

Gian Felcher and Roger Pynn announce a workshop:

"Probing complex fluid membranes and films with neutron spin-echo"

August 14-17, 2005

Indiana University, Bloomington, IN, USA

A new development of neutron scattering broadens considerably the range of measurements of in-plane structures in thin films. As with normal reflectometry, grazing incidence is used to enhance the sensitivity of the neutrons to surface structure. In that geometry small angle scattering perpendicular to the neutron reflection plane is used to interrogate in-plane structure of the thin film or membrane. The in-plane length scales accessed run from a few 10's of nanometers up to about one micron. The development consists in decoupling - using the neutron spin-echo method- the measurement of neutron scattering angles from the need to collimate the incident and scattered neutron beams, which conventionally is accomplished at the cost of neutron intensity.

The development of the new technique is progressing well and we expect to be able to start using it in 2005. It is now time to think seriously about the interesting problems that can be addressed by the new methods and to use science as a driver for future technique developments. This is the purpose of our planned workshop. We want to spend most of the time at the workshop (which we plan to hold for ~3 days) talking about scientific issues rather than discussing experimental techniques, although we recognize the need to both explain the new method and to include a discussion of other techniques (such as x-rays, TEM, STM etc) that neutron scattering will complement.

The broad scope for the meeting is the structure and behavior of membranes and other thin macromolecular films. Subjects that would fit within the scope of such a workshop include rafts, "things" in membranes, membrane crumpling and buckling, cytoskeletal effects, complexes in confined (2-d) geometries, chemical, physical and charged patterning of surfaces and membrane adaptation to these patterns, and block copolymer structures in films.

The workshop is meant as a learning experience, and for that purpose we think of organizing it as a series of invited lectures, approximately 45 minutes long, on a sequence of interconnected themes. Each lecture will be followed by short contributed talks (~15') and an extended discussion that may include further short presentation from the audience, provided they are related to the highlighted theme.

Summaries and slides of the workshop will be posted on the web.

Confirmed speakers include Prof. Tobias Baumgart of Cornell University, Profs. Ed Kramer and Phil Pincus of the University of California at Santa Barbara, Prof. Tim Salditt of the University of Göttingen and Prof. Tom Witten of the University of Chicago.

The workshop will be held in the Indiana Memorial Union, and the registration fee will cover both participation in the workshop, and lodging.

If you are interested in participating in the workshop please send a letter of intention to the Conference Secretary. In the letter, indicate if you would like to present a communication and include the title and possibly the abstract. Details of the full schedule and registration fee will be announced in April.

For all communications and inquiries please contact the Conference Secretary:

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