ABSTRACTS

THIRD BROTHER WINS A GOLDWATER

It runs in the Naqvi family – winning prestigious Goldwater Scholarships. Faizan Naqvi recently joined his brothers Mohammad and Salman as recipients of the scholarship named in honor of the late Senator Barry M. Goldwater.

Bestowed by the federally endowed Goldwater Foundation, the award is intended to encourage outstanding students to pursue careers in mathematics, the natural sciences and engineering.

Like his brothers, Faizan grew up in Pakistan and attended a high school affiliated with Cambridge University. He also followed them to the U.S. and NJIT, where he enrolled in Albert Dorman Honors College and the BS/MS program in electrical engineering. Solar research that Faizan, now a senior, started as a freshman with Distinguished Professor of Physics Haimin Wang helped him win his Goldwater.

Mohammad, who graduated in 2009, works as an electronics engineer for Lockheed Martin Space Systems, where he focuses on antenna design and testing. He's also enrolled in a master's program in engineering management at Columbia University. Salman graduated in 2010 and is studying for his master's in electrical engineering at Stanford University, where he researches the effects of the earth's atmosphere on wireless communication. ■

http://ece.njit.edu

CLEANER POWER FROM COAL

A team that included Trevor Tyson, professor of physics, and Haiyan Chen, postdoctoral research associate, has developed self-cleaning technology for anodes that are a key component of fuel cells which promise a cleaner and more efficient alternative to conventional power plants for producing electricity from the nation's abundant coal reserves. The advance greatly reduces the buildup of carbon deposits on the nickel and ceramic anodes that can deactivate them, especially when the cells are operated with carbon-containing fuels such as coal gas or propane at relatively low temperatures.

In addition to NJIT's Tyson and Chen, the team brought together researchers from Georgia Institute of Technology, Brookhaven National Laboratory and Oak Ridge National Laboratory. Support was provided by the U.S. Department of Energy's Office of Basic Energy Sciences through the Heterogeneous Functional Materials Center (HeteroFoaM), an Energy Frontier Research Center. The team's results were reported in "Promotion of water-mediated carbon removal by nanostructured barium oxide/nickel interfaces in solid oxide fuel cells," published June 21 in *Nature Communications*. ■

http://physics.njit.edu

PRESIDENTIAL AWARD HONORS ACROW

Acrow Corporation, whose president is alumnus Bill Killeen '83, has been awarded the Presidential "E" Award for Exports by the U.S. Department of Commerce. The "E" Awards are the highest recognition any U.S. entity may receive for making a significant contribution to the expansion of exports. Based in Parsippany, New Jersey, Acrow is a leading international bridge engineering and supply company.

"Exports are a key driver of America's economic recovery," said Secretary of Commerce Gary Locke at the May ceremony in Washington D.C. honoring award recipients. "President Obama's National Export Initiative, which aims to double U.S. exports by 2015 in support of several million American jobs, is a robust, forward-looking trade agenda with an emphasis on domestic job growth. Acrow Corporation of America is being honored today for making significant contributions toward fulfilling that agenda."

President Kennedy revived the World War II "E" symbol of excellence in 1961 to honor America's exporters. In addition to Acrow, 26 other U.S. companies were presented with the "E" Award at the ceremony, one of the events held during World Trade Week. ■

From left: U.S. Commerce Secretary Gary Locke, Acrow Vice President Mark Joosten, Acrow President Bill Killeen, U.S. Commerce Under Secretary Francisco Sanchez

Egbelu served previously as dean of the National Science Foundation Academy and as dean of engineering at Louisiana State.

NEW DEAN AT SOM

PHOTO: BUD GLICK

Pius J. Egbelu, formerly professor of industrial engineering at Louisiana State University, has been named dean of the NJIT School of Management (SOM). He has also been appointed a distinguished professor and holder of the Then & Clark Chair.

Egbelu served previously as dean of the National Science Foundation (NSF) Academy and as dean of engineering and Bert Turner Distinguished Professor at Louisiana State. Prior to his tenure at LSU, he was chair of the Department of Industrial and Manufacturing Systems Engineering at Iowa State University, program director for production systems and operations research at the NSF, assistant professor and associate professor of industrial and manufacturing engineering at Pennsylvania State University, and assistant professor of industrial engineering and operations research at Syracuse University.

Egbelu has been vice chair of the Academic Coalition for Intelligent Manufacturing Systems and a member of the Federal Aviation Administration Advisory Board for Air Traffic Controller Staffing Standards. He has also served on advisory boards of directorates and committees of visitors at the NSF, and on the board of the Louisiana Foundation for Excellence in Science, Technology and Education.

The new dean holds a BS in industrial engineering from Louisiana Tech University, and an MS and PhD in industrial engineering and operations research from Virginia Tech. He is a Fellow of the Institute of Industrial Engineers and a licensed engineer in the State of Louisiana.

Look for an interview with Dean Egbelu in a future issue of *NJIT Magazine*. ■

http://management.njit.edu

"We're hoping our work will have far-reaching consequences in bringing good, clean water to the people who need it."

ELECTRONIC HEALTH RECORDS FOR THE GARDEN STATE

Converting the paper-based patient medical records of New Jersey's primary health care providers to an Electronic Health Record (EHR) system is no easy task considering that the state has over 20,000 primary care physicians. But the New Jersey Health Information Technology Extension Center (NJ-HITEC) has been established by NJIT, through a $23 million federal grant, to do just that.

NJIT was awarded this grant – the largest in the history of the U.S. Department of Health and Human Services, Office of the National Coordinator – to support and assist New Jersey's primary care providers in selecting, implementing, and achieving "meaningful use" of an EHR system. Senior Vice President for Research and Development Donald Sebastian is the principal investigator for the grant.

Executive Director Bill O'Byrne is a seasoned veteran in health information technology. O'Byrne explains, "Our philosophy at NJ-HITEC is that we offer one product – a satisfied doctor. We understand all of the barriers that doctors face when trying to select, implement, and meaningfully use EHR technology. We provide the practical, useful information and instruction that doctors need to overcome the obstacles and challenges that they face throughout the process."

NJ-HITEC is one of only 62 Regional Extension Centers (RECs) throughout the country established to improve American health care delivery and patient care through investment in health information technology. O'Byrne adds, "Everyone will benefit from the savings that will flow from a fully implemented and integrated EHR system because of more efficiency and less costly treatments and tests." ■

For more information about NJ-HITEC: visit www.njhitec.org, call (973) 642-4055 or e-mail info@njhitec.org

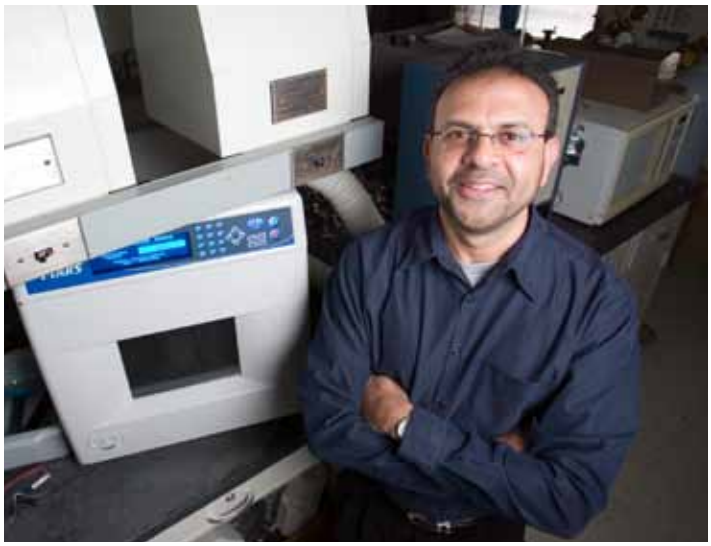

PHOTO: KAI CHAN

MORE FRESH WATER FOR THE WORLD

A better, less costly membrane desalination process enhanced with carbon nanotubes has been developed by Professor Somenath Mitra, chair of the Department of Chemistry and Environmental Science.

"The current membrane distillation method for desalination is too expensive for use in most countries and municipalities that need potable water," Mitra explains. "Generally, only industry, where waste heat is freely available, uses this process. However, we're hoping our work will have far-reaching consequences in bringing good, clean water to the people who need it."

Membrane distillation is a water-purification process in which heated salt water flows through a tube-like membrane. "Think of your intestines," says Mitra, "nutrition passes through the walls but not the waste." Similarly, membrane distillation allows only water vapor to pass through the membrane wall and not the liquid. Potable water emerges from the net flux of water vapor that moves from the warm to the cool side. Salt water continues to flow through as body waste would in the intestines.

"The biggest challenge," says Mitra, "is finding membranes that encourage high water-vapor flux but prevent salt from passing through." Mitra's new method creates a better membrane by immobilizing carbon nanotubes in the minute membrane pores. The novel architecture not only enhances vapor permeation but also prevents liquid water from clogging the pores.

Tests show a dramatic increase in the production of potable water. In addition, the new architecture facilitates distillation at a temperature 20°C lower and with a flow rate six times greater than the conventional membrane process. ■

http://chemistry.njit.edu

BRIDGE TEAM WINS AGAIN… AND AGAIN

PHOTO: WAYNE J. BUKEWICZ

For the sixth 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.

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

NJIT bested schools that included Columbia University, Cooper Union and Stevens Institute.

END NOTES

PHOTO: KAI CHAN

PRESERVATION AWARD FOR SCHUMAN

Anthony Schuman, associate professor of architecture, has been honored with the Charles Cummings Award from the Newark Preservation and Landmarks Committee (NPLC). The late Charles Cummings was supervising librarian of the Newark Public Library's New Jersey Room for many years and the city's official historian.

Schuman, a teacher at NJIT for three decades, was recognized for his accomplishments in preserving and recording the history of Newark, and for his commitment to helping the city refurbish its reputation. Beginning with research for the Tri-City Citizens Union for Progress in 1979 and service on the boards of NPLC and the Lincoln Park/Coast Cultural District Inc., Schuman has been consistently engaged with Newark's civic and neighborhood organizations. ■

Shanthi Gopalakrishnan, professor and associate dean in the School of Management, has been named a Fellow of the Eastern Academy of Management, a regional affiliate of the Academy of Management.

Norman W. Loney, chair of the Otto H. York Department of Chemical, Biological and Pharmaceutical Engineering, has been elected a Fellow of the American Institute of Chemical Engineers, the highest honor that can be bestowed on a member of the institute.

Priscilla Nelson, professor of civil and environmental engineering, has received the Henry L. Michel Award for 2011. This award was established in 1996 in honor of Henry L. Michel, past chairman of the Board of Directors of the Civil Engineering Forum for Innovation. It acknowledges individuals whose dedication and vision have improved the quality of people's lives around the world through research in the design and construction industry.

Ronald H. Rockland, chair of the Department of Engineering Technology, has been named a Fellow of the American Society for Engineering Education.

Yanchao Zhang, assistant professor in the Electrical and Computer Engineering Department, has received a $400,000 National Science Foundation Faculty Early Career Development Award, which recognizes individuals likely to become academic leaders. He received the award for his research project "Dependable Data Management in Heterogeneous Sensor Networks."