Symposium on Undergraduate Nano-Education:
"Addressing the Challenges of Nanoscale Science & Engineering Education"

Presentation: "The Pennsylvania "Hands-On" Approach to Nanotechnology Education – Resources Available at NACK (The NSF National ATE Center for Nanotechnology Applications and Career Knowledge)" Robert K. Ehrmann, Penn State - NSF National ATE Center for Nanotechnology Applications and Career Knowledge (NACK)

Presenter Biography:

Robert K. Ehrmann is the Director of Education and Outreach at the Penn State National Center for Nanotechnology Applications and Career Knowledge (NACK). Penn State is the home of the Nanofabrication Manufacturing Technology Partnership, a leading program in associate and baccalaureate level nanotechnology education. The Partnership offers the NMT Capstone Semester which is an integral part of fifty nine degree programs at 30 post secondary institutions across the Commonwealth of Pennsylvania. NACK focuses resources on addressing the incorporation of nanotechnology into K-12 education, post secondary education, and industry applications. Mr. Ehrmann's role is to coordinate the efforts of NACK and to ensure that the resources and knowledge acquired through Pennsylvania nano-education program are effectively disseminated to existing or developing nanotechnology education programs across the nation.

Prior to joining the Penn State team in 2004, Mr. Ehrmann was employed in industry. During his twenty three year tenure with Corning, Incorporated he held multiple positions in engineering, engineering / design management, production management, project management, and product development. Mr. Ehrmann earned a BS Degree in Ceramic Engineering from Rutgers University and a Masters in Business Administration from West Virginia University.

Abstract:

The NSF National Advanced Technology Education (ATE) Nanotechnology Applications and Career Knowledge (NACK) Center was established at Penn State was established in September of 2008 and has a mission to provide assistance to existing or developing micro- and nanofabrication education and workforce development programs at post secondary institutions across the United States based upon Pennsylvania's nanotechnology education experience. Pennsylvania has been working on meeting the critical need for nano-scale trained workers for the last ten years. The Pennsylvania Nanofabrication Manufacturing (NMT) Partnership at Penn State University and its partner institutions across the state prepare students to work in any industry that uses micro- and nanotechnology. The Center's curriculum and facilities enable partner colleges across Pennsylvania to offer more than 35 associate degree programs in nanotechnology and over 20 baccalaureate programs. This Pennsylvania partnership has enabled a multitude of very valuable articulation pathways from high school to graduate school for participating students. The key feature of these degree programs in nanotechnology is the PA NMT Capstone Semester consisting of six "hands-on" courses taught three times per year. The Center's faculty, staff, and facilities provide an immersive experience in nanotechnology fabrication and characterization, for the community college and university students who come to Penn State University from their home colleges for the Capstone Semester. Capstone semester graduates are employed in micro- and nanotechnology jobs at nearly 100 companies from a wide variety of industries. The nano4me.org student-centric website was established in 2009 to serve as a tool for prospective students, alumni of nano degree programs, educators, and industry.