VIBRATIONAL MEDIATION OF PHOTOISOMERIZATION IN THE CONDENSED PHASE: *TRANS*-STILBENE

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We have shown previously that selective vibrational excitation of reactants can lead to bond-selective and mode-selective control of gas-phase reactions such as the dissociation of water and hydrogen abstraction from methane isotopologues. Our present work seeks to extend this vibrational control to the solution phase, exploring the effect of vibrational excitation on the photoisomerization of stilbene. Stilbene exhibits ultrafast *cis-trans* isomerization as well as photoinduced ring closing, making it an excellent model for more complex systems with potential molecular electronics applications. We present the results of the first vibrationally mediated photoisomerization experiments, successfully introducing an infrared excitation pulse to a traditional electronic transient absorption experiment. Our results show that vibrational excitation appears to have little effect on the dynamics of the *trans*-stilbene excited state.