



One-dimensional boron-based nanostructures

Wednesday March 7, 2007

Babbio Bldg, Room 321, Time 11am

***** Note room change *****

Professor Terry Xu

Department of Mechanical Engineering
University of North Carolina at Charlotte

Boron is an element that exhibits structural complexity due to its electron-deficient bonds. Elemental boron has an unusual combination of properties, including high melting point, low density, moderate oxidation resistance, high hardness, high Young's modulus and interesting optical and electrical properties. The theoretical prediction of metallic single-walled nanotubes of either pure boron or aluminum boride motivates attempts to synthesize and characterization of boron and metal boride one-dimensional (1D) nanomaterials. In this presentation, current research status on boron-based 1D nanostructures will be reviewed. In addition, our recent experimental results on synthesis of *n*-type boron-based 1D nanostructures (e.g., CaB₆, SrB₆ and BaB₆ nanowires), and exploration of their thermoelectric properties will be discussed.

Dr. Terry Xu received her BE degree from the Department of Materials Science and Engineering at Shanghai University in 1995, and MPhil degree from the Department of Mechanical Engineering at Hong Kong University of Science and Technology in 1998. She then worked as a process engineer at ASM Assembly Automation Ltd. for two years before joining the Department of Mechanical Engineering at Northwestern University for doctoral studies. She received her Ph.D. in 2004, and was appointed to her current tenure-track assistant professor position at the University of North Carolina at Charlotte the same year. Her research interests include synthesis and characterization of "light-element" (e.g., carbon and boron) 1D nanostructures, and exploration their applications in energy conversion, nanocomposites, and others.

Light refreshments will be served prior to seminar

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