## MON4P • Liquid Dynamics

*Panoramica*
**16:15–18:00**
**MON4P • Liquid Dynamics**
*Chair: Shaul Mukamel, Department of Chemistry, University of California, Irvine, USA*

**MON4P.1 • 16:15**
**Vibrational energy relaxation in liquid-to-supercritical ammonia studied by femtosecond mid-infrared spectroscopy**, *Tim Schäfer[1], Dirk Schwarzer[1], Jörg Lindner[2]*, and •*Peter Vöhringer[2]*; *[1]Max-Planck-Institut für biophysikalische Chemie, Göttingen, Germany, [2]Rheinische Friedrich-Wilhelms-Universität, Bonn, Germany*.
Chemistry textbooks often cite ammonia as an associated liquid forming extended hydrogen-bond networks similar to water. We have conducted the first ever fs-MIR-experiments aimed at exploring the vibrational dynamics in this system under liquid-to-supercritical conditions.

**MON4P.2 • 16:30**
**Probing Intermolecular Couplings in the Two-Dimensional Infrared Photon Echo Spectrum of Liquid Water - Simulation Study**, •*Alexander Paarmann[1], Tomoyuki Hayashi[2], Shaul Mukamel[2]*, and *R. J. Dwayne Miller[1]*; *[1]Institute for Optical Sciences, Departments of Chemistry and Physics, University of Toronto, 80 St George Street, Toronto, Ontario, M5S3H6 Canada., [2]Department of Chemistry, University of California, Irvine, California 92697-2025, USA.*.
The 2D-IR photon echo spectrum of the OH stretching vibration in liquid water is simulated by direct numerical propagation, explicitly including intermolecular coupling. Intermolecular energy transfer times and the 2D-IR spectrum closely agree with experiment.

**MON4P.3 • 16:45**
**Heterogeneous Dynamics of Coupled Vibrations**, *Dan Cringus, Thomas l. C. Jansen*, and •*Maxim S. Pshenichnikov*; *Zernike Institute for Advanced Materials, University of Groningen, Nijenborgh 4, 9747 AG Groningen, The Netherlands*.
Frequency-dependent dynamics of coupled stretch vibrations of a water molecule are revealed by 2D IR correlation spectroscopy. These are caused by non-Gaussian fluctuations of the environment around the individual OH stretch vibrations.

**MON4P.4 • 17:00**
**Observation of immobilized water in hydrophobic hydration**, •*Huib Bakker*; *AMOLF, Kruislaan 407, 1098 SJ Amsterdam, The Netherlands*.
Using femtosecond mid-infrared spectroscopy we find that water molecules in the hydration shells of hydrophobes show much slower orientational dynamics than pure liquid water. Each methyl group is observed to immobilize four water OH groups.

**MON4P.5 • 17:15**
**Collective Breakdown of H-Bonding in Ice**, •*Hristo Iglev* and *Marcus Schmeisser*; *Physik-Departmen E11, Technische Universität München*.
We report on ultrafast bulk melting of ice by an infrared laser pulse. Our experiments show that homogeneous melting occurs only for an energy deposition beyond the superheating limit of 330 K.

**MON4P.6 • 17:30**
**The Dynamics of Aqueous Hydroxide Ion Transport Probed via Ultrafast Vibrational Echo Experiments**, •*Sean T. Roberts, Poul B. Petersen, Krupa Ramasesha*, and *Andrei Tokmakoff*; *Department of Chemistry and George Harrison Spectroscopy Laboratory, Massachusetts Institute of Technology, Cambridge MA 02139*.
We use peakshift, transient grating, and 2D IR measurements to probe the dynamics of NaOD solutions. Our experiments suggest that OD- possesses a stable solvation shell and signatures of fast intermolecular proton transfer are observed.

**MON4P.7 • 17:45**
**Glasslike Behaviour in Aqueous Electrolyte Solutions**, •*David Turton[1], Johannes Hunger[2], Glenn Hefter[3], Richard Buchner[2]*, and *Klaas Wynne[1]*; *[1]Department of Physics, SUPA, University of Strathclyde, Glasgow G4 0NG, UK, [2]Institut für Physikalische und Theoretische Chemie, Universität Regensburg, D-93040 Regensburg, Germany, [3]Chemistry Department, Murdoch University, Murdoch, WA 6150, Australia*.
Ultrafast optical Kerr effect studies and dielectric relaxation spectroscopy applied to the relaxation dynamics of aqueous solutions, resolves the apparent conflicts between viscosity and rotational relaxation, and implies a jamming transition at high concentration.