

Single photon autoionization of aromatic molecules in solution

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The ionization of molecules in the condensed phase is driven by the interactions established with the environment. In fact, for some aromatic molecules dissolved in water, the formation of the fully separated charges (cation+electron) has been found after exciting at the onset of their electronic absorption, well below the gas-phase ionization potentials.[1,2] By using transient absorption methods based in femtosecond pulses, we have induced and tracked the relaxation dynamics of aromatic molecules solvated by H-bonded protic solvents. The research aims to address the nature of the initially formed electronic-excited state and the intermediate steps toward the fully separated charges, and to establish the influence of the specific solute-solvent interactions on them.[3] Understanding this relaxation channel opens the possibility of controlling the generation of charges in solution.

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