CRETE CENTER FOR
QUANTUM COMPLEXITY
AND NANOTECHNOLOGY

ΣΕΜΙΝΑΡΙΟ ΚΕΝΤΡΟΥ ΚΒΑΝΤΙΚΗΣ ΠΟΛΥΠΛΟΚΟΤΗΤΑΣ & ΝΑΝΟΤΕΧΝΟΛΟΓΙΑΣ/
CCQCN SEMINAR

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11:00-12:00

3rd Floor Seminar Room

Hydrogen bond dynamics of water below freezing point

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Abstract

Water below 0°C can be a liquid, the so-called *supercooled water*, or a crystal, like a snowflake, or a glass, which is a solid with liquid-like molecular arrangement. The microscopic molecular structure and dynamics of water are believed to be responsible for many of the peculiar thermodynamic properties of water. We explore this link experimentally by investigating the hydrogen bond dynamics of water below freezing point using *multi-dimensional infrared spectroscopy*, complemented by quantum mechanical simulations. Specifically, we probe the hydrogen bond exchange rate in the liquid form [F.P. and P. Hamm *JPC B* (2011)], as well as the light-induced *quantum beatings* and bond-selective dissociation in ice [F.P., S. Widmer and P. Hamm *JCP* (2011); F.P., J. A. Borek and P. Hamm *JCP* (2013)].

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