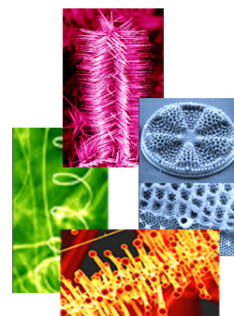


Materials Science & Engineering Lecture

The New World of Materials Science & Engineering: Nano & Bio Technology



Robert L. Snyder, Ph.D.
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School of Materials Science
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Georgia Institute of Technology



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. 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. It is now time to turn this marvelous machine loose to manufacture materials and machines that have nothing to do with evolution.

In this presentation, Dr. Snyder will start with a fundamental examination of the nature of nanomaterials and show how many beautiful structures of ZnO may be made. He will then turn to the applications of nanowires, nanobelts and carbon nanotubes to the making of field-effect transistors, lasers, self-cleaning surfaces and nano-sized electrical generators. He will also explore using the machinery of the living cell to manufacture nanostructures via biomimetics to use structures that already exist in nature.

Robert L. Snyder is a Fellow of the American Society of Metals and the American Ceramic Society and a Distinguished Fellow of the International Centre for Diffraction Data. He is a Principal Editor for the *Journal of Materials Research* and the *Journal of the American Ceramic Society*. He holds eight patents and has published more than 265 papers on materials and materials characterization. He has presented over 1,000 talks around the world with over forty plenary and keynote lectures and has graduated more than 45 graduate students. 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, the 2004 Hanawalt Award for X-ray analysis and received the 2008 TMS Educator Award.

2:00 - 3:00 pm, Thursday, May 28

A reception begins at 1:30 pm

**Physics Conference Room
Chemistry & Physics Bldg.**