ICTS Seminar

Title : Surface critical dynamics and Casimir forces in a binary fluid

Speaker : Sutapa Roy, Max-Planck Institute for Intelligent Systems, Stuttgart, Germany

Date : Wednesday, December 18, 2019

Time : 2:00 PM

Venue : Emmy Noether Seminar Room

Abstract : Confining a near-critical mixture in a narrow-slit gives rise to critical Casimir forces (CCF). While the static properties of these forces are reasonably well understood, studies on its dynamic counterpart are very new and rare. Upon quenching a fluid from the mixed, homogeneous phase to its consolute point critical fluctuations grow and an adsorption film develops. Using molecular dynamics simulations of a fluid confined between two impenetrable walls, we study the dynamic response of the surface properties of the fluid, which provides insight into the dynamics of the effective interaction. These results exhibit scaling compatible with the universality class of model H'. Our results show a rich structure of correlation functions including slow, algebraic decays.