



Kolloquium des Wilhelm-Ostwald-Instituts

Dr. Lukas Bruder

Albert-Ludwigs-Universität Freiburg

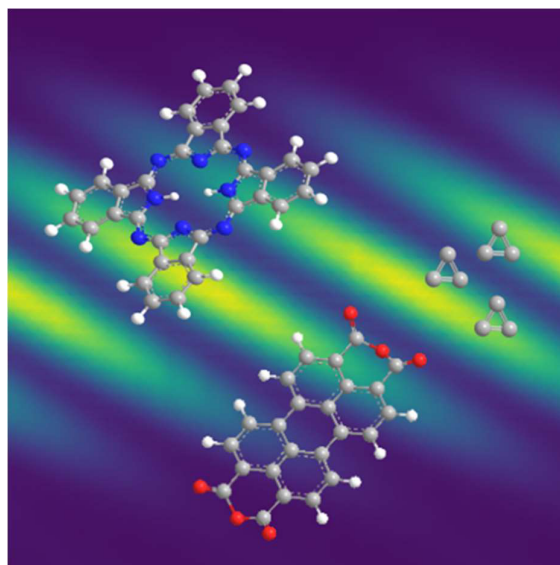
Montag, 24.04.2023, 16:15 Uhr

Wislicenus-Hörsaal, Johannisallee 29, 04103 Leipzig

Studying Molecular Dynamics in Nanoconfined Environments

Abstract

Studying molecular dynamics remains a challenge for experimentalists and theorists. Already on the level of a single molecule a large number of degrees of freedom are involved (e.g. electronic, vibrational, rotational, spin). The situation becomes even more complex if the interaction with the local environment is included. At the same time, molecular dynamics tend to be extremely fast, typically covering time scales down to a few femtoseconds (10^{-15} sec). We tackle these challenges with a novel approach combining cluster-beam experiments with ultrafast interferometric spectroscopy methods. On the sample side, this gives us access to confined molecular systems isolated



in the gas phase and allows us to tune the interaction with the local cluster environment. On the spectroscopy side, high temporal and spectral resolution is achieved with interferometric methods. These techniques range from the interference of wave packets – similar to a double-slit experiment - up to highly nonlinear and multidimensional experiments. I will give a basic introduction into these techniques and highlight some recent experimental applications.

Ab 15:30 Uhr findet ein gemeinsames Kaffeetrinken in Raum 410 (TA) statt.