Stevens Institute of Technology

Nanotechnology Graduate Program

# The BuckyBall (25 years old!) and its Younger Brother, the Carbon Nanotube: How they can help the world solve its energy (and maybe other) problems!

**Wednesday November 3, 2010, Babbio 122, 10am**

## Professor Wade Adams

### Director of the Richard E. Smalley Institute for Nanoscale Science and Technology, Rice University

Nanotechnology at Rice University has been huge since the discovery of the BuckyBall in 1985 and the Nobel Prize that followed in 1996 to Rick Smalley and Bob Curl at Rice. Widespread, available, affordable, and clean energy was considered by Rick Smalley to be both the single most important problem facing humanity today and a magnificent scientific and technical opportunity. Rick's vision of a long-term future energy system transporting energy around the world as electrons on a smart, high-capacity world-wide grid system can only be realized by a revolution in nanotechnology. Solving the world's energy (and climate, and water) challenges will demand revolutionary breakthroughs in the physical sciences and engineering, and nanotechnology offers unprecedented opportunities for new physical and chemical properties to meet those challenges.

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**Dr. Wade Adams** is the Director of the Richard E. Smalley Institute for Nanoscale Science and Technology at Rice University. The Smalley Institute is devoted to the development of new innovations on the nanometer scale by coordinating and supporting nanoscience and nanoengineering research of over 150 faculty members. Some current thrusts include research in conventional and renewable energy, carbon nanotubes, nanoporous membranes, molecular electronics and computing, and diagnostic and therapeutic medical applications of buckyballs and nanoshells. Dr. Adams retired from the US Air Force senior executive ranks in January 2002, as the Chief Scientist of the Materials and Manufacturing Directorate, Air Force Research Laboratory, Wright-Patterson Air Force Base, Dayton, Ohio. Dr. Adams was educated at the U.S. Air Force Academy, Vanderbilt University, and the University of Massachusetts. For the past 40 years he has conducted research in polymer physics, concentrating on structure-property relations in high-performance organic materials. He is internationally known for his research in high-performance rigid-rod polymer fibers, X-ray scattering studies of fibers and liquid crystalline films, polymer dispersed liquid crystals, and theoretical studies of ultimate polymer properties. He has written more than 200 publications on these topics, including several review articles and two edited books, has four patents (one licensed), and has given over 700 technical presentations. He is a Fellow of the American Physical Society and the Air Force Research Laboratory. Dr. Adams also retired from the Air Force Reserve in the rank of Colonel in 1998.

**Co-sponsored by the Department of Chemical Engineering and Materials Science**

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