College of Technology Seminar
Monday, March 16, 2015
206 Sill Hall
3:10 pm – 4:30 pm

Hierarchical Nano/Meso Structures in Synthetic Polymer Systems

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Unique necklace-shaped dimethylsiloxane (DMS) polymers bearing a polyhedral oligomeric silsesquioxane (POSS) cage were synthesized from bifunctional POSS by polycondensation or ring-opening polymerization. The polymers revealed unique thermal properties depended on the DMS chain length. We also developed new technique to produce polymeric crosslinked nanofilms by Cu(I)-catalyzed Huisgen click reaction between lipophilic polymers or between lipophilic and hydrophilic polymers at an oil-water Interface. The combination of lipophilic and hydrophilic polymers produced "Janus" nanofilms with both hydrophilic and lipophilic surfaces. Both topics will be introduced in the aspect of hierarchical structure design.