INSTITUTE SEMINAR

11 April 2014 4.00 p.m. Venue - Fermion

Speaker

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Title

Phase transitions of nanoconfined fluids

Abstract

Phase transitions of nanoconfined fluids play a critical role in various operations such as nanotribology, energy storage, adhesion and selectivity-driven adsorption. Hence, understanding the physics of confined fluids is of immense importance. Knowledge of the spatial variation of the fluid density and microscopic details of the fluid–fluid and fluid–solid interaction forms the basis for understanding of the molecular organization of fluids near surfaces and phenomena such as prewetting, wetting and drying transitions, shift in critical properties and elevation/suppression of melting point under confinement. In this talk, we present our recent efforts, using molecular simulation, on the understanding of capillary condensation, melting transition of confinement solids, pressure of confined fluids, validity of Gibbs-Thomson equation, crossover behavior of fluids under confinement, and effect of electric field on the vapor-liquid phase transition of nano-confined polar fluids.
