

Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

Femtosecond movies of water at sub-nanometer lengthscales

ROBERT H. CORIDAN, GHEE HWEE LAI, NATHAN S. SCHMIDT, Dept. of Physics, Dept. of Materials Science & Engineering, F. Seitz Materials Research Laboratory, University of Illinois, Urbana-Champaign, MICHAEL KRISCH, European Synchrotron Radiation Facility, Grenoble, France, PETER ABBAMONTE, Dept. of Physics, F. Seitz Materials Research Laboratory, University of Illinois, Urbana-Champaign, GERARD C. L. WONG, Dept. of Physics, Dept. of Materials Science & Engineering, F. Seitz Materials Research Laboratory, University of Illinois, Urbana-Champaign — The nanometer-scale structure and picosecond-scale dynamics of water are relevant to a wide range of problems in physics, such as the hydrophobic interaction and ion hydration. The behavior of water at these scales has been subject of theoretical and MD studies for decades, and water dynamics has been recently accessed using femtosecond ‘pump-probe’ optical experiments. We will show that it is possible to image dynamical sub-angstrom density fluctuations in water by extracting the density propagator from the dynamical structure factor measured via high-resolution inelastic x-ray scattering spectra at 3rd generation synchrotron sources.

Robert H. Coridan
Dept. of Physics, Dept. of Materials Science & Engineering,
F. Seitz Materials Research Laboratory,
University of Illinois, Urbana-Champaign

Date submitted: 29 Nov 2006

Electronic form version 1.4