CFEL SCIENCE

SEMINAR

25 January 2024, 10:00–11:00h
CFEL (Bldg. 99) seminar room IV

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Relaxation dynamics in simple aromatic chromophores: from gas phase to solution

In this presentation, I will try to provide an overview of our work on the photochemical/ photophysical processes that simple-model aromatic molecules undergo after electronic excitation. We have applied pump-probe methods based in short pulses to induce and track the relaxation dynamics of these species in the gas-phase, when establishing intermolecular interactions in clusters and nowadays, in solution. The studies on isolated conditions have provided a detailed view on the relaxation channels triggered by the coupling between the bright ππ* character excitations, and other dark surfaces as the πσ* states. The obtained picture is guiding the interpretation of the actual solution experiments, in which by transient absorption methods, we are inducing and tracking the relaxation dynamics of these molecules solvated by H-bonded protic solvents [1]. This research aims to address the nature of the initially formed electronic-excited state and the intermediate steps toward the final products observed in the medium, while establishing the influence of the specific solute-solvent interactions on them.

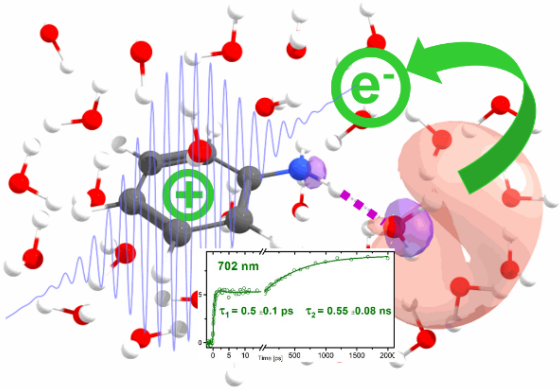

Figure 1. Illustration of the ionization process of the aniline(water)$_1$ cluster formed in a solution of aniline in water [1].

[1] I. Lamas, J. González, A. Longarte, R. Montero, *J. Chem. Phys.* 2023, **158**, 191102.

Host: Jochen Küpper/ CFEL Molecular and Ultrafast Science Seminar