X-Rays Shines Light on the Water Mystery

Anders Nilsson

Stanford Institute for Materials and Energy Sciences,

SLAC National Accelerator Laboratory

and

Fysikum, Stockholm University, Sweden

This talk will describe recent x-ray spectroscopy and scattering measurements showing that the liquid can be described as fluctuations between two types of local hydrogen bonded structures driven by incommensurate requirements for minimizing enthalpy and maximizing entropy. The connection of these results to low and high density water and the 2nd critical point model will be discussed. Ion solvation and hydrophobic interactions will also be discussed.