

# ABSTRACTS

## HISTORIC SCHOOL BUILDING NOW PART OF NJIT

NJIT gained much-needed space for classrooms and other uses in June when ownership of the Central High School building at the eastern edge of the campus passed to the university.

Acquisition of the large structure had been initiated in 2008, when NJIT entered into a Sale and Purchase Agreement with the Newark Public Schools. All high school students have been



PHOTO: JOHN MICALE

*NJIT has begun renovation of Central High, where classes were first held in 1912.*

relocated to new facilities in Newark, and NJIT has begun renovation of Central High, where classes were first held in 1912.

NJIT's initial use of the building, which incorporates Jacobean and Gothic architectural features, will be for classrooms on the second floor. In addition to the installation of sprinkler and fire alarm systems, immediate improvements will include smart-classroom technology, new telecom and computer networks, and upgrades for lighting and temperature control.

The next issue of *NJIT Magazine* will include a feature on the progress of renovation at Central High and how this historic building will be integrated into the campus in keeping with the university's Landscape Master Plan. ■



## PRESIDENTIAL COMMUNITY SERVICE HONOR FOR NJIT

The President's Higher Education Community Service Honor Roll, an annual recognition program that celebrates exemplary commitment to service and volunteering by institutions of higher education, has added NJIT to its ranks. The university was recognized for implementing three

community service programs in 2009 under the auspices of NJIT's Division of Career Development Services. They were the Wachovia/NJDCA Housing and Community Development Scholars Program, the Civic Engagement Computer Center@NJIT (CECC@NJIT), and the NJIT "Community of Caring" Campaign.

The Wachovia/NJDCA initiative is a partnership between NJIT, The Wachovia Foundation, and the New Jersey Department of Community Affairs. During

2009, 37 student scholars from NJIT and five other New Jersey schools assisted 29 non-profit agencies throughout the state with affordable housing, community development, neighborhood revitalization, and economic development. The student-managed Civic Engagement Computer Center provides technical computer support for community agencies. The "Community of Caring" Campaign challenges the NJIT community to provide at least 10,000 hours of service each year to the people of New Jersey. ■

*"We are all proud of Dr. Lanzerotti's continued contributions to fundamental and applied science and technology."*

*NJIT Provost Ian Gatley*

## LANZEROTTI LEADS CAR ACCELERATION PROBE

Louis J. Lanzerotti, distinguished research professor in the Department of Physics, will lead the 16-member panel organized by the National Research Council of the National Academies to identify possible causes of unintended vehicle acceleration in the aftermath of Toyota's large recalls. The group, which held its first

Lanzerotti is a retired Distinguished Member of Technical Staff at Lucent Technologies, where his responsibilities included supervision of laboratories and research and development. His research interests include space plasmas, geophysics, and engineering challenges related to the impacts of atmospheric and space phenomena on space and terrestrial technologies.

Lanzerotti has chaired a number of NRC boards and committees, including the Space Studies Board, the Committee for the



PHOTO: JOHN MICALE

meeting in June in Washington, D.C., includes notable engineers, scientists and auto safety experts. They will review electronic systems across the auto industry.

"We are all proud of Dr. Lanzerotti's continued contributions to fundamental and applied science and technology. He brings a very broad background to a critical analytical task that has implications for the safety of millions of people," said NJIT Provost Ian Gatley.

A member of the National Academy of Engineering,

Assessment of Options for Extending the Life of the Hubble Space Telescope, the Committee on the Safety and Security of Commercial Spent Nuclear Fuel Storage, and the Army Research Laboratory Technical Assessment Board. He has been a principal researcher for NASA and commercial satellite missions. Currently, he has a key role involving instrumentation for NASA's dual spacecraft Radiation Belt Storm Probes mission scheduled to launch in 2012. ■

Visit NJIT Magazine online at <http://magazine.njit.edu> for links to more information about topics in this issue.



## ONLY ONLINE

This issue also includes a feature that you'll find only online – "Liberal Arts, Yew Trees and Combating Cancer." Shimon Schwarzschild '50, electrical engineer, has responded to "Bridging the Gulf - Science and the Liberal Arts Converge at NJIT," which appeared in the spring 2010 issue. He shares his thoughts about the value of the liberal arts in science curricula and his experiences as an environmental advocate in the controversy surrounding the protection of an important natural resource and the development of a potent cancer treatment.

It's online at <http://magazine.njit.edu/yews> or the QR link below. ■





*“It’s always a challenge when you come in with plans for a house that looks like nothing else on the street.”*

*Architect Richard Garber*

## MAYOR BOOKER CUTS THE RIBBON AT MEDICAL GENETICS LAB

CGC Genetics, Inc., the first private medical genetics laboratory in Portugal, recently inaugurated U.S. operations at NJIT’s Enterprise Development Center (EDC). The company selected Newark over other cities for its U.S. headquarters as a result of concerted efforts on the part of Brick City Development Corporation and the City of Newark.

CGC Genetics offers more than 1,500 clinical genetic laboratory tests in the areas of molecular diagnostics, cytogenetics, prenatal/pediatric screening, and cancer and personalized medicine. It will work with the Institute of Genomic Medicine at the University of Medicine and Dentistry of New Jersey to improve health in the U.S. and other countries. ■

[www.njit-edc.org](http://www.njit-edc.org)



PHOTO: COURTESY GRO ARCHITECTS

## GREEN AWARD FOR A PRETTYFAB HOUSE

The unique sustainable design of a single-family home in Jersey City – dubbed the PRETTYFAB house – has won a Project of

the Year Award from the city, presented in May at the Third Annual Green Awards ceremony. The design is the work of Assistant Professor of Architecture Richard Garber, Nicole Robertson and colleagues at their firm GRO Architects. The project has also received an award from the New Jersey Chapter of the American Institute of Architects, of which Garber and Robertson are members.

Designing the 1600-square-foot, prefabricated, super-sustainable house was not easy. “We were asked to set it on an undersized lot 22 feet wide and 54 feet deep, a derelict piece of land overrun with weeds,” says Garber. The budget was modest and the client wanted the home to resemble none of the others on a block of two-story wood-frame, now aluminum-sided, structures. “It’s always a challenge when you come in with plans for a house that looks like nothing else on the street,” he adds.

A modular green roof – which dissipates heat and slows the drainage of water – sits over a portion of the structure. Another segment has been optimized for solar collection and includes a 260-square-foot photovoltaic array. A battery stores excess energy produced. ■

## STEEL BRIDGE TEAM SWEEPS

For the fifth year in a row, NJIT’s Steel Bridge Team took first place in the Metropolitan Region Steel Bridge Competition, held on the Fairleigh Dickinson campus in Teaneck, New Jersey. NJIT bested schools that included Columbia University, Cooper Union and Stevens Institute.

“Under the highly able leadership of Giancarlo Fricano and Tien Tran, the NJIT Team placed first in every scoring category, including construction speed, lightness, stiffness, construction economy, structural efficiency and display,” said team advisor John Schuring, professor of civil engineering. “This is the first time ever that our students have achieved such a clean sweep.”

The rigorous competition requires teams to design and fabricate a bridge of approximately 1/10 scale and erect it under deadline pressure. The 20-foot long bridge must be lightweight, yet strong enough to sustain a 2,500-pound load.

The annual event is sponsored by the American Institute of Steel Construction and the American Society of Civil Engineers. Schiavone Constructors and Engineers of Secaucus was once again corporate sponsor of the NJIT team. ■

<http://civil.njit.edu>



PHOTO: CHRISTINA CROVETTO

Cutting the ribbon for CGC Genetics (from left): East Ward Council Member Augusto Amador, Newark Mayor Cory A. Booker, CGC Genetics CEO Dr. Purificação Tavares, Portuguese Ambassador to the United States Joao de Vallera, Deputy Mayor for Economic and Housing Development Stefan Pryor, NJIT Senior Vice President for Research and Development Donald H. Sebastian, and New Jersey Medical School Interim Dean Dr. Robert L. Johnson.



tives of science, music, and poetry. It has since been published in Australia, China, England, Germany, Italy, Korea, Spain and Taiwan as both a book and CD. Rothenberg is currently working on a book that assesses the connection between evolution and aesthetics, including the aesthetic power of Darwin's concept of natural selection. ■

For more about Rothenberg's research, see "Bridging the Gulf: Science and the Liberal Arts Converge at NJIT" in the winter 2010 issue and "Technology and the Music of Birds" in the spring 2006 issue online at <http://magazine.njit.edu>.

NJIT Board of Overseers Excellence in Research Prize and Medal: [www.njit.edu/about/boards/overseers/awards/prize-medal](http://www.njit.edu/about/boards/overseers/awards/prize-medal)

*Mile Song* was named one of the ten best science and technology books for 2008 by *Booklist Online*, a publication of the American Library Association.

Published in the U.S. in 2005, *Why Birds Sing* examined bird song from the combined perspec-

# HARMONIC CONNECTIONS

OVERSEERS HONOR INTERSPECIES RESEARCHER, MUSICIAN, BESTSELLING AUTHOR

For the third year, fall at NJIT is highlighted by presentation of the Overseers Excellence in Research Prize and Medal – awarded to Professor of Humanities David B. Rothenberg. The title of the program – *Harmonic Connections in Nature, Science, and Music* – reflects the essence of Rothenberg's research. The unique interdisciplinary character of the achievements honored is also vibrantly communicated by the tributes, multimedia presentations, and performances by clarinetist Rothenberg and pianist Marilyn Crispell comprising the event on October 6. Rothenberg's own overview of his research was complemented by remarks from Ofer Tchernichovski, neuroscientist and animal behaviorist distinguished for his insights into bird song, and Scott McVay, pioneering investigator of whale vocalizations.

A member of NJIT's faculty since 1992, Rothenberg's widely publicized studies of bird song and whale song explore the complex, complementary relationship between music and the scientific investigation of nature. In 2008, Rothenberg received NJIT's Excellence in Research Award for the College of Science and Liberal

Arts. His most recent book and CD, *Thousand Mile Song: Whale Music in a Sea of Sound*, chronicles the rich, underwater universe of whale vocalizations. Philosopher and musician, Rothenberg traveled from Hawaii to Russia, playing his bass clarinet while recording the sounds of whales in their native habitats. *Thousand*

## NJIT DEGREE A TOP INVESTMENT

"What's Your College Degree Worth?" a *Bloomberg Businessweek* survey of 852 U.S. colleges and universities looking for the best return on investment (ROI), has named NJIT as one of four institutions in New Jersey offering the best

deal. Ranked at number 81, NJIT is in the top 10 percent of all the schools surveyed. Princeton University, Stevens Institute of Technology and The College of New Jersey were also among New Jersey's four best buys. The study examined graduation rates, total cost to graduation, ROI as a percentage, 30-year net return on investments, and 30-year net return for graduates. ■





*NJIT has captured first place for eight of the last thirteen years in ASME's Annual Student Design Competition.*

## **SORTING OUT A GREEN CHALLENGE**

Michael Lowry knows how to sort things out. Last spring, the mechanical engineering major's single-stream recycling machine took first place in the Annual Student Design Competition sponsored by the American Society of Mechanical Engineers (ASME). Lowry's challenge was to develop an autonomous material sorter that could distinguish between ferrous and non-ferrous metals, plastics, ceramics and other solid materials for recycling.

Named Rufus after NJIT's mascot for all things green, Lowry's design features a cardboard sorter, glass bins for different materials, and a one-inch wide conveyor belt. In addition to a \$500 prize and trophy, he earned a place at the ASME national design competition scheduled for November in Vancouver.

NJIT has captured first place for eight of the last thirteen years in this competition. Among the contenders that Lowry faced were City College of New York, Drexel, The College of New Jersey, Rochester Institute of Technology, Stevens Institute, Tufts and Villanova. ■

<http://mechanical.njit.edu>



PHOTO: JASON GOMES

## **HABITAT FOR HUMANITY WINS WITH NJIT**

It's a win-win situation for Newark residents, NJIT, and architecture student Alexander Merlucci.\* For NJIT, it's recognition and a \$25,000 grand prize awarded by the National Council of Architectural Registration Boards (NCARB) for a townhouse design conceived in partnership with the Newark chapter of Habitat for Humanity. For area families, it's the chance to own affordable homes built with the latest sustainable materials and technologies. The \$25,000 prize will support continuing collaboration with Habitat for Humanity in Newark and the NJIT Habitat chapter.

Fourth-year architecture student Merlucci developed the winning townhouse design for the 2009 Habitat Options studio taught by Associate Professor Darius Sollohub and alumnus Jak Inglese '80, '83. Inglese, principal of Inglese Architecture and Engineering, is a widely recognized expert in the field of affordable, sustainable housing.

A key objective of the studio was to work with Newark residents to get real-world insights into their

housing needs and preferences, and to come up with a design that Habitat for Humanity could incorporate in a planned townhouse development. While most college design courses are largely exercises in aesthetics, this NJIT program focused on affordability, practicality and green design. All of the projects aimed at achieving high Leadership in Energy and Environmental Design (LEED) ratings, a designation that could earn grants from the State of New Jersey to underwrite the up-front costs of ecological design elements.

Merlucci and runner-up Cara Constantino\* are now working with Inglese to prepare blueprints for the winning design and obtain all municipal approvals. Once the plans are finalized and all approvals obtained, construction will be carried out by crews consisting mainly of volunteers, including the families who will become homeowners, in the traditional Habitat for Humanity manner. All Habitat homeowners contribute 400 hours of "sweat equity" to building their new homes, which are financed by zero-interest loans. ■

<http://design.njit.edu>

\*Dorman honors scholars



PHOTO: SHERYL WEINSTEIN

## BAR-NESS RECEIVES COMMUNICATION THEORY COMMITTEE AWARD

**Yeheskel Bar-Ness**, distinguished professor of electrical and computer engineering, is one of two recipients of the Communication

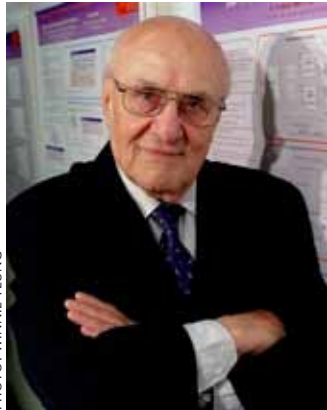


PHOTO: WINNIE YEUNG

Theory Technical Committee Service Award for 2009 presented by the Institute of Electrical and Electronics Engineers (IEEE).

The award recognizes Bar-Ness' sustained leadership of the Communication Theory Committee, his role in organizing the first communication theory mini-conference at a major symposium, and his leadership in founding *IEEE Communications Letters* and serving as its inaugural editor-in-chief. A Fellow and Lifetime Member of IEEE, Bar-Ness is director of NJIT's Center for Communications and Signal Processing Research. ■

the Royal Society of Chemistry in Cardiff, United Kingdom.

**Eric Katz**, professor in the Department of Humanities, presented a paper titled "The Nazi Engineers: Reflections on Technological Ethics in Hell" at the 2010 Forum on Philosophy, Engineering and Technology held in May at the Colorado School of Mines in Golden, Colorado.

**Taha F. Marhaba**, chair of the Department of Civil and Environmental Engineering, has been honored with the Distinguished Engineer Award from Rutgers University, presented annually to a graduate who has made significant technical contributions during their career. Marhaba earned his BS in civil engineering and MS and PhD in environmental engineering from Rutgers.

**Jay N. Meegoda**, professor in the Department of Civil and Environmental Engineering, has been named a Fellow by the American Society of Civil Engineers.

**Farzan Nadim**, professor in the Departments of Mathematics and Biological Sciences, will serve as a member of the Sensorimotor Integration Study Section, Center for Scientific Review of the National Institutes of Health (NIH). Study sections review grant applications submitted to the NIH, make recommendations on these applications to the appropriate NIH national advisory council or board, and survey the status of research in their fields of scientific expertise.

**Anthony D. Rosato**, professor in the Department of Mechanical and Industrial Engineering, has received a Fulbright Senior Research Award to study the dynamic behavior of systems composed of particles at the University of Salerno in Fisciano, Italy.

**Karl Schweizer**, professor of history, has received The Citation of Merit for outstanding contributions to historical studies from the International Biographical Association, based in Cambridge, England.



## \$1.5 MILLION GRANT FOR SOLAR RESEARCH CENTER

NJIT has received a \$1.5 million grant from Apollo Solar Energy, Inc. to establish a research center focused on advancing the use of cadmium telluride semiconductor materials in thin-film solar cells. Based in Chengdu, China, Apollo Solar Energy mines and refines tellurium and tellurium-based metals for the global electronics market.

"Solar arrays using thin-film technology have already proven to reduce the cost per watt to one-third the cost of conventional systems," says **Donald H. Sebastian**, NJIT's senior vice president for research and development. "Through diligent improvement in production, cost and quality, solar power can be a legitimate contender for much more than the small percentage of the global need that is now projected for photovoltaics." ■

## ARINZEH PRINCIPAL INVESTIGATOR FOR NEW NSF GRANT



**Treena Arinze**, associate professor in the Department of Biomedical Engineering, is the principal investigator for a \$390,000 National Science Foundation grant for research into the use of a novel smart material, in combination with stem cells, as a tissue engineering medium

for repairing severe cartilage defects. Co-principal investigators are **Michael Jaffe**, biomedical engineering research professor, and **Boris Khusid**, professor in the Department of Chemical, Biological and Pharmaceutical Engineering. Arinze and her colleagues will carry out integrated investigations that combine advances in materials science with engineering characterization techniques, nano-material characterization, microelectronics, stem-cell bioengineering, and molecular biology/bioengineering techniques. The studies could have a significant impact in the fields of tissue engineering and regenerative medicine, smart materials and biomaterials. ■

**Ali Abdi**, associate professor in the Department of Electrical and Computer Engineering, has been acknowledged for outstanding contributions and leadership in underwater acoustic communications with an IEEE Region 1 Award.

**Nancy W. Coppola**, professor of English, has received the 2010 Jay R. Gould Award for Excellence

in Teaching from the Society for Technical Communication.

**Sergiu M. Gorun**, associate professor in the Department of Chemistry and Environmental Engineering, was a member of a team that presented their research in May at the 43rd Annual International Meeting of the Electron Spin Resonance Spectroscopy Group of





## GRANT FOR ENERGY AUDITING COURSES

The U.S. Department of Energy has awarded NJIT nearly \$470,000 to create a series of comprehensive courses that will teach mechanical engineers in the New York Metropolitan Region how to improve the energy efficiency of existing buildings. The NJIT Center for Building Knowledge, headed by Executive Director Deane M. Evans, will organize and run the courses.

“The challenge for the past 30 years has been making new buildings more energy efficient,” says Evans. “However, during the past decade, the emphasis has turned to improving existing buildings. Hence there’s a greater need for cleaner-energy programs, and we’re here to rapidly turn out a new cohort of qualified energy commissioning agents, or auditors, for this region.”

Licensed engineers, architects and energy consultants who already have a strong base of knowledge and want to expand their services are encouraged to participate. For more information, contact Paul Romano, senior research architect, at the NJIT Center for Building Knowledge at 973-596-3098 or paul.romano@njit.edu. ■

# POINT BY POINT

The latest news about NJIT sports:  
[www.njithighlanders.com](http://www.njithighlanders.com)

## THREE SCORE DIVISION I ALL-ROOKIE HONORS

**Teddy Bickert\*, Mark Leiter, Jr. and Matt Petrone scored with spots on the 2010 New Jersey Collegiate Baseball Association Division I All-Rookie Team. Bickert and Petrone each saw action at multiple infield and outfield positions, and Leiter is a right-handed starting pitcher.**



PHOTOS: LARRY LEVANTI

Clockwise from top left: Teddy Bickert, Mark Leiter Jr. and Matt Petrone

Bickert, who broke the school record for hits (66; old record was 59) and games played (56; old record was 50), also led the 2010

Highlanders in batting average (.322), sacrifice bunts (4), games played and started (56), and at-bats and plate appearances.

*NJIT is one of eight schools whose players are eligible for NJCBA Division I All-State Teams.*

Petrone, who fought through injuries that caused him to miss seven games, had a strong year with a .290 average, 186 at-bats, 31 runs (second on the team), six doubles, a team-best three triples, a home run, and 17 runs batted in. Petrone’s 17 stolen bases were a new school Division I record and he was also second on the 2010 team with 16 multiple-hit games. While his primary position was left field, where he started 35 times, he also played center field (6 games), was the designated hitter in five games, and the second baseman in three.

Leiter comes from one of New Jersey’s leading baseball families – his father, Mark, Sr., and uncle, Al, are retired long-time major league pitchers, and his uncle, Kurt, is also a retired professional pitcher. A workhorse for NJIT as a freshman, he shared the team lead in wins (3) with classmate Tripp Davis and led NJIT in innings pitched (81.1) and strikeouts (60), while accounting for four of his team’s six complete games. His 14 games started also tied Davis for the team lead.

NJIT is one of eight schools whose players are eligible for NJCBA Division I All-State Teams, joining Fairleigh Dickinson (Teaneck), Monmouth, Princeton, Rider, Rutgers, Saint Peter’s and Seton Hall. The teams are chosen in an annual meeting with representatives of each school (usually the head coach) having one vote and being restricted from voting for their own players. ■

*\*Dorman honors scholar*

## A CONCRETE GIFT



Vincent J. Naimoli and his wife, Lenda, at Celebration 2009.

Support for NJIT takes many forms, and some are literally concrete. In the case of the Naimoli Family Recreation Center, it's steel and a host of other materials...including concrete. Thanks to a gift from the family of Vincent J. Naimoli '62, this addition to the Estelle and Zoom Fleisher Athletic Center will more than double the amount of space available for recreational sports, intramurals, athletic practice sessions and other school activities.

Built in 1967 and expanded in 1990, the Fleisher Athletic Center has been hard pressed to accommodate the needs of the university's growing student body. The new addition, which is expected to be available for use in early 2011, will add some 24,000 square feet to the Athletic Center's current 17,000 square feet of floor space.

The Naimoli family has long been among NJIT's most generous supporters. Naimoli, who

earned a master's in mechanical engineering at Newark College of Engineering, is chairman emeritus and founder of the Tampa Bay Rays and a member of the university's Board of Overseers. As chief executive officer of Anchor Industries International, he was voted 1995 Florida Entrepreneur of the Year in the turnaround category. In 1999, he received the Ellis Island Medal of Honor from the National Ethnic Coalition of Organizations, and in 2004 was inducted into the National Italian-American Sports Hall of Fame.

NJIT Athletics Director Lenny Kaplan explains that plans for the fully air-conditioned Naimoli Center include a floor surface

*Plans for the Naimoli Center include a floor surface suitable for a variety of indoor recreational sports and intramural competitions.*

suitable for a variety of indoor recreational sports and intramural competitions. The wood floor of the Fleisher Athletic Center provides a venue suited primarily for basketball and volleyball. "The new space will accommodate indoor tennis, soccer, cricket and other recreational activities," Kaplan says. "But that's not the full story. It will be 'programmable' space that allows multiple uses at the

same time. We also see it as being available for pre-college programs, career fairs, conferences – you name it."

Comparing the NJIT of today with the institution of his days as a graduate student, Naimoli says, "Academic growth, the construction of new buildings, and improvements in the overall appearance of the campus have been amazing. Adequate facilities for athletics and personal physical fitness are an important part of this progress. They encourage activity that I feel is really valuable for a healthy outlook on life as well as a healthy body. I'm very pleased that the Naimoli family can help to provide state-of-the-art space that the NJIT community needs not only for recreational athletics, but for a wide range of other uses." ■



The Naimoli Family Recreation Center under construction

PHOTO: JOHN MICALE