

## **Former AU professor to deliver McMahon Lecture**

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Dr. Robert L. Snyder, who taught at Alfred University from 1970 to 1996, will deliver the annual John F. McMahon Lecture at 11:20 a.m., Thursday, Oct. 25, in Holmes Auditorium, Harder Hall, on the AU campus. Snyder, who is now professor and chair of the School of Materials and Engineering at the Georgia Institute of Technology, has chosen "The New World of MSE: Nano and Bio Technology" as the topic for the McMahon Lecture. "The two most important events in Materials Science and Engineering in the past 50 years have been the introduction of surface free energy as a tool for creating new materials and the cracking of the genetic code of the entire biosphere which is under way and is creating a tidal wave of information that is going to transform our technology to the core," said Snyder, explaining his topic. "These two events are intertwined at the most fundamental level in that the key to the assembly of complex nanomachines lies within each of our cells. The ribosome has done its evolutionary job of getting us to 2006 and it's now time to turn this marvelous machine loose to manufacture materials and machines that have nothing to do with evolution." In his talk, Snyder said, he "will start with a fundamental examination of the nature of nanomaterials and show how Z.L. Wang has made many beautiful structures of ZnO. We will then turn to the applications nanowires, nanobelts and carbon nanotubes to the making of field-effect transistors, lasers, self-cleaning surfaces to nano-sized electrical generators." Lastly I would like to explore applications of using the machinery of the living cell to manufacture nanostructures via biomimetics to use structures that already exist in nature - collecting the low hanging fruit. Nature provides elegant examples of organisms that generate three-dimensional structures with complex patterns from the macro-scale to the nanoscale. "We will look at methods to take genes from species producing desirable structures, perhaps modify them, and then retrofit them onto a compliant single celled bug who will then become a manufacturing unit. By mid 21st century I believe that we will know enough genetics, biochemistry and materials science to computer design genes to produce devices from nanomachines to complete computer systems using the cellular machinery produced by evolution." Snyder is the author of two textbooks, has edited nine technical books and has contributed chapters to nine books and encyclopedias. He holds eight patents and has published over 265 papers on materials and materials characterization that have been cited by other authors more than 2,000 times. He has presented more than 1,000 talks around the world with over 40 plenary and keynote lectures and has graduated more than 45 graduate students. He is a Fellow of the American Society of Metals, The American Ceramic Society and Distinguished Fellow of The International Centre for Diffraction Data. He is a principal editor for the journal Materials Research and the Journal of the American Ceramic Society. He serves on the organizing committees of a number of international conferences and chairs the annual Denver X-ray Conference. He has been named the American Ceramic Society Outstanding Educator and has received the State University of New York Chancellor's Award for Excellence in Teaching, the 2002 TMS Award for Materials Leadership and the 2004 Hanawalt Award for X-ray analysis and the 2008 TMS Educator Award. The McMahon Award Lecture is presented annually by the Inamori School of Engineering in honor of John F. McMahon, who served as dean of the NYS College of Ceramics at Alfred University from 1949-65. During his tenure he promoted relationships between industry and academe and advanced the education of ceramic engineers and artists. For the 68 years that McMahon was associated with the College of Ceramics as a student, researcher, professor, division head, dean, curator, and dean emeritus, he focused national attention on the College and heralded the importance of ceramic materials to society. In 1987, Alfred University created the John F. McMahon Chair in Ceramic Engineering, to be filled by a notable ceramic engineer or scientist who exemplifies McMahon's ideals and who focuses national attention on the importance of ceramic materials and the role of the NYS College of Ceramics at Alfred University in that field. The late Dr. Richard M. Spriggs, professor of ceramic engineering emeritus, was appointed the first John F. McMahon Professor; Dr. James E. Shelby Jr., professor of glass science, currently holds the position.