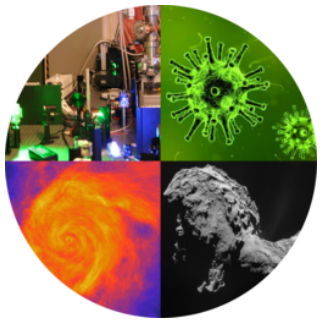

Münchner Physik-Kolloquium

Winter 2018/19

Colloquium on the occasion of the 80th birthday of Professor Sighart Fischer

Ions and biomolecules in water – ultrafast motions and electric interactions

Prof. Dr. Thomas Elsässer, *Max-Born-Institut für Nichtlineare Optik und Kurzzeitspektroskopie, Berlin*

Monday, 17 December 2018, 17:15 h
Hörsaal 2, Physik-Department der TUM, James-Franck-Straße 1, Garching

Interactions of ions and biomolecules with a water environment have a strong impact on their structure and function. The complex many-body character and the structural fluctuations of such systems pose major challenges for developing a physical understanding at the molecular level. Femtosecond two-dimensional infrared spectroscopy maps vibrational dynamics and couplings of biomolecules and solvated ions in a highly specific way, in particular at the interface to a water shell. In this talk, recent results on aqueous proton solvation and hydration dynamics of DNA and RNA are presented. Solvated protons display femtosecond fluctuating motions which are induced by electric forces from the water shell and much faster than picosecond hydrogen bond dynamics. DNA and RNA helices experience very strong electric fields, originating from their different hydration patterns in the first two water layers. In-depth theoretical calculations account for the observed behavior.

Student event: Meet the speaker

*We invite you to a **student-only** discussion-round with Prof. Dr. Thomas Elsässer before his Munich Physics Colloquium talk.*

Be curious and feel free to ask any question.

Monday, 17 December 2018, 16:00 h
Seminar room PH 3268 (upper floor, new location!), Physik-Department der TUM, James-Franck-Straße 1, Garching