UNIKASSEL VERSITÄT

Physikalisches Kolloquium

Thursday, 02.02.2023, 16:15, HS 100
In presence

Prof. Dr. Martina Havenith-Newen, Ruhr University Bochum,
Physical Chemistry II:

It is water what matters!

Abstract

Water is the most important solvent on earth, as it is involved in all biological reactions and most chemical reactions. The contribution of the solvent to the total free energy of a reaction is crucial, yet an experimental challenging parameter to probe experimentally as well as theoretically. Systematic spectroscopic studies revealed that the terahertz (THz) frequency range provides a fingerprint spectrum of any changes of water in respect to hydrogen bond strength, tetrahedrality, and dynamics, which are all of major importance to rationalize and predict the outcome of a reaction. While the individual changes might be small, the large number of solvent molecules involved makes this contribution into a major driving force for fundamental reactions. THz spectroscopy now allows to map local water changes and allow to investigate whether these changes are more a cause or a consequence of fundamental biological reactions, such as enzymatic catalysis or protein aggregation.

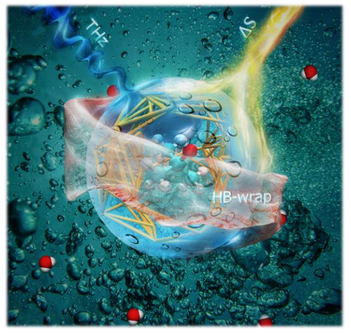

Photo: Wrapping up hydrophobic hydration with THz calorimetry

All of you interested in physics are cordially invited!

Contact: Prof. Dr. Arno Ehresmann, Experimental Physics IV, More Information: uni-kassel.de/go/physikalisches_kolloquium