CHEMICAL, BIOLOGICAL & MATERIALS ENGINEERING

100 E. Boyd, Sarkeys Energy Center, T-335 405-325-5811 The University of Oklahoma Norman, Oklahoma 2011 – 2012 Seminar Series

DR. SINDEE L. SIMON

PAUL WHITFIELD HORN PROFESSOR DEPARTMENT OF CHEMICAL ENGINEERING TEXAS TECH UNIVERSITY LUBBOCK, TEXAS

Will present a seminar on

"NANOCONFINED POLYMERIZATION: REACTION KINETICS AND PROPERTIES"

The behavior of materials confined at the nanoscale has been of considerable interest over the past decade. Recent work in our laboratory has focused on the influence of nanoconfinement on polymerization kinetics, as well as the effects of synthesis under nanoconfinement on polymer properties. In the case of step-growth polymerization of cyanate esters and free radical polymerization of methyl methacrylate, we find enhanced reactivity with decreasing nanopore size. On the other hand, in the ring-opening polymerization of dicyclopentadiene, we find reduced reactivity and the presence of a side reaction not present in the bulk system. The results can generally be explained by competition between changes in local packing and diffusivity under confinement coupled with the effects of confinement surface chemistry. A related area of research concerns changes in the calorimetric glass transition temperature for polymers confined to nanoscale dimensions. In particular, the influence of molecular stiffness on the T_{α} depression will be discussed in the context of unanswered questions in the field.

THURSDAY, OCTOBER 27, 2011
COOKIES AND COFFEE -- 2:45 P.M.
SEMINAR -- 3:00 P.M.
SARKEYS ENERGY CENTER, ROOM M-204

THIS IS A REQUIRED SEMINAR FOR CHE 5971

Accommodations on the basis of disability are available by contacting the office before the event.