion (PBF).

The Edison Innovation R&D Fund award has enabled Orthobond to finalize their product formulation by using an in-house intro screening assay they have developed. In addition, it has allowed them to fund a safety and efficacy study needed to prepare their applications for regulatory approval.

Orthobond's President Hans Hull credits the R&D Fund with effectively enabling the company to do the testing necessary to advance their product toward commercialization. In doing so, they have gained credibility with investors and have gone on to leverage the grant with additional third-party funds.

"These grants are an important part of New Jersey's effort to create and maintain a critical mass of health care technology entrepreneurs, R& D talent and investors in New Jersey," said Hans Hull. "The R&D Fund grant is made at a crucial point of the development phase when companies have refined a concept, but need to test it for commercialization."



Edison Innovation Angel Guarantee Fund

Orthobond's product Rapigel

Technology Fellowship Program

BUILDING RESEARCH COLLABORATIONS

The Technology Fellowship program presents a unique opportunity for early-stage technology companies and post-doctoral graduates from New Jersey universities to work together. These early-stage technology companies often have a difficult time competing for talent coming out of New Jersey universities and this program seeks to help address this difficulty. Tech Fellows benefit by gaining valuable industry experience that they may not have had at larger companies. Companies benefit by getting highly skilled employees and building collaborations with university laboratories.

This program provides salary to support these employees for up to two years. In 2007 the Commission awarded 26 Technology Fellowships – 16 of which went to new Tech Fellows in their first year out of the university.

The Technology Fellowship program is dedicated to the memory of Dr. William Oliver Baker, founding member of the Commission on Science and Technology. Dr. Baker was president of Bell Telephone Laboratories from 1973-1979 when Bell Labs scientists twice received the Nobel Prize in Physics.

Jenny Mahoney, Ph.D. (Rutgers University) working at UV **Solutions** to complete product development of the Company's Carbon Nanotube light source and to bring the device to the market. Dr. Mahoney's responsibilities far exceed those of a traditional post-doc in that she not only conducts research, but is also responsible for project planning, as well as vender and customer interaction. By the end of the year she is expected to demonstrate a sealed prototype lamp capable of operating for long periods of time that will ultimately be suitable for manufacture in large quantities. Dr. Mahoney says, "The fellowship program has allowed me to work for a small company which has given me the creative freedom and training that I would not have received in a larger company or institution. My goal has always been to use my background in basic and applied physics to develop products that would benefit the larger community, and it is exciting to be a part of a company that shares this objective."



Dr. Jenny Mahoney working at UV Solutions



Anne Tobak working at **DOV Pharmaceutical**

Deepangi Pandit (NJIT) working at *ExSar Corporation* on drug development activities for misfolded protein disorders. Therapeutics in development for misfolded protein disorders includes treatments for Adult Tay-Sachs, Gaucher and Amyotrophic Lateral Sclerosis (ALS). The program allowed the company to allocate resources to combine H/Dexchange capabilities with MDS to facilitate the understanding of protein folding disorders. The Fellow has become the key person to coordinate the collaboration between **ExSAR** and an ALS expert, Dr. Jeffery Agar at Brandeis University. Diseases caused by misfolding of proteins are neglected by big pharmaceuticals companies, primarily due to their market size. **ExSAR** is trying to answer some of the critical questions involved in protein misfolding using its H/D exchange expertise combined with the computational method.

Anne Tobak, Ph.D. (Rutgers University) working at **DOV Pharmaceutical** on developing a database of how certain elements of anti-depressants work. The Fellowship has given Dr. Tobak a chance to publish and co-author articles and essays in publications in her field. This fellowship helped **DOV Pharmaceutical** to incorporate 3D molecular modeling software and to integrate a computational chemistry platform into their Drug Discovery programs for the first time. "I have gained hands-on experience in drug design, discovery and development through my involvement in various projects and group meetings," said Dr. Tobak. "This past year at **DOV** has increased my understanding of the advantages and challenges a small company faces in a competitive environment."



Dr. Deepangi Pandit working at **ExSAR Corp**

A Vibrant World-Class Stem Cell Research Community

New Jersey has long been called the medicine chest of the world. With a vibrant pharmaceutical and biotech industry, the state is the natural location for stem cell research and development activities which have the potential to improve the lives of millions of people.

New Jersey is dedicated to providing an environment where the best and brightest can collaborate and find cures and treatments through stem cell research. In support of this cause, under the leadership of Governor Corzine the Commission has pushed forward an ambitious stem cell research program.

In June 2007, the Commission on Science and Technology continued New Jersey's investment in stem cell research with the approval of \$10.27 million in Stem Cell Research Grants for fifteen individual research grants and two core facilities projects.

The awarding of more than \$5 million for the two core facilities projects is essential to New Jersey's goal of building capacity in human embryonic stem cell research. These core facilities will enable multiple institutions and researchers to collectively advance stem cell research through projects and instrumentation that encourage collaboration.

CORE FACILITY CREATES CAPACITY

The Rutgers University Stem Cell Resource Center in partnership with Reprogenetics, LLC of Livingston, NJ was one of the first to receive a core facility New Jersey Stem Cell Research Grant. The Commission awarded principal investigator, Dr. Martin Grumet, and his team \$2,992,363 for the multi-institutional, multi-project proposal.

The core facility project includes multiple research projects, shared instruments and shared space to conduct human embryonic stem cell studies (hESC) that may one day enable the development of therapies for human neural disorders. Funding from the grant has been used to purchase a state of the art instrument, the Amaxa Shuttle, which efficiently transfers genes into stem cells. In addition, the core faculty and staff have trained 24 scientists on protocols and techniques to use hESCs.

"The Rutgers SCRC is the first academic laboratory in New Jersey that can perform work on non-NIH approved human embryonic stem cell lines," said Dr. Grumet. "This grant work provides a unique resource in the State for the widest range of potential experiments using human stem cells."



Dr. Rick Cohen, Dr. Martin Grumet. Dr. Wise Young, Dr. Melitta Schachner and Dr. Ron Hart of the Stem Cell Research Center at Rutgers University

"Our award from the NJCST

demonstrates New Jersey's commitment

to a continued investment in this exciting

field. The current pace of work on stem

cells is amazing, progress is substantial,

and the prospect for tangible NJCST

proud to have participated in."

sponsored stem cell therapeutics in the

near future is a reality that we will all be

- Dr. Randall McKinnon, Fiscal Year

2007 stem cell grant awardee.

FIGHTING THE BATTLE OF LUNG CANCER

At UMDNJ-RWJMS, Dr. John Langenfeld continues to research the identification of tumor stem cells in lung cancer. Lung cancer is the leading cause of cancer deaths in the United States and is still poorly understood. In hopes of finding new treatments for lung cancer, Dr. Langenfeld is working to obtain a better understanding of the biology of lung cancer cells which have been determined to behave like stem cells.

"Understanding the biology of tumor stem cells is an exciting and promising new field of cancer research. In the future we hope to target these cells specifically and perhaps direct them to differentiate into benign cells," explained Dr. Langenfeld.

NEW JERSEY STEM CELL SYMPOSIUM: ENCOURAGING COLLABORATION, DISCOVERY AND ADVANCEMENT

New Jersey stem cell scientists represent some of the best and brightest in the world. Every day through their work they help move us one step closer to cures and treatments for devastating diseases and disorders. On October 29, 2007 more than 300



researchers, industry representatives, and investors gathered at the Third Stem Cell Research Scientific Symposium to showcase New Jersey as a vibrant breeding ground for quality stem cell research.

Keynote Speaker, Dr. John Gearhart of Johns Hopkins School of Medicine, spoke of the great strides New Jersey continues to make to lead the way in stem cell research. Panelists from multiple New Jersey institutions discussed stem cell research and translational therapeutic approaches to diseases such as nervous system diseases, cancer treatment and spinal cord treatment. More than 50 scientists presented posters throughout the day, including previous New Jersey Stem Cell Research Grant

recipients. Robert Hariri of Celgene Cellular Therapeutics, the fourth largest biotech in the world, spoke about the positive industry outlook in the field of stem cell research.



U.S. Representative Dr. Rush Holt and Dr. John Gearhart



Dr. John Langenfeld

"The support from the NJCST grant has allowed me to expand my research group and progress towards our goals. The Commission funds several projects in my lab, including a stem cell training course, which has now trained over two dozen investigators in the science and art of culturing human embryonic stem cells. The support from the State has been crucial for both our scientific advancement, and to help generate new scientifically oriented economic opportunities."

- Dr. Rick Cohen, Fiscal Year 2007 stem cell grant awardee.

Incubators: Increasing Capacity to Grow Small Businesses

Incubators are innovative business environments that offer start-up companies access to critical business and academic support services that are necessary for achieving success. According to the National Business Incubation Association (NBIA), 87 % of incubator graduate companies remain in business after three years, compared to just half of non-incubator start-ups.

In FY 2007 the Commission supported 13 technology incubators in ten locations throughout the state with \$1,590,000 to help foster the creation of successful new businesses within the business incubator structure. Commission funding supported incubator programming that provides valuable resources and direct assistance for the development of tenant and virtual clients.

Incubator clients benefit from valuable services including

networking opportunities with potential investors and clients, one-on-one mentoring and coaching, entrepreneursin-residence, business planning and milestone tracking, legal advice, administrative support, navigating state and federal grant processes and product marketing and manufacturing support.

Commission supported Business Incubators have excelled in providing services to New Jersey early-stage technology companies. In 2007, NJ incubators experienced a year of recognition, increased activity, and increased capacity.

FY 2007 Incubator Metrics

- NJ Incubators support 600 residential and virtual client companies
- Technology companies make up more than 80% of NJ Incubator-clients
- NJ incubators provide nearly 1600 jobs
- NJ incubator companies have revenues of over \$200 million
- NJ incubators have \$90 million in third party investment. Less than 10% of this is from state sources.



The Innovation Center at the South Jersey Technology Park at Rowan University. The 50,000 foot facility will provide office, lab and wet lab space to South Jersey technology companies.

Commission Supported Incubator Accomplishments

- The Food Innovation Center was named "Incubator of the Year" in the services and manufacturing category by the National Business Incubation Network.
- The new life sciences incubator of Burlington County College opened. This facility increases the capacity of the incubator to include life science companies requiring wet-lab space.
- The Commercialization Center for Innovative Technology was accredited as a soft landing site for global companies by the NBIA. The Commercialization Center provides specialized support services for international companies who choose to locate in New Jersey.
- The NJEDA Waterfront Center in Camden opened, which houses both the ACIN incubator (the country's only "defense-centric incubator") and the Rutgers-Camden Incubator.
- Mark Merclean, of the Picatinny facility was the First Incubator Director in New Jersey to achieve certification by the National Business Incubation Association (NBIA).
- The South Jersey Technology Park at Rowan University completed exterior construction and began the fit-out of the first floor. They expect their first occupants in May 2008.

Incubator Seed Fund: Leveraging Incubator Resources

While companies gain a competitive edge from shared resources and constant support services, greater access to capital remains a critical need of early stage technology companies based in New Jersey's high tech incubators. The Commission offers direct financial support through the Incubator Seed Fund to incubator-clients to address this need. This funding compliments the mentoring and business support provided by incubator managers to emerging companies in commercializing their technologies.

The Incubator Seed Fund offers awards of \$20,000-\$50,000 to incubator technology companies for activities necessary to achieving a critical milestone in their commercialization plan. In FY 07 the Commission awarded \$530,061 to ten technology companies. This funding leveraged an additional \$1.5 million in matching funds.

Funded projects in FY 07 included: the development of a cancer diagnostic test, the product development of an Emergency Rapid Needs Assessment tool, expanded IP protection for intermediates for the cosmetic industry, patent applications for a new user interface, and the launch of a wrist-worn activity monitor.

Treadstone Technologies: Innovations for the Hydrogen Economy

Treadstone Technologies, a spinoff of the Sarnoff Corporation, began in 2006 with a goal of commercializing corrosion resistant metal bipolar plate technology for fuel cell application. With an innovativ idea and the motivation to see it through, the company decided to locate at the ACIN Technology Center in Camden to benefit from the tenant services provided and the DOD networking opportunities.

During client meetings Treadstone learned that a chan in the metal substrate for its Corrosion Resistance Me Plate Technology used in fuel stack applications was imperative for commercial success. The Commission's Incubator Seed Fund provided the funds necessary to enable Treadstone to make the change from titanium to stainless steel and thus obtain data and samples supporting this work for client evaluations.

Commission funding allowed Treadstone to improve their technology and reduce costs, while maintaining performance. "Without the Commission Incubator Se Funding, the work accomplished in the past year woul not have occurred in a timely fashion," said Gerald DeCuollo, Treadstone President. "Having the Commission funding allowed TreadStone to keep its competitive advantage over companies and continue t commercialization of this technology."

With the advances made through the Incubator Seed Fund, Treadstone Technologies went on to receive a \$500,000 Edison Innovation R&D Fund award in FY 08 to further develop this technology.

è	ACIN – High Tech Incubator Camden, 856-614-5415
y y ge tal	Business Development Incubator at New Jersey City University Jersey City, 201-200-2313
	Food Innovation & Research and Extension Center Bridgeton, 856-459-1125
	The High Technology Small Business Incubator Burlington County College, 609-984-9311
to	NJIT Enterprise Development Centers I, II, III Newark, 973-643-4063
	Picatinny Technology Innovation Center Dover, 973-442-6400
	Rutgers-Camden High Tech Incubator Camden, 856-479-9044
ed Id	Rutgers EcoComplex Bordentown, 609-499-3600
	The Life Science Incubator Burlington County College, 609-984-9311
he	The South Jersey Technology Park at Rowan University Glassboro, 856-256-5099
18	The Technology Centre of New Jersey North Brunswick, 732-729-0022

Technology Incubator Network

SBIR Bridge Grant



SMALL BUSINESS INNOVATION RESEARCH BRIDGE GRANT SBIR BRIDGE GRANTS SUPPORT TECH COMPANIES

The Commission developed the SBIR Bridge Grant Program in 2004 in order to help technology companies bridge the gap between Phase I and Phase II of the federal Small Business Innovation Research (SBIR) Grant. The federal SBIR Grant provides funding to companies developing technology that can be used to meet specific federal agency needs.

In some cases the gap between phases of the federal program can be up to six months and it is during this period that small tech companies often struggle to find funding and maintain operations. Commission awards of up to \$50,000 in the SBIR Bridge Grant Program allow those companies to retain current employees, hire new staff, protect intellectual property, and purchase necessary supplies and equipment.

In 2006 the Bridge Grant Program awarded \$300,000 to six companies and leveraged \$4.5 million in federal funding. In 2007 the Commission increased total award funding to \$550,000 which went to ten companies and leveraged \$9.2 million in federal support.

FRONTIER PERFORMANCE POLYMERS PROTECTING OUR TROOPS ON THE BATTLEFIELD

In 2007 Frontier Performance Polymers, an engineering and technology development firm, received an SBIR Bridge Grant from the Commission to support their work to create more protective, lighter weight armor for American soldiers serving in combat zones. Their work with "Innovative Transparent Armor" created a 30% ballistic improvement over current systems along with a 35% reduction in weight. Frontier Performance Polymers used their SBIR Bridge Grant funding to file for patents necessary to protect their intellectual property for the second phase of the federal project. Frontier was awarded Phase II funding in the amount of \$729,957 from the Department of Defense for a two



Frontier's team from left to right: Greg Dyda, Mark Deevey and Dr. Bill Chen

year project. "Frontier is thankful to the Commission for receiving the SBIR Bridge Grant," said Dr. Jerry Chung, President and CEO of Frontier Performance Polymers. "We are please that our vision to serve as one of the Army's premier sources of innovative technology solutions is being realized and we will continue to work hard to provide advanced technology to better perform the Army's critical missions. To this end we look forward to continuing to expand our presence in New Jersey"

LI CREATIVE TECHNOLOGIES **A LITTLE LESS NOISE**

Li Creative Technologies, Inc. located in Florham Park, advances state-of-the-art noise reduction and speech enhancement technology. In 2007 Li Creative received an SBIR Bridge Grant from the Commission to help convert their core technologies into consumer electronic products prior to receiving their Phase II award in the amount of \$749,974. The CrispMic[™] and CrispSound[™] software were showcased at the Consumer Electronics Show in 2008. "The bridge grant is an important tool that allows a small business like us to continue to pay our employees during the gap between Phase I and Phase II. Without this grant, we may have lost experienced employees," says Dr. Peter Li. President of Li Creative.

Training for Tomorrow

The Commission recognizes the fundamental need to increase federal research funding obtained by New Jersey technology companies. Through the SBIR/STTR training program series the Commission attempts to fulfill this need. In 2007 this program held eight seminars including seminars focused on NIH SBIR/STTR Program and Proposal Preparation, SBIR/STTR Phase I Proposal Development, and SBIR/STTR Phase II Proposal Development. These seminars prepared nearly 100 New Jersey technology companies to compete for federal SBIR awards.

the CrispMic[™] concept by Li Creative Technologies

University Intellectual Property Program

THE UNIVERSITY INTELLECTUAL PROPERTY PROGRAM CULTIVATING UNIVERSITY INNOVATION

New Jersey universities are creating innovative new technologies everyday. However, a major challenge that these universities face is transferring these technologies from the university lab to the marketplace. To address this need, the Commission created the University Intellectual Property (IP) Program to bring applied research to the next stage in its commercial development.

The University IP Program provides funding to enhance technology transfer initiatives, improving the commercial potential of university supported research. This includes resources for "gap-funding," proof-of-concept work, broadening patent claims, building prototypes or conducting clinical trials, funding consultants to conduct market studies or assist companies in developing business plans, and new company initiatives.

Rutgers University, the New Jersey Institute of Technology, Stevens Institute of Technology, Princeton University, and the University of Medicine and Dentistry of New Jersey, received a total of \$1.57 million in funding through this program in Fiscal Year 2007.



NEW JERSEY INSTITUTE OF TECHNOLOGY BRIDGING THE GAP BETWEEN INNOVATION AND COMMERCIALIZATION

In its second year of funding NJIT received \$463,938 for its University IP Program and matched the Commission's support with an investment of \$627,253. Using Commission funding the Office of Technology Development at NJIT has provided a great deal of assistance for companies associated with NJIT including:

- Continued support for the technology development gap fund to enhance the marketability of inventions and reduce commercialization risk by obtaining additional data, building prototypes, and conducting clinical trials
- Developing marketing materials including nonconfidential data sheets for inventions, post descriptions on appropriate databases
- Providing each funded project with business plan, market assessment and patentability support – provide guidance to faculty on business start-up activity
- Conducting market outreach seminars and showcases for the angel /investor community highlighting technologies available for licensing and start up activity

Edison Innovation Centers of Excellence Federal Matching Program

EDISON INNOVATION CENTERS OF EXCELLENCE FEDERAL MATCHING PROGRAM

As outlined in Governor Corzine's Economic Growth Strategy, it is imperative that the state invest in technology-led development initiatives at our colleges and universities. Through the Edison Innovation Fund, the Commission is committed to building the capacity of the state's research universities in the strategic growth areas and investing in the creation of Centers of Excellence.

In Fiscal Year 2007 the Commission launched the Edison Innovation Centers of Excellence Federal Matching Program. This program is designed to build research excellence through leveraging federal investment in New Jersey's research and development base.

A Center of Excellence is defined as a multi-institutional research team with an integrated research agenda which is awarded a federal grant of more than \$1 million annually.

The goals of the Centers of Excellence Federal Matching Program are to:

- Increase federal peer-reviewed research dollars and industrial investment in New Jersey's research universities
- Create academic centers of excellence in line with federal opportunities and our existing high tech industrial strengths



- Increase research at our universities in areas critical to supporting our high-tech economy
- Increase federal support for graduate education and training in state priority areas to support the state's science and technology workforce.

Our Staf

Joshua Trojak Acting Executive Director

> Joseph Tetteh Program Analyst

Edythe Fineman Program and Communications Associate

Arti Sahni Program and Communications Associate

> James Patterson Grants Administrator

> > Sharon Cox Office Manager

NEW JERSEY COMMISSION ON SCIENCE AND TECHNOLOGY

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To learn more about opportunities for business growth throughout New Jersey, visit the state's business portal at www.NewJerseyBusiness.gov.

The Commission on Science and Technology thanks the following for sharing images used throughout this report:

ExSAR, Corp.

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Dr. Randall McKinnon, UMDNJ

Orthobond. Inc

UV Solutions, Inc.

DOV Pharmaceutical, Inc

Dr. Rick Cohen, Rutgers University

Frontier Performance Polymers, Corp.

Li Creative Technologies, Inc.