CNMS AND SNS

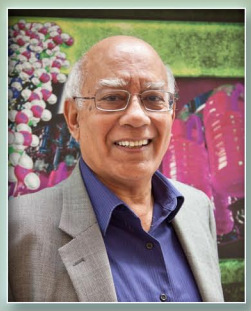
Research Forum

Tuesday, March 20, 2012 • 11:00 am
Iran Thomas Auditorium

Grazing Incidence Scattering Studies of Thin Films of Soft Matter and Nanoparticles

Sunil K. Sinha
University of California San Diego

Thin fluid films differ from bulk matter in interesting ways: their viscosity can be different; they can develop a finite shear modulus; the glass transition and the mobility of nanoparticles can be drastically affected; for molten polymer films the chain conformations can be different, etc. These properties are important for technological and industrial applications of thin films. We shall discuss grazing incidence scattering experiments carried out primarily using synchrotron radiation and what they have revealed about the static and dynamical signatures of these effects. Finally, we shall discuss similarities with recent measurements of the slow dynamics of domain wall fluctuations in thin magnetic films.



Sunil K. Sinha is Distinguished Professor of Physics in the Department of Physics at the University of California, San Diego. He also has served as Group Leader in Neutron Scattering at Argonne National Laboratory, Group Leader of X-ray Scattering at Brookhaven National Laboratory, Senior Research Associate at Exxon Corporate Research Laboratories, and Associate Division Director at Argonne's Advanced Photon Source. He is a recipient of the Ernest O. Lawrence Award of the Department of Energy, The MRS Medal and the Arthur H. Compton Prize of the Advanced Photon Source. He is a Fellow of the American Physical Society and the AAAS. His group's research is concerned with studying the structure and dynamics of condensed matter using the techniques of x-ray and neutron scattering. Current research areas include novel magnetic materials, in particular magnetic films and multilayers, polymer films and interfaces in polymeric systems, and lipid membranes. Dr. Sinha received his Ph.D. in physics from Cambridge University.

- **Location:**
  Iran Thomas Auditorium
  Spallation Neutron Source, Bldg 8600

- **For more information:**
  Meiyun Chang-Smith, NScD, changsmithm@ornl.gov
  Chris Rouleau, CNMS, rouleaucm@ornl.gov

  http://cnms.ornl.gov/upcoming_events/Sinhu_seminar_032012.pdf

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