ULTRAFAST STRUCTURAL DYNAMICS OF TRANS-STILBENE

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Structural changes upon excitation of trans-stilbene to its lowest electronically excited states are well documented. However, reports on its dynamics in higher electronic states are scarce because they are difficult to access. In our experiments, trans-stilbene is pumped to a Rydberg state with a 209 nm femtosecond laser pulse, and then ionized at variable delay times by a 418 nm probe pulse. Photoelectron spectra from the Rydberg levels yield the electron binding energies, which provides a measure of the molecule's structure. The time dependence of the Rydberg electron binding energy reveals the sub-picosecond structural dynamics of the molecules.