

ICTS Seminar

Title : A hierarchical lattice model for the H-bond network in Water

Speaker: Rahul Dandekar, International Centre for Theoretical Physics, Italy

Date : Wednesday, July 26, 2017

Time : 10:30 AM

Venue : Amal Raychaudhuri Meeting Room, ICTS Campus, Bangalore

Abstract : Many of the curious thermodynamic properties of water can be traced back to the unique patterns of Hydrogen bonding, which lead to the formation of a percolating H-bond network even in the liquid phase. We develop and study a semi-empirical lattice model for this H-bond network, and study it on an infinite-dimensional lattice. We show that the model gives accurate predictions for the network correlations even at normal temperatures and pressures. We also study the phase diagram, and show that the model displays anomalous behaviour of the density and compressibility, without the existence of a second critical point.