SIGMA XI McGill Montréal

The McGill-Montreal Chapter

Sigma Xi :: The Scientific Research Society ::

Dr. Reghan Hill
Assistant Professor
Depart. Chem. Eng.
McGill University

Canada Research Chair (tier II)
in Colloids for Advanced Materials

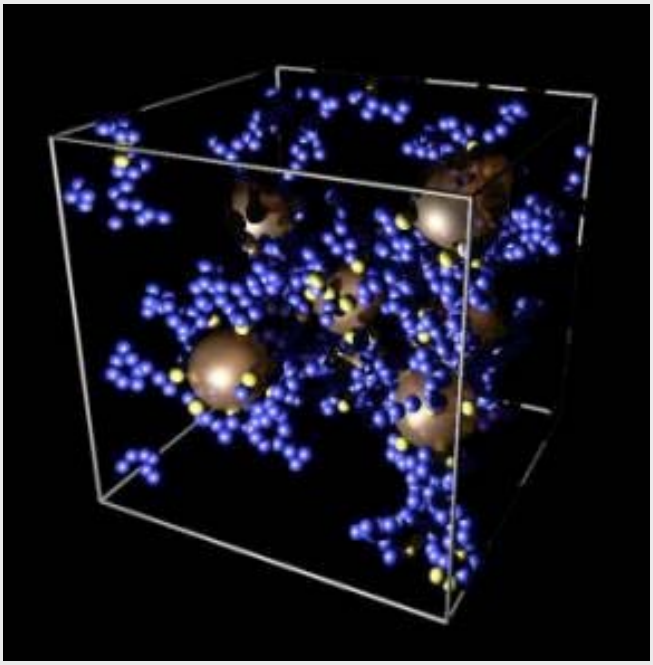
PUBLIC LECTURE

when:
Monday
26 February 2007
6:00 P.M.

where:
McGill University
Otto Maass Chemistry
room 10

NANOCOMPOSITES:
how novel macroscale properties can emerge from classical microscale physics

In recent years we have witnessed an unprecedented effort in the scientific and engineering research communities to synthesize nano-particulates and polymers for a bewildering range of technological applications. A particularly effective and economical route to novel materials with enhanced properties involves dispersing commodity nano-particles in continuous polymeric networks. This talk will discuss several recent theories that have led to compelling quantitative interpretations of experiments where nano-composites have exhibited particularly intriguing membrane properties. The focus will be on ultra-permeable, reverse-selective membranes synthesized from polymer glasses embedded with fumed silica; and water-saturated polymer networks (hydrogels) doped with colloidal silica nano-spheres. The former are candidates for highly efficient gas separations in the petrochemicals industry, whereas the latter have been proposed as active membranes for biosensing and microfluidics technologies.



A Monte Carlo representation of fuzzy nano-spheres.

Council Meeting:
4:30 P.M.

Member Reception:
5:30 P.M.