THE OHIO STATE UNIVERSITY

The William G. Lowrie Department of Chemical and Biomolecular Engineering Graduate Program Cordially invites you to attend a seminar on

The Glass Transition in the Bulk, Under Nanoconfinement, and in Fibers

Sindee L. Simon

Distinguished Professor and Head
Department of Chemical and Biomolecular Engineering
North Carolina State University

Thursday, January 18th, 11:30 AM
130 Koffolt Lab, CBEC 151 W Woodruff Ave
Reception at 11:00 AM - CBEC Lobby

Bio

Prof. Sindee L. Simon obtained her B.S. in Chemical Engineering at Yale University in 1983 and her Ph.D. in Chemical Engineering at Princeton University in 1992. She started her academic career at the University of Pittsburgh, then spent twenty years at Texas Tech. She was named P.W. Horn Distinguish Professor in 2010 and served as Department Chair for seven years. In 2021, she moved to NC State University where she is Distinguished Professor and Head of Chemical and Biomolecular Engineering. Dr. Simon's research interests include the physics of the glass transition, cure and properties of thermosetting materials, and properties and reactivity at the nanoscale. She has published over 130 refereed journal publications, has nearly 7000 citations and an h-index of 46 according to Google Scholar. She has received numerous honors, including Fellowships in the American Association for the Advancement of Science (AAAS), the American Physical Society (APS), the Society of Plastics Engineers (SPE), the North American Thermal Analysis Society (NATAS), and the American Institute of Chemical Engineers (AIChE). She is also the recipient of the 2019 SPE International Award, as well as the SPE Research/Technology Award and the NATAS Outstanding Achievement Award.

Abstract

The glass transition has been said to be one of the most important unresolved problems in condensed matter physics. In this talk, the kinetics and thermodynamics associated with the glass transition and structural recovery will be described, new calorimetric data presented, and a number of debated issues discssed. A relatively new technique, nanocalorimetry, is exploited to create high-fictive temperature glasses and to fully demonstrate Kovacs' three signatures of structural recovery in enthalpy space. Nanocalorimetry is also used to explore confinement effects in ultrathin films, as well as to investigate the properties of as-received fibers, including the nature of the so-called rigid amorphous phase.