Corrected Date

Seminar Series

Sponsored by

School of Materials Science and Engineering

Thursday, January 15, 2009

5:00 PM – Room 200 Olin Hall

Multifunctional Polymer Nanocomposites: The Role of the Interface and Synergy in Nanoscale

Kyriaki Kalaitzidou, Ph.D.
Woodruff School of Mechanical Engineering
Georgia Institute of Technology

Abstract:

The important role of nanoreinforcement-polymer interface in the performance of nanocomposites is emphasized and the synergistic mechanisms in nanoscale are discussed for a composite made of polypropylene reinforced with exfoliated graphite nanoplatelets. Questions such as how the reinforcement affect the physical properties of the polymer matrix and how the polymer crystallinity can alter the electrical conductivity and percolation threshold of the nanocomposites will be addressed in details. In addition, it will be presented how the strong adhesion at the interface of two dissimilar materials can be utilized to fabricate 3D structures in micro and nanoscale using a Au-PDMS bilayer as a case study.

Bio:

Dr Kyriaki Kalaitzidou received her Diploma in Chemical Engineering from the Aristotle University of Thessaloniki, Greece. She attended graduate school in US obtaining her MS in Mechanical Engineering at Michigan Technological University in 2002; and her PhD in Chemical Engineering and Materials Science at Michigan State in 2006. After her PhD she worked as a postdoctoral research associate in the Polymer Science and Engineering Department at University of Massachusetts, Amherst and joined the faculty of the Woodruff School of Mechanical Engineering at Georgia Tech in the end of 2007. She has presented

her work on polymer nanocomposites and adaptive polymer particles in many national and few international conferences and has received the 3rd Prize Award for her PhD thesis on an international competition organized and sponsored by Quadrant (January 2007, Zurich Switzerland).