



**SAN FRANCISCO BAY AREA  
NANOTECHNOLOGY COUNCIL**

**June 2007 Seminar**

**Subject: Polymer Nanocomposites: Fabrication, Characterization and Application**

**Speakers: Dr. W. Richard Chung, Professor, Department of Chemical and Materials Engineering, San Jose State University**

**Date:** Tuesday, June 19, 2007

**Time:** Registration & light lunch 11:30am. Presentation & Q/A 12:00 to 1pm

**NOTE THE PLACE: SEMI World Headquarters 3081 Zanker Rd. San Jose, CA**

Directions: Highway 101 to Montague Expressway East to Zanker Rd South; or Highway 880 to Montague Expressway West to Zanker Rd. South; Second street entrance marked: LOBBY.

**Cost:** IEEE Members and Students \$5. Non-Members \$10      **RSVP at:** [www.ieee.org/nano](http://www.ieee.org/nano)

**Talk Abstract:**

Nanocomposite materials are defined as two-phase materials with one phase having at least one dimension on the nanometer scale. These materials have sparked an interest in research and development for various engineering and industrial applications. Some notable applications include gas separation, fuel cell membrane development, heat shielding, food packaging, sensing and actuating, and microelectronic applications. Nanocomposites can be manufactured using polymeric or non-polymeric resins as the matrices. To limit the scope of this presentation, only polymer nanocomposites are to be employed, i.e. polymer resins are to be filled with nanometer sized inorganic particles. Processing techniques with material variables such as volume fraction, nanoclay type (modified and unmodified), polymer type, pore size and pore density will be addressed. Their inter-relationships among material properties and processing techniques will be examined along with various characterization methods. Among these, the results of x-ray diffraction, X-ray reflectivity, scanning/transmission electron microscopy and atomic force microscopy will be presented and discussed. The results of this presentation will shed some light on the development of future nanocomposites

**Speaker Biography:**

Dr. W. Richard Chung is Professor of Chemical and Materials Engineering at San Jose State University. He has taught courses and conducted research projects at SJSU for 20 years. Prior to joining the faculty of SJSU, he also worked as an engineer in various industries, i.e. paper and pulp, plastics manufacturing, and nuclear power plant design and construction. His research interests concentrate on intelligent materials, nanocomposites, polymers and composites, product design and process control, and failure analysis. He received a Hall of Fame Award, Golden Gate Section, Society of Plastics Engineers (2001), a Service Award, Faculty Leadership Institute, Workforce Silicon Valley (2001), an Appreciation Award, Lockheed Martin Space and Missiles Corporation (2002), and an Outstanding Alumni Award, Auburn University (2002).

Dr. Chung earned a B.S. degree in Chemical Engineering from Chinese Culture University, Taiwan, and an M.S. in Materials Engineering from Youngstown State University, Ohio, and a Ph.D. in Mechanical Engineering from Auburn University, Alabama.