

Annual Report 2009

New Jersey Commission on Science and Technology



Lightening Energy • New Visual Media Group
Switch2Health Corp. • 3D Biotek, LLC
Infostat Inc. • Rational Affinity Devices, LLC

The company we keep,
keeps getting better.

Frontier Performance Polymers Corporation
Signum Biosciences Inc • Carbozyme, Inc
TRIM-edicine, Inc. • AlfaGene Bioscience, Inc



James J. Coleman, Jr.
Commission Chairman

Peter R. Reczek, Ph. D.
Executive Director

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Science and Technology**
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A Message from NJCST

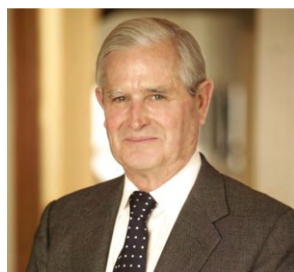
Dear Friends,

In 1985, the New Jersey legislature formalized its commitment to science and technology with the creation of the New Jersey Commission on Science and Technology. In the years since its creation, the Commission on Science and Technology has taken the view that the quality of work and of life for New Jersey's citizens can be enhanced and promoted through the development of its technology. Among the benefits of this focus is the creation and growth of new businesses with the result of new jobs and continued prosperity. This has been, and continues to be, our mission

Due largely to a shrinking economy, the NJCST is facing significant reductions in our budget that have led to tough choices concerning our funding ability. We have responded to that challenge in several ways. By re-focusing our funding strategy to support value-added programs, we have continued to support our crucial business incubator network and our post-graduate training programs realizing the need for trained and talented people to lead us out of our economic difficulties and into a brighter future.

Our struggle to maintain NJCST programs has led to renewed collaborations among state agencies with the federal government. NJCST has partnered with the Board of Public Utilities and the New Jersey Economic Development Authority to significantly expand our clean energy programs. In combination with the ARRA funding supporting clean energy, New Jersey is well positioned to significantly expand its #2 ranking in US solar research and product development.

Despite economic uncertainty, the Commission continues to maintain and develop new and exciting programs that address the future needs of New Jerseyans through novel collaborative research partnerships, workforce development, and R&D programs. We owe a special debt of gratitude to our Commission members who have worked tirelessly and through their commitment of time, effort and expertise have made a major difference in all our lives by helping to insure growth of innovative technologies. Finally, we'd like to invite all those interested in promoting Science and Technology as an important economic driver to join us in this exciting quest to keep New Jersey at the forefront of the future.



James J. Coleman, Jr.
Chairman



Peter R. Reczek, Ph.D.
Executive Director

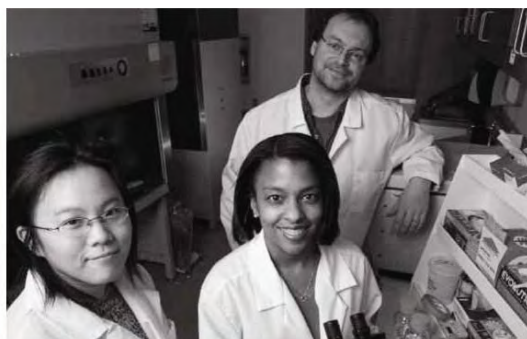
New Jersey Commission on Science and Technology

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 and scientists, along with representatives of the New Jersey Economic Development Authority, the Commissioner of Education, and the legislature.

Our Mission:

The New Jersey Commission on Science and Technology is determined to improve the quality of life for New Jersey's citizens and promote economic development by keeping New Jersey at the forefront of scientific and technological advances. The Commission is committed to innovative and effective programs that will:

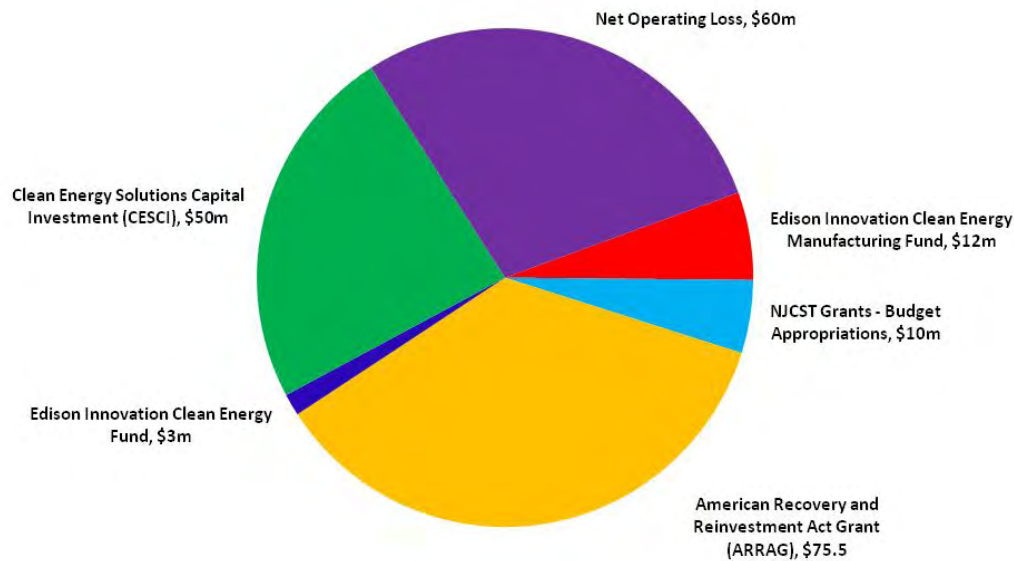
- **Promote** strong ties between industry and academic institutions in order to accelerate commercialization of new technologies;
- **Support** the emergence of science and technology based businesses and incubation in areas of strategic importance;
- **Collaborate** with public and private organizations to create economic opportunities and advance job growth;
- **Enhance** science and technology policy decision making at all levels of State government.



Highlights for the Year

Fiscal year 2009 marked a difficult year for the Commission. Early budget reductions were supplemented with targeted funding from the American Re-Investment and Recovery Act (ARRA) in the area of Clean Energy allowing NJCST to continue its funding efforts despite severe economic restrictions. Overall, NJCST has been highly interactive with other state agencies to offset these restrictions.

New Jersey Science and Technology Funding FY 2009



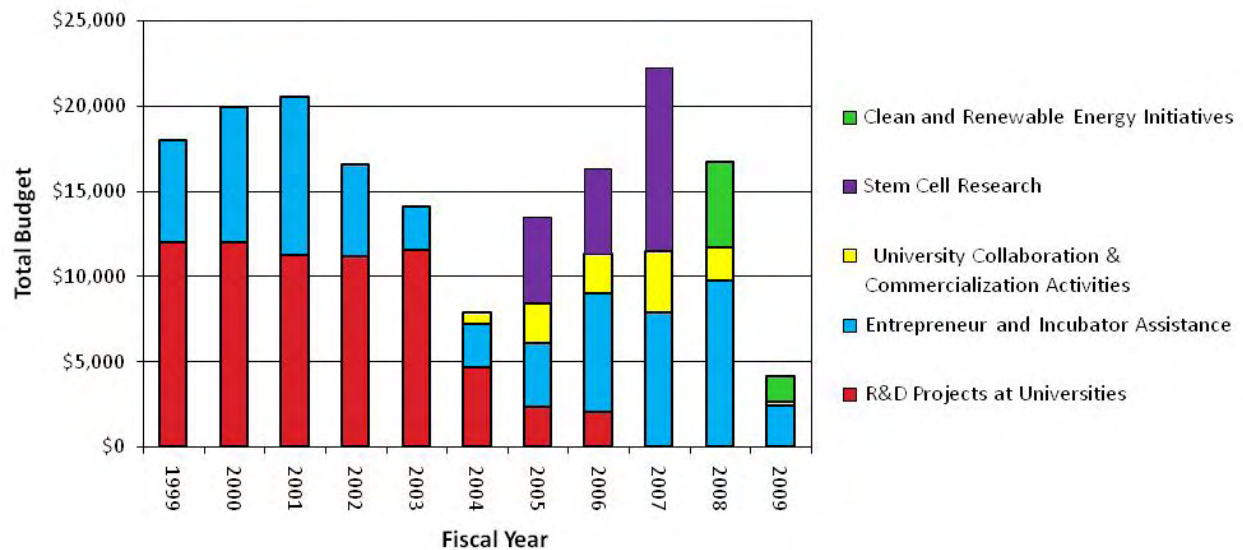
In addition to its legislative allocation, NJCST collaborated with other state agencies to provide funding to high technology businesses. Along with the Board of Public Utilities (BPU), NJCST administered its Edison Clean Energy Fund and the BPU's Clean Energy Solutions Capital Investment Fund. In collaboration with the NJEDA, NJCST provided valuable expertise in the evaluation of NJEDA's Clean Energy Manufacturing Fund and its Net Operating Loss (NOL) program. And finally, in collaboration with both NJEDA and the BPU, NJCST worked through the ARRAG grant program.

Annual Program Budget

Due to decreasing tax revenues over this fiscal year, NJCST was again forced to make severe cuts in funding its programs as indicated in the Annual budget graph. In the face of tough spending challenges, NJCST chose to target its support in two areas: the New Jersey business incubation network and the New Jersey Technology and Entrepreneur Fellowship programs. In this way, NJCST was able to continue its significant impact in new job creation and federal and private investment dollars leveraged.

The primary funding for Research and Development during this period is accounted for by the Edison Clean Energy Fund. Monies for this fund are provided by the Board of Public Utilities.

Annual Science & Technology Program Budget



Fiscal Year 2009 Results at a Glance

Grants Awarded	30
Companies Assisted	14
Incubators Assisted	12
Number of Incubator Companies	557
Amount Awarded	\$ 2,521,740
Funds Leveraged	\$ 3,482,308
Jobs created or retained	>2,000

Program Overview

NJCST continues to support programs that address the continuum of commercialization in start-up companies. Below is a list of assistance programs the Commission has developed in order to accelerate the commercialization of new technologies. In parenthesis is the year in which the program was created. A brief description of each of these programs is highlighted below.

Technology Assistance Programs

- Edison Innovation Research and Development Fund
- Edison Renewable Energy Technologies Fund
- SBIR/STTR Bridge Grant & Training

Entrepreneur Assistance Programs

- New Jersey Technology Fellowship Program
- New Jersey Entrepreneur Fellowship Program

Technology Incubator Programs

Incubator Seed Fund

Technology Incubator Network

University Collaboration

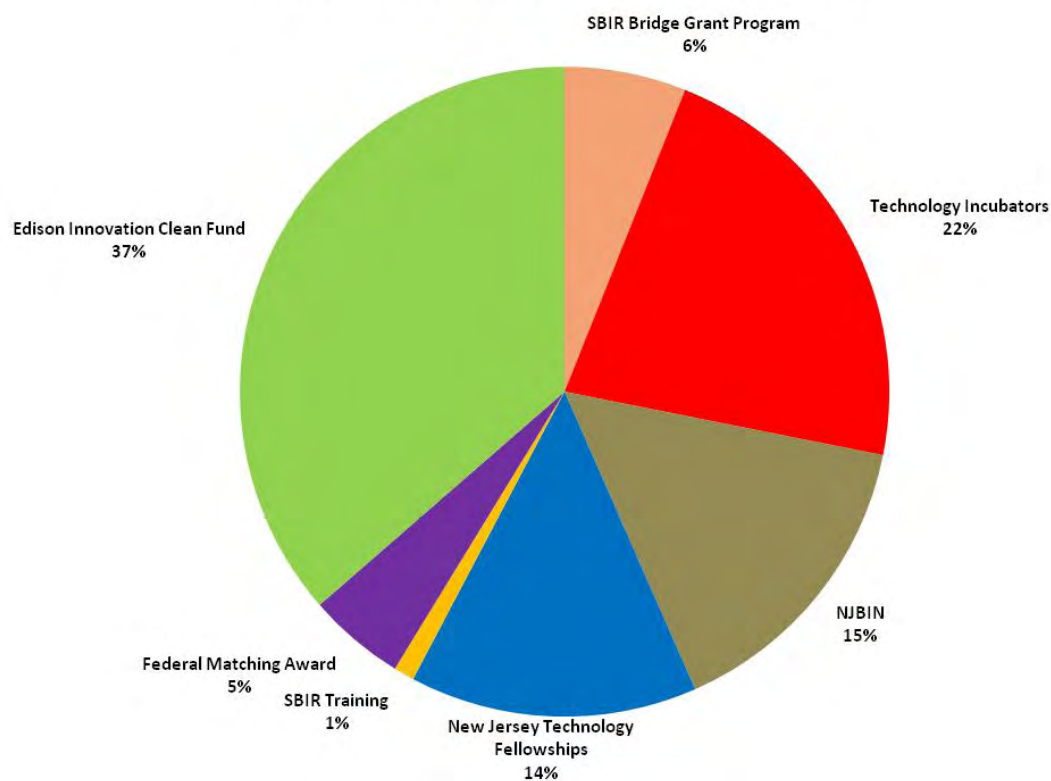
University Intellectual Property Program

Centers of Excellence Federal Matching Program

Overview of Funding Strategy

The decrease in the level of support for entrepreneurial, technology assistance and commercialization activities in 2009 reflects the state fiscal crisis during that period. In response to this crisis, NJCST undertook a re-alignment of funding to continue support for the most critical programs in the fellowship and business incubation areas.

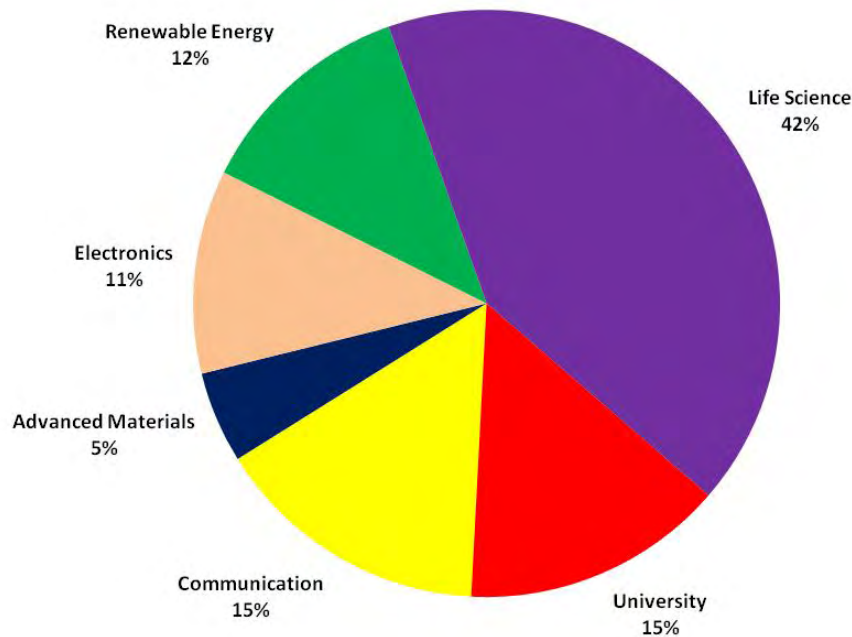
Fiscal Year 2009 NJCST Grant Expenditures



Our collaborative program with the BPU, the Edison Clean Energy Fund, accounts for the largest portion of our FY09 activities with technology incubation and the fellowship programs following close behind.

NJCST continues to be sensitive to the distribution of funds in all industry sectors. Our goal is to provide funding to all industry segments. Life science continues to dominate NJCST funding by both applications received and funding awarded at 42%. Other industry segments are more evenly distributed. Clean Energy Funding is up to 12% in FY09 from a mere 5% last year reflecting the emphasis on Clean Energy at the federal and state levels. As our fastest growing segment, we can expect that number to increase in the next several years as the industry matures.

Fiscal Year 2009 NJCST Grant by Industry Sector



Summary

The New Jersey Commission on Science and Technology (NJCST) was created by the New Jersey State Legislature in 1985 to provide 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, and representatives of state government including a representative of the Governor, the Commissioner of Education, and four legislators.

The New Jersey Commission on Science and Technology has a number of programs to assist New Jersey based high-tech start-up companies to successfully research, develop and commercialize their protected intellectual property.

- NJCST has been an effective mechanism for driving economic development in New Jersey by assisting the development and growth of strong science and technology businesses
- NJCST programs seek to leverage its grant awards from both private and federal funding sources. In FY 2009, the Commission awarded 30 grants to Technology Business incubators and early-stage technology companies and **leveraged \$3,482,308** in private and federal funds from **Commission grants of \$2,521,740**.
- At current estimates, this activity accounts for the **creation or the retention of over 2000 high paying science and technology jobs**.
- Through strategic investments in programs designed to promote high technology job growth and company success in New Jersey's science and technology, the Commission supports a clear and compelling science and technology policy that is essential to New Jersey's future economic prosperity.

As NJCST looks forward to FY10 and beyond, we will continue to support all areas of technology growth within New Jersey and work with Federal and State agencies to provide meaningful programs that support broad-based economic growth for the citizens of New Jersey.

Fiscal Year 2009 Budget Report

SBIR Bridge Grant Program

AppleChem Tech	\$49,500
Lenterra	\$50,000
Princeton Power	\$50,000
WeVoice	\$50,000
Princeton Optronics	\$50,000
Total	\$249,500

Technology Incubators

ACIN High Tech Incubator	\$65,000
Burlington High Tech	\$65,000
Burlington Life Science	\$65,000
EDA Commercialization Center	\$65,000
NJ Meadowlands Business Accelerator	\$40,000
NJIT EDC I,II,III	\$195,000
Jersey City	\$65,000
Picatinny	\$65,000
Rowan	\$65,000
Rutgers Camden	\$65,000
Rutgers EcoComplex	\$65,000
Rutgers Food Innovation	\$65,000
FDU Incubator Feasibility Study	\$25,000
Total	\$910,000

New Jersey Tech Fellowships

ExSar (Deepangi Pandit)	\$85,000
Neurotez (Steven Greco)	\$60,000
Phytomedics	\$85,000
Aestus Therapeutics (Meredith Prysak)	\$60,000
Lux Biosciences (Daniel Haders)	\$60,000
Treadstone Technologies (Joshua Finch)	\$60,000
Infostat	\$60,000
New Visual Media Group	\$60,000
TRIM-edicine	\$60,000
Total	\$590,000

Edison Innovation Federal Matching

Rutgers (P.I. Moghe)	\$100,000
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NJ BIN	\$630,000
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SBIR Training	\$42,240
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Total	\$2,521,740
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New Jersey Commission on Science and Technology
Fiscal Year 2010 Grants Budget
(as of August 31, 2009)

University Collaboration & Commercialization Activities

Technology Fellowship Program	\$1,195,000
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Sub Total	\$1,195,000
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Entrepreneur and Incubator Assistance

Entrepreneur Fellowship Program	\$520,000
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Incubators Programming	\$1,355,812
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Incubator Seed Fund	\$271,920
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Edison Innovation Research and Development Fund	\$3,195,000
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SBIR Program - Bridge Grants and Training	\$349,998
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Sub Total	\$5,692,730
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Clean and Renewable Energy Initiatives

Edison Renewable Energy Technologies Fund	\$500,000
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Edison Innovation Clean Energy Fund ^a	\$3,000,000
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Sub Total	\$3,500,000
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Total	\$10,387,730
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^a In collaboration with the Board of Public Utilities

Sector: Life Science

3D Biotek LLC North Brunswick, NJ.

Using its precision 3D Microfabrication technology, 3D Biotek is engaged in the development of novel 3-dimensional scaffolds for drug discovery, stem cell research and tissue engineering applications. The primary application of this novel scaffold will be for the treatment of severely degenerated or damaged bone and cartilage.



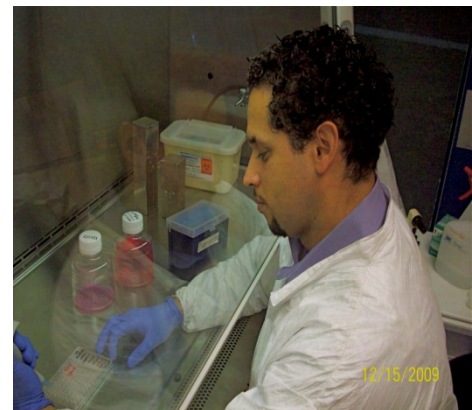
Bioabsorbable Stents

"The grants provided by NJCST have a significant impact and benefit to 3D Biotek over the past months in 2009. In particular, the Incubator Seed Fund received in 2008 allowed the company to develop a biodegradable scaffold product line. We were also able to further develop a bioabsorbable vascular stent fabrication technology. We are very excited about this novel technology as it may have great potential in the fabrication of 3rd generation bioabsorbable cardiovascular stents."

- Incubator Seed Fund (2008 – 2009)
- First Year Technology Fellowship to employ Dr. Marika Bergenstock (2008-2009)
- Second Year Technology Fellowship to employ Dr. Marika Bergenstock (2009-2010)
- First Year Technology Fellowship to employ Dr. Carlos Caicedo (2009-2010)
- First Year Entrepreneur Fellowship to employ Ms. Irina Briller (2009 – 2010)
- Edison Innovation R&D grant (2010 – 2011)



Irina Briller: Entrepreneur Fellow

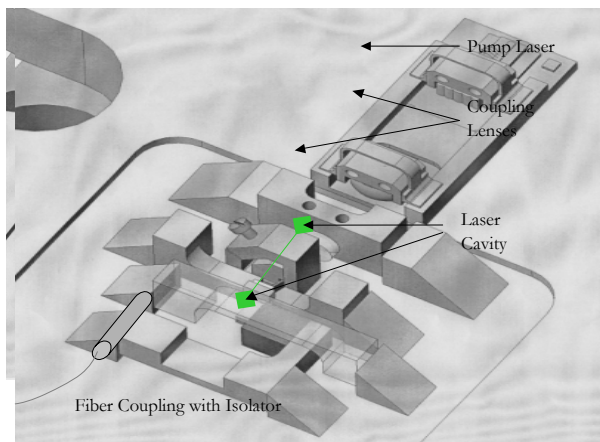


Dr. Carlos Caicedo: Technology Fellow

Sector: Electronics

Princeton Optronics Inc. Mercerville, NJ.

Princeton Optronics Inc has developed a unique technology to produce a very low phase noise tunable blue-color laser at 1550nm wavelength band in compact package. The company is developing a laser source using technology for communications and sensor applications that requires the low phase noise. The technology has been refined to produce high output power VSELs in compact and surface mount form.



Breadboard assembly for single frequency laser.



Packaged laser with electronic control

Awards from NJCST SBIR Bridge grant for:

- A Low Noise Tunable Wavelength Laser for Fiber.
- High Power, High Repetition Rate, Pulsed, Blue Laser for ASW Purposes.

Commission Members 2009

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. has been serving as chairman of NJCST since 2003.

Alain L. Kornhauser, Ph.D., Vice-Chairman

Dr Kornhauser is 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.

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. Mr. Casabona, Chairman of NJ Jumpstart Angel Network and Chairman Emeritus of the Research and Development Council of New Jersey, also serves on several academic and industry advisory boards.

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 nation's 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.

S. Yee Lee, Ph.D., Chairman and CEO of Yee Enterprise Solutions, Inc. Dr. Lee is a former AT&T Vice President of Software Systems, named an AT&T Fellow in 2001. 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 Motorola, Quorum and Sunwah Group to deploy RFID technology applications and auto dealership management systems worldwide.

Gregory Olsen, Ph.D., President, GHO Ventures in Princeton, NJ where he manages his "angel" investments. Dr. Olsen received a BS Physics a BSEE and MS Physics from Fairleigh Dickinson University, then was awarded a Ph.D. in Materials Science from the University of Virginia. He co-founded Sensors

Unlimited, a near-infrared camera manufacturer in 1992. 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 Senator Singer represents the 30th District, which includes parts of Ocean, Monmouth, Burlington and Mercer counties. He served three terms in the General Assembly, where he acted as Majority Whip from 1992 to 1993. He serves on the Ocean County Board of Health as Vice Chairman, the Board of Trustees of Georgian Court University in Lakewood and as a member of the Board of Directors of the Monmouth-Ocean Development Council.

Assemblyman Upendra J. Chivukula represents District 17, including parts of Middlesex and Somerset counties. He began his political career in 1997 as councilman for Franklin Township. Currently he is serving his fourth term in NJ General Assembly. He has a Masters in Electrical Engineering from City University, New York. Assemblyman Chivukula has extensive technical and business experience from his work at AT&T Bell Laboratories. He is chairman for the Telecommunications and Utilities Committee.

Assemblyman John E. Rooney represents District 39, including towns in Bergen County. He began his political career in 1976 as a councilman of Northvale. He served in the Air Force from 1961 to 1965. He was elected to the assembly in 1983. Assemblyman Rooney graduated from Rutgers University with a B.S. in Business Management. He also holds an A.A.S. degree in Language from Syracuse University.

Lucille Davy, Commissioner of the New Jersey Department of Education Lucille E. Davy has served as New Jersey's Commissioner of Education since 2005. She holds a bachelor's degree in mathematics from Seton Hall University and a juris doctorate from the University of Notre Dame School of Law. Commissioner Davy is a New Jersey certified math teacher, has taught at local and collegiate levels, and has been involved in education policy matters for more than a decade.

Angie McGuire was appointed Deputy Chief in the Governor's Office of Economic Growth for the state of New Jersey in March 2006 and also serves as a member of the NJEDA Board. She has more than 20 years in the Computing and Communications Industries at Lucent Technologies, NCR and AT&T. Ms. McGuire received her undergraduate degree in Economics and a Masters in Public Administration.

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

Commission Staff

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