FESC
Florida Energy Systems Consortium

FLORIDA ENERGY CONNECTIONS

Issue 2 • March 2013

Florida Energy Systems Consortium

University of Florida, Nuclear Science Building, Room 202-A, Gainesville, FL 32611

www.floridaenergy.ufl.edu

352.392.0947

Inside this Issue

Upcoming Events:

A Celebration of Innovation: 2013 Technology Showcase—March 14, 2013- Gainesville, FL
Read more

Power Up Energy Expo—March 18-20, 2013– Emerald Coast Conference Center, Fort Walton Beach, FL
Read more

Solar Power Finance & Investment Summit 2013—March 18-22, 2013 – San Diego, CA
Read more

Redrawing the World's Energy Map—March 26, 2013– Miami, FL
Read more

Sustaining Economies and Natural Resources in a Changing World: Key Role of Land Grant Universities—April 2-4, 2013– Gainesville, FL
Read more

UF Professor Gets Key Position at National Science Foundation

Pramod P. Khargonekar, a professor in the department of electrical and computer engineering at UF, was chosen by the National Science Foundation to oversee nationwide engineering research programs

The National Science Foundation has selected a University of Florida engineering professor to serve as assistant director for the Directorate of Engineering, where he will oversee nationwide engineering research programs with an annual budget of $800 million.

Pramod P. Khargonekar, a professor in the department of electrical and computer engineering at UF, will start his NSF position in March. Since September, he has been deputy director for technology at the U.S. Department of Energy's Advanced Research Projects Agency-Energy. Both positions are based in Washington, D.C.

Khargonekar still will serve as a UF professor, coming to Gainesville on a monthly basis and supervising doctoral students.

Key Position Continued on page 2

Key Position continued from page 1

"I'm just delighted to have been selected for this wonderful opportunity," Khargonekar said about his NSF appointment.

During Khargonekar's career, he has done research in many areas, including semiconductor manufacturing, smart grid and renewable energy and the modeling and control of neural systems. He received both his master's in mathematics and his doctorate in electrical engineering from UF. Originally from India, he received his bachelor's in engineering from the Indian Institute of Technology.

NSF Director Subra Suresh, in a media release, said, "Dr. Khargonekar brings to NSF extensive leadership, creativity and initiative in engineering research. He has helped pioneer interdisciplinary efforts between the biological and engineering research communities and demonstrated a deep appreciation for developing the STEM workforce, which is a NSF priority."

Khargonekar said attracting students to study STEM (science, technology, engineering and mathematics) disciplines is one of his longstanding goals.

"This is a workforce issue for the nation," he said. "Our students compete all around the world. We need to ensure they are prepared to be part of this global economy."

Khargonekar is particularly dedicated to the recruitment of women and minorities to engineering fields, retaining first-year college students, and inspiring interest in STEM fields among high school students.

He said that the NSF, through fellowships for students, plays "a significant role" in engineering education.

In Khargonekar's new position, he will help provide funding and oversight to academic research institutions for cutting-edge engineering research projects, he said.

"A major emphasis is on interdisciplinary research," he said, adding that, "I will be also working with other federal agencies to enhance engineering research throughout the country."

FPL Funds Florida Tech Professor for Wind Energy Project

MELBOURNE, FLA. - Y.I. Sharaf-Eldeen, associate professor in the Florida Institute of Technology Department of Mechanical and Aerospace Engineering, received a one-year, $54,107 research grant from Florida Power & Light Co. (FPL) to study the wind resource potential in the utility's service area. Sharaf-Eldeen and his team will evaluate the performance and energy production of small-scale wind turbine systems in order to select appropriate system designs and assess their energy production and impacts on the utility system.

"In today's world, energy sustainability is paramount. To this end, the Florida Tech Institute for Energy Systems (IES) promotes research in the areas of renewable energy, smart grids and electric vehicles; we are building energy-efficient systems," said Florida Tech Dean of the College of Engineering and Harris Professor of Electrical Engineering Fredric Ham. Sharaf-Eldeen, co-director of the IES, spearheads many of these efforts, which include heating, air-conditioning, refrigeration and lighting.

FLATE, FESC Partner for Workforce Development, Builds Skills for High Tech Careers

The Florida Advanced Technological Education Center (FLATE), a National Science Foundation (NSF) Center of Excellence in high technology manufacturing, is the go-to organization for manufacturing and advanced technical education, best practices, and resources supporting the high performance skilled workforce for Florida's manufacturing sectors.

Administratively based at Hillsborough Community College in Tampa, Fla., FLATE provides exemplary industry partnerships, workforce opportunity and educational synergy throughout the state of Florida by connecting industry and workforce needs to targeted educational endeavors at 14 community and state colleges across Florida.

The Florida Advanced Technological Education Center (FLATE), a National Science Foundation (NSF) Center of Excellence in high technology manufacturing, is the go-to organization for manufacturing and advanced technical education, best practices, and resources supporting the high performance skilled workforce for Florida's manufacturing sectors.

Administratively based at Hillsborough Community College in Tampa, Fla., FLATE provides exemplary industry partnerships, workforce opportunity and educational synergy throughout the state of Florida by connecting industry and workforce needs to targeted educational endeavors at 14 community and state colleges across Florida.

The Engineering Technology (ET) Associate of Science degree and certificate programs--conceived, engineered, and coordinated by FLATE--focus on a set of core courses covering introductory computer-aided drafting, electronics, instrumentation and testing, processes and materials, quality, and safety. These core skills support the Florida workforce, and align with the national Manufacturing Skill Standards Council (MSSC) Certified Production Technician certification, providing value-added benefits to industry. The ET core, coupled with a second-year degree specialization, prepares students for jobs in manufacturing and high technology industries. The ET degree also provides students with accelerated pathways to four-year degrees.

"The Advanced Technological Education (ATE) Program at the National Science Foundation (NSF) focuses on the education of technicians for high technology fields. ATE supports rigorous educational programs that incorporate industry recognized skills and competencies to prepare a qualified technical workforce for industries that are vitally important to the nation's prosperity and security. ATE impacts two-year college students, empowers their educators, and facilitates productive partnerships among community colleges and between them and industry. The Florida ATE Center, FLATE, is providing strong leadership in the vitally important area of advanced manufacturing, and the FLATE Center is impacting, both regionally and nationally, the education of technicians in the fields of advanced manufacturing."

~ Dr. Celeste Carter, ATE program director, Division of Undergraduate Education, NSF

"FLATE has led the charge in developing, marketing and supporting curriculum frameworks that directly impact Florida's diverse sector of manufacturing-related industries, its employers and employees. Their efforts clearly illustrate a high level of collaboration and commitment by promoting active engagement in rigorous and technologically relevant programs of study and,

High Tech Careers continued on page 4

High Tech Careers continued from page 3

through this effort, FLATE directly supports the economic development goals of Florida in the area of manufacturing technology."

~ Eric Owens, senior educational program director for Adult and Career Education in the Florida Department of Education

"The exceptional support and direction provided by the Florida Advanced Technological Education Center (FLATE) has been instrumental in the progression of Tallahassee Community College's engineering technology program from non-credit to credit certificates to an Engineering Technology associate degree with a concentration in advanced manufacturing that will better serve the students and employers in Northwest Florida."

~ Bruce Batton, program manager, AMTC, Tallahassee Community College

"Harris values the ETdegree program graduates. The knowledge they gain from classes and the experience they gain in the lab gives them a thorough understanding of the subject matter. They come to the manufacturing floor with a higher level of confidence and self-assurance. Graduates of the ET program also increase their opportunity for doing more challenging work."

~ Michael Ennis, manufacturing engineer, Harris – GCSD

"The Florida Advanced Technological Education Center, or FLATE for short, has been of immeasurable help to MACNY, the Manufacturers Association and our partner community colleges in the State University of New York (SUNY) system. We learned of FLATE through a National Association of Manufacturers' Manufacturing Institute webinar almost two years ago. Since that time, FLATE has provided technical support as we begin to reconnect manufacturing within our region to the A.S. degree programs that are needed to support this new face of manufacturing. The FLATE-designed and Florida Department of Education-implemented A.S. Engineering Technology degree program with its industry certificate articulation is the guiding example for our efforts."

~ Bruce F. Hamm, JD, director of Business Engagement, The Manufacturers Association

This material is based upon work supported by NSF under grant numbers 1204751 and 0802436.

--conceived, engineered, and coordinated by FLATE--focus on a set of core courses covering introductory computer-aided drafting, electronics, instrumentation and testing, processes and materials, quality, and safety. These core skills support the Florida workforce, and align with the national Manufacturing Skill Standards Council (MSSC) Certified Production Technician certification, providing value-added benefits to industry. The ET core, coupled with a second-year degree specialization, prepares students for jobs in manufacturing and high technology industries. The ET degree also provides students with accelerated pathways to four-year degrees.

"The Advanced Technological Education (ATE) Program at the National Science Foundation (NSF) focuses on the education of technicians for high technology fields. ATE supports rigorous educational programs that incorporate industry recognized skills and competencies to prepare a qualified technical workforce for industries that are vitally important to the nation's prosperity and security. ATE impacts two-year college students, empowers their educators, and facilitates productive partnerships among community colleges and between them and industry. The Florida ATE Center, FLATE, is

High Tech Careers continued on page 5

High Tech Careers continued from page 4

providing strong leadership in the vitally important area of advanced manufacturing, and the FLATE Center is impacting, both regionally and nationally, the education of technicians in the fields of advanced manufacturing."

~ Dr. Celeste Carter, ATE program director, Division of Undergraduate Education, NSF

"FLATE has led the charge in developing, marketing and supporting curriculum frameworks that directly impact Florida's diverse sector of manufacturing-related industries, its employers and employees. Their efforts clearly illustrate a high level of collaboration and commitment by promoting active engagement in rigorous and technologically relevant programs of study and, through this effort, FLATE directly supports the economic development goals of Florida in the area of manufacturing technology."

~ Eric Owens, senior educational program director for Adult and Career Education in the Florida Department of Education

"The exceptional support and direction provided by the Florida Advanced Technological Education Center (FLATE) has been instrumental in the progression of Tallahassee Community College's engineering technology program from non-credit to credit certificates to an Engineering Technology associate degree with a concentration in advanced manufacturing that will better serve the students and employers in Northwest Florida."

~ Bruce Batton, program manager, AMTC, Tallahassee Community College

"Harris values the ET degree program graduates. The knowledge they gain from classes and the experience they gain in the lab gives them a thorough understanding of the subject matter. They come to the manufacturing floor with a higher level of confidence and self-assurance. Graduates of the ET program also increase their opportunity for doing more challenging work."

~ Michael Ennis, manufacturing engineer, Harris – GCSD

"The Florida Advanced Technological Education Center, or FLATE for short, has been of immeasurable help to MACNY, the Manufacturers Association and our partner community colleges in the State University of New York (SUNY) system. We learned of FLATE through a National Association of Manufacturers' Manufacturing Institute webinar almost two years ago. Since that time, FLATE has provided technical support as we begin to reconnect manufacturing within our region to the A.S. degree programs that are needed to support this new face of manufacturing. The FLATE-designed and Florida Department of Education-implemented A.S. Engineering Technology degree program with its industry certificate

FSU Inks Deal to License New Supercapacitor Invention

The ink is still drying on an agreement between Florida State University and Tallahassee-based General Capacitor LLC for the development of a new supercapacitor technology destined to play a major role in the world's future energy usage and storage needs.

Invented in FSU's Aero-Propulsion, Mechatronics and Energy Center (AME), and Center for Advanced Power Systems(CAPS) by Jim P. Zheng, a Florida A&M University-Florida State University College of Engineering professor, the new technology addresses current supercapacitor weaknesses that limit their effective use compared to traditional rechargeable battery technology.

"Supercapacitors have great advantages over rechargeable batteries in that they charge and discharge energy very rapidly and last much longer overall," Zheng said. "However, the cost of those advantages is a smaller pool of energy to draw from, which currently limits how and where they can be used. This new technology significantly increases their energy pool, opening up a range of new uses in areas such as the automotive and alternative energy industries."

Under the new agreement, General Capacitor will work with Zheng to transform the invention into commercially viable products that can positively impact society. Examples of potential uses include rapid-charge electric buses used in city transportation, buffers for short-term power grid outages, providing more reliable bursts of energy for heavy lifting equipment such as forklifts, and improving the effectiveness of new fuel cell-powered automobiles.

"Licensing deals like this are very exciting events not only for the inventor and their university, but for local, national and global communities as well," said FSU Vice President for Research Gary K. Ostrander. "They signify the commercial recognition of a discovery that can be used to enhance our lives in new and meaningful ways."

Research and Development operations for the new technology will be housed in the Tallahassee area to ensure close collaboration between Zheng and General Capacitor, with full production of a commercial product expected in two to three years.

To learn more about FSU's research commercialization efforts, visit the Office of IP Development and Commercialization.

Siemens Chooses Orlando for Wind-Turbine Training Center with 50 Jobs

Siemens Energy Inc. announced Wednesday it will open a wind-turbine training center in an existing business park near Orlando International Airport.

Orlando was competing with an existing Siemens training center in Houston to land the new operation, where a staff of 50 will host as many as 100 wind-turbine workers each week.

Siemens Energy had picked Orlando as a possible location because of the airport's size and because the company's headquarters is nearby in east Orange County, near the University of Central Florida.

Recent Funding Opportunities

FESC office tracks the energy related funding opportunities, shares them with faculty and industry partners, facilitates the submission of multi-faculty, multi-SUS university competitive proposals in response to solicitations for major research programs. The most recent funding opportunities are listed below. For a complete list please visit the funding opportunities page on the FESC website.

- **National Geothermal Student Competition**
  Application due date: March 29th, 2013
  More Information

- **NSF 13-545- Scalable Nanomanufacturing**
  Application due date: March 20, 2013
  More Information

- **DE-FOA-0000856: Grid Engineering for Accelerated Renewable Energy Deployment (GEARED)**
  Submission Deadline: April 19th, 2013
  More Information

- **DE-FOA-0000857-Diversity in Science and Technology Advances National Clean Energy in Solar (DISTANCE-Solar)**
  Full Application: March 25th, 2013
  More Information

- **DE-FOA-0000784-Advanced Gasification Technologies Program**
  Application Due Date: April 22nd, 2013
  More Information

- **DE-FOA-0000861-Physics of Reliability: Evaluating Design Insights for Component Technologies in Solar (PREDICTS)**
  Full Application: April 29th, 2013
  More Information

- **HQ0147-13-ATI-BAA**
  Full Application: March 1, 2015
  More Information

- **Theoretical Research in Magnetic Fusion Energy Science DE-FOA-0000879**
  Letter of Intent: April 12, 2013
  More Information

- **Directed Bioeffects Research (DEBR) BAA-HPW-RHDR-2013-0002**
  Response date: April 12, 2013
  More Information