Department of Chemistry

“Some Interesting things about the Polysiloxanes”

Presented by:

Professor James E. Mark

University of Cincinnati

Departmental Colloquium Sponsored by the Chemistry Graduate Student Association

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502 Rieveschl

Seminar to be followed by a CGSA sponsored cookout from 4:30-6:00
Poly(dimethylsiloxane) [–Si(CH3)2O–] is by far the most studied of the polysiloxanes, and it’s known to exhibit some intriguing physical properties, in particular very high permeability to gases. Simulations are underway in an attempt to understand some of these peculiarities. In addition, other symmetrically-substituted polysiloxanes exhibit mesophases that are not understood at all. In the case of cross-linked polysiloxanes, there have been many important developments, including (i) elastomers undergoing strain-induced crystallization through control of chain stiffness or stereochemical structure, (ii) model elastomers (including dangling-chain networks), (iii) possible thermoplastic elastomers, (iv) bimodal network chain-length distributions, and (v) cross linking in solution. Interesting elastomeric composites include those with (i) in-situ generated ceramic-like particles, (ii) ellipsoidal fillers, (iii) clay-like layered fillers, (iv) polyhedral oligomeric silsesquioxane (POSS) particles, (v) porous fillers, (vi) controlled particle-elastomer interfaces, and (vii) elastomeric domains generated within ceramic phases. Also of interest are some new techniques that have been used to characterize polysiloxane networks.