Hameed Naseem Named Fellow of National Academy of Inventors

Arkansas Newswire, January 16, 2014

Hameed Naseem, a professor of electrical engineering at the University of Arkansas, has been named a fellow of the National Academy of Inventors.

Naseem is the first faculty member from the university to be elevated to fellow status by the academy. He and nearly 150 other fellows in the class of 2013 will be recognized with a full-page announcement in The Chronicle of Higher Education on Jan. 17, 2014, and in forthcoming issues of Inventors Digest and Technology and Innovation – Proceedings of the National Academy of Inventors.

Election to NAI Fellow status is a high professional distinction accorded to academic inventors who have demonstrated a highly prolific spirit of innovation in creating or facilitating outstanding inventions that have made a tangible impact on quality of life, economic development and the welfare of society, according to the academy.

“I was really pleased to hear that I had been elected fellow of the National Academy of Inventors,” said Naseem, who is named on eight issued patents to the U of A and was initiated into the academy last spring. “This recognition is a great honor for me, as all my academic life I have emphasized the awakening the ‘inventor spirit’ in my graduate students. In all my patents and patent applications students are co-inventors with me.

“The University of Arkansas provides a research environment conducive to quality research and a very supportive technology licensing office,” he said.

Naseem, who came to the U of A in 1985, directs the campus’ Photovoltaics Research Lab. Through the last two-and-a-half decades he and his graduate students have found ways to increase sunlight-to-electricity conversion efficiency and reduce the cost of expensive materials needed for solar-cell production.

The U of A is a charter member of the National Academy of Inventors, a nonprofit organization founded in 2010. In December, the academy named 143 innovators, including Naseem, to NAI Fellow status.

Collectively, the new fellows hold more than 5,600 U.S. patents. Included in the 2013 class are nine Nobel laureates, 69 members of the National Academies, 23 fellows of the American Association for the Advancement of Science and 23 fellows of the Institute of Electrical and Electronics Engineers.

The NAI Fellows were inducted on March 7 during the third-annual Conference of the National Academy of Inventors in Alexandria, Va., at the U.S. Patent and Trademark Office headquarters. A plaque listing the name and institution of each NAI Fellow will be on permanent display at the patent and trademark office.

“The 2013 NAI Fellows and their creative accomplishments showcase the continued excellence of academic innovation and invention,” said Paul R. Sanberg, president of the National Academy of Inventors. “Their work has brought great benefit to the world and we are proud to honor them as fellows.”

New Fuel Chamber Design for Multi Cell Ceramic Fuel Cell Module

The Low Temperature Co-fired Ceramic (LTCC) fuel cell design that HIDEC staff have been working on has grown from 4 cells to 8 cells with an overall reduction in size. The current prototype design is now 12 cells for one half of the module. With the device being smaller and more compact, the need to find a way to build a thinner and smaller fuel chamber was necessary in order to move to a 24 cell design.

During operation, some cells in a fuel cell module may not be supplied with fuel or may become flooded with water. Thus, the need for a fuel chamber with directional flow control and water drainage was quickly realized. The new design allows separate fuel cells to have fuel supplied from a single contained area.

With the first prototype design, the chamber was large (10 mm thick) and required drilling for passage ways to supply the fuel and control water. With the recent acquisition of a MakerBot 3D printer, it is now possible to create a fuel chamber (50 mm x 128 mm) and only 4 mm thick, complete with fuel flow and water drainage capillaries within the framework of the chamber. Most channels within the framework are only 1.5 mm in diameter and connect diagonally between cells. The size and orientation of the channels would be a great challenge if mechanical drilling was the only possible way to realize them. Using the MakerBot 3D Printer, it is possible to build structures with a resolution of only 100 microns per layer. This level of precision allows for chambers and the capillaries that interconnect them to be more accurately placed as compared to the previous method.

The team is looking at civilian and military applications for further development.

For more information about the fuel cell project, please contact Mr. Tom Cannon at tcannon@uark.edu.
Letter from the Department Head

Dear Alumni, students, friends of the department, and colleagues,

I trust that this newsletter finds you well surrounded by your loved ones. The faculty of the department of Electrical Engineering greatly appreciate your taking time to learn more about the activities of your department where we believe that faculty members and staff continue to positively impact the lives of our undergraduate and graduate students. Some highlights are given below and throughout the newsletter – enjoy reading it.

The IEEE Student Society has been very active holding several functions; the ice cream social, cookout, Ping-Pong and Frappuccino events, and SugarFest 2013 were well attended – food has always been a magnet for us all. In addition, the group toured the Clyde T. Ellis Hydroelectric Generating Station, sponsored a study session for the electromagnetics class, a tour of our NCREPT facility, and have other events planned in the near future. Mr. Robert Saunders, our interim assistant department head, is working hard with a group of students to participate in the Solar Boat Competition, June 11-15, 2014, in Dayton, Ohio. Photos of the IEEE events and event of other student organizations are scattered throughout the newsletter.

Our staff works very hard to enable the faculty in their teaching and research responsibilities. Ms. Kathy Kirk was named the college employee of the fall 2013 semester recognizing her hard work to support our research activities, in particular, those of the NSF-funded Vertical Integrated Center for Transformative Energy Research (VICTER), Green Renewable Energy-Efficient Nanoplasmonic Solar Cells Center (GREEN), National Center for Reliable Electric Power Transmission (NCREPT), and Grid-connected Advanced Power Electronics Systems (GRAPE5).

We congratulate Dr. Hameed Naseem for being elevated to fellow of the National Academy of Inventors, an award that recognizes the many hours spent on incentivizing the creative spirits of his graduate students. This award not only makes all of us proud but it provides us with an example to follow.

The department, enabled by contributions from the Arkansas Academy of Electrical Engineers, will continue supporting the summer camps for 6th, 7th, 8th-9th and 10-12th graders organized by the Dean’s recruiting staff. We are very thankful to our alumni for supporting the departmental activities; we are living in times of constrained budgets so your support is very welcome and needed. Your children or grandchildren will enjoy these camps which are becoming very popular; please, visit http://www.engr.uark.edu/home/summerprograms.php for more details.

There are some personnel changes in the Department. As we reported in our last newsletter, Samir El-Ghazaly stepped down as head of department to become director of the Engineering, Communications and Cyber Systems at NSF. Dr. John English has appointed me to serve as the Department Head until June 30, 2017. We have conducted a search for new faculty members and hope to be able to announce who will be joining the Department in our next newsletter. Last, but certainly not least, Dr. Randy Brown and Dr. Randle Overbey are retiring at the end of the Spring semester. Everyone in the department is greatly appreciative of their many years of service contributing to the success of the Department. We wish both of them enjoyable retirements full of fun.

Please, keep in touch with your department, we want to hear from you, or if you are in Fayetteville, please, stop by so we can show you the changes that have taken place. If you will be in the area, or have news to share with us, please contact Mrs. Connie Howard at cjhowar@uark.edu.

Warmest regards from your favorite place in the Ozarks,

Juan Carlos Balda

VICTER WoW Mobile Lab Looking Forward to an Exciting Year

Spring of 2014 is going to be a busy one for the VICTER Wonders of Wattage (WoW) Mobile Lab. With more than half a dozen visits and local tours already scheduled, staff hope to exceed the more than 1000 students who experienced the Wonders of Wattage in 2013. Mr. T.A. Walton, VICTER Outreach Director, started the year off right with a visit to the UA- Pine Bluff Science Day, held on February 18. Mr. Walton hosted a booth displaying several of the exciting energy conversion demonstrators from the Mobile Lab and talking to area high school students about STEM careers and attending our university. In March, we hosted a number of local school tours at the National Center for Reliable Electric Power Transmission (NCREPT) and Mr. Walton presented at the Arkansas EAST Conference in Hot Springs as well. It’s going to be a great year!
Optoelectronics Group Stays Busy

Dr. Omar Manasreh reports that his Optoelectronics Research Group is staying active.

BSEE Student Juan Aguilar received a SURF grant to investigate uncooled photodetectors.

Dr. Mehmit Sahin joined the group recently. He is from Turkey and is investigating photovoltaic devices.

The group recently published two papers:


Alumni Recognized

Several Electrical Engineering Alumni were recognized at the College of Engineering Alumni Banquet on Saturday, April 5. Congratulations to:

Neil M. Schmidt - Hall of Fame
Charles “Micky” Mayfield, Distinguished Alumni
Douglas Hutching and Kevin Speer, Early Career Alumni

IEEE Power & Energy Award

Each year IEEE Power & Energy Society gives multi-year financial support for Electrical Engineering students who are considering a career in electric power and energy engineering. This year two of our undergraduates were awarded scholarships. Congratulations to John George and Kris Johnson.

Show your pride as an Arkansas alumni, keep up with what’s happening, update your contact information and stay in touch with other alumni through the Arkansas Alumni Association. www.arkansasalumni.org.
Retirement Plans

The Electrical Engineering Department will be saying “Good-bye” to two members of the faculty at the end of the Spring semester.

Dr. Randy Brown joined the faculty of the Electrical Engineering Department at the University of Arkansas at Fayetteville in 1981. Since that time he has worked on pattern recognition, neural networks, and computer algorithm design at the University of Arkansas. He has also developed the integrated circuit design curriculum at the University of Arkansas. For nearly ten years, he was P.I./Co-P.I. on a project for the U.S. Postal Service that was directed toward developing techniques for machine reading of addresses and bar codes on envelopes. Total funding for this project was in excess of seven million dollars. He has served as a reviewer for IEEE Transactions on Systems, Man, and Cybernetics, for IEEE Transactions on Computer Aided Design, and for ACM Transactions on Modeling and Computer Simulation. Since 2002, he has served as the Graduate Coordinator for the Department.

Dr. Randle Overbey became a member of the faculty in 2008. He has served as an Instructor and the Coordinator of the Electrical Engineering program at the University of Arkansas at Fort Smith. He has also served as an Instructor for the University of Arkansas Electric Meter School which is offered every fall. In addition, he is a member of IEEE, a Member of the UAES Electronics Technology Industrial Advisory Committee, and has been involved with the SKILLS USA Arkansas Competition for several years, and with the GREEN Center as Co-P.I. for the GREEN Mobile project.

They have served the department very well. We wish them an enjoyable, well-deserved retirement.

Fast Facts:

185 - Undergrad students
46 - Honors College Students
95% Placement rate for BSEE students in Fall 2013
85 - Grad Students
$7,146,347 - Total research expenditures in FY 2013

AAEE OFFICERS AND BOARD MEMBERS

The Arkansas Academy of Electrical Engineers met for their annual induction banquet and business meeting on April 4-5, 2014. Eight new members were inducted as follows: Barbara Derryberry, Alan Hannah, Eugene Jenkins, Matt R. Lovelace, Bill Luther, Randall Robinette, Lance T. Shinnall, and Rudy Timmerman.

Officers for the upcoming year are:

President – Bruce Bumgarner
Vice-President – Keith Miller
Secretary - Treasurer – Eugene Jenkins

Current board members are:
Serving 2013 – 2015 – Pat Bourne, Bruce Bumgarner
Serving 2014 – 2016 – Mark Mobley
Serving 2015-2017 – Eugene Jenkins, Keith Miller, Lance Shinnall

HKN went as a chapter to support the Razorback baseball team against South Carolina!