

**North Carolina Section of the American Chemical Society
ACS Polymer Discussion Group**



Tuesday September 5, 2006

University Club: North Carolina State University

*Social Hour: 5:30 PM

**Dinner: 6:00 PM

Program: 7:00 PM

**Guiding Models for Phase transitions, and consequences, in bulk
polymers and solutions**

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ABSTRACT

It is well accepted that the evolution of morphology in physical processes is dictated by the underlying phase diagram and the path a system cuts across it. Even elementary considerations of the path of a process and the phase transitions can offer significant qualitative guidance for material selection and process design. This presentation will cover some of the elementary considerations in this regard, especially anisotropic crystallization in bulk polymers and liquid-liquid phase separation and crystallization in polymer solutions.

While the role of phase transitions, in evolution of morphology and the consequent properties, has been well recognized and also modeled for guidance, considerable challenges exist still in achieving quantitative predictions, often due to the dominant influences of

- rheology on phase transitions, and vice versa
- kinetics in determining the extent phase and morphological transformations.

Our attempts to integrate the above considerations into phase-transition and process-models will be described. Included in this will be reconsideration of lattice models with input from molecular modeling.

* Social hour will consist of a cash bar.

** Contact Russell Gorga at (919) 515-6553 or regorga@ncsu.edu (email preferred) for dinner reservations by noon on Monday September 4, 2006, to guarantee a reservation for dinner. If you are unable to make a reservation by that time, check with Russell regarding the availability of places. Dinner is \$15 for Members and \$8 for students. Reservations are *not* required to attend the seminar without dinner.