

## Partner Spotlight – University of Puerto Rico at Humacao



**Student of the Physics and Electronics Department at the University of Puerto Rico at Humacao, using their Scanning Probe Microscope.**

*"As an educator I am extremely motivated with my participation in the NACK Center and this collaboration has had a very positive impact in my institution."*

**Dr. Rogerio Furlan  
of the University of  
Puerto Rico at  
Humacao**



**From left to right of the University of Puerto Rico at Humacao; Dr. Rogerio Furlan, Dr. Josee Vadrine, and Dr. Luis G. Rosa Rodriguez.**

Dr. Rogerio Furlan, a Professor of within the Physics and Electronics Department, at the University of Puerto Rico at Humacao, sat down to answer a few questions during an interview with NACK Center College Recruitment Coordinator, Mr. Jamie G. Houseknecht recently.

The University of Puerto Rico is a multi-campus comprehensive public research university which serves students across Puerto Rico. The University houses an NSF EPSCoR sponsored Institute for Functional Nanomaterials and is engaged with the NACK Center in addressing industry needs for a skilled nanotechnology workforce in Puerto Rico. This nanotechnology workforce effort is focused at the Humacao campus, within the Physics and Electronics Departments.

The University of Puerto Rico at Humacao is an institution in which 98% of the students are Hispanics and approximately 67% are women. There is currently an enrollment of 4,000 students and the majority (85%) graduated from the public school system. The Physics and Electronics Department has a combined enrollment of approximately 100 students, and offers an Associate's Degree in Electronics Technology and a Baccalaureate Degree in Physics Applied to Electronics.

As partners with the NACK Center, the University of

Puerto Rico at Humacao and the Institute for Functional Nanomaterials are engaged in the following:

- ◆ Promoting the participation of underrepresented groups in micro- and nanotechnology education.
- ◆ Implementing the PSU's Capstone Semester in micro- and nano technology.
- ◆ Replicating the PSU's teaching clean room site model.

Education/training in micro- and nano technology will be offered to the following:

- ◆ Associate and Baccalaureate degree students (of natural sciences) that will become future workers within STEM related fields, preparing them to be inserted in the aerospace, manufacturing, and life science sectors, among others.
- ◆ Industry and incumbent workers with an Associate or Baccalaureate degree in natural sciences, offering then the opportunity to upgrade their skills.

Dr. Furlan is planning for 20 students, enrolled in the Physics, Chemistry, Biology and Electronics majors, to enroll in the "Materials, Safety and Equipment Overview for Nanotechnology," a workshop to be presented for

students on August 19th of this year. He anticipates offering of each course of the Capstone Semester presented in a workshop mode for students in the future. Also, strides have been made in working with the Puerto Rico Industrial Development Corporation (PRIDCO), as well as with local industries, to further enrich nanotechnology education for the students of the institution. Several alumni from the Applied Physics and Electronics Department have already been contacted to serve on their Advisory Board.

Drs. Furlan and Josee Vadrine also attended the first Train the Trainer Workshop, highlighted on page 2 of this bulletin.

Thanks to the partnership between the NACK Center and the University of Puerto Rico at Humacao, the NACK Center has provided lecture notes, training on how to conduct the workshops, including the hands-on activities, and funds, in the form of an ATE/NSF subaward, for salaries, travel, acquisition of equipment that complements the University Puerto Rico at Humacao infrastructure.

The NACK Center welcomes the University of Puerto Rico at Humacao as a National Partner, working to establish an advanced education program in micro- and nanotechnology, aimed at strengthening the talent pipeline of the central-eastern region of Puerto Rico and, also, making the region more attractive for high-tech companies.

## Nanotechnology Applications and Career Knowledge (NACK) National Center

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*The Nanotechnology Applications and Career Knowledge (NACK) Center was established at the Penn State College of Engineering in September 2008 through the National Science Foundation (NSF) Advanced Technological Education (ATE) program.*

### Take Matter Into Your Own Hands



*Please contact a NACK representative today to assist you in increasing the awareness of nanotechnology and education-related opportunities across the nation. Visit our website for an expanded contact list.*



Visit us online at:

<http://www.nano4me.org>

### The Goals of the NACK National Center

- Support development of two-year degree programs in micro- and nanotechnology across the country.
- Emphasize hands-on laboratory education and attention to the full range of micro- and nanotechnology applications.
- Offer professional development programs in micro- and nanotechnology for secondary and postsecondary educators.
- Develop and deliver incumbent worker education programs in micro- and nanotechnology for industry.
- Create pathways from secondary schools through associate and baccalaureate degrees and beyond.
- Provide national coordination of micro- and nanofabrication workforce development programs and activities.

### The NACK National Center Partners

- ◆ Penn State College of Engineering
- ◆ Penn State Center for Nanotechnology Education and Utilization
- ◆ National Science Foundation
- ◆ MATEC, The Maricopa Community Colleges
- ◆ Nano-Link
- ◆ University of Puerto Rico
- ◆ National Council for Advanced Manufacturing
- ◆ Nanoscale Informal Science Education



**A recent workshop attendee, working with the latest equipment addition to the Teaching Cleanroom, a Veeco Innova Scanning Probe Microscope (SPM).**