PHOTOISOMERIZATION DYNAMICS OF STILBENE AND AZOBENZENE DERIVATIVE OBSERVED BY FEMTOSECOND TRANSIENT ABSORPTION SPECTROSCOPY

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Ultrafast femtosecond pump and probe transient electronic absorption spectroscopy experiments were performed to gain insights into the photoisomerization dynamics in the condensed phase of two prototypical molecules, stilbene and a derivative of azobenzene. For example, in the stilbene case, a UV pump - continuum probe experiment measures the excited state dynamics, allowing us to compare the isomerization reaction starting from either the cis or the trans isomer. Information on how energy flows in the ground state molecule can also be obtained with an IR pump (either CH stretch overtone or stretch-bend combination) - UV probe setup. These data are critical in order to understand how vibrations could affect the isomerization process, as a vibrational mediation of this phenomena represents the ultimate goal of these experiments.