VIBRATIONAL ENERGY RELAXATION OF BENZENE DIMER STUDIED BY PICOSECOND TIME-RESOLVED INFRARED-ULTRAVIOLET PUMP-PROBE SPECTROSCOPY

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The benzene dimer is excited to the CH stretching vibrational levels by a picosecond IR pulse, and the time evolution of the population of the pumped and redistributed levels are probed by (1+1)REMPI with a picosecond UV pulse. In order to accomplish IR excitation localized in the site of the T-shaped dimer, two dimer isotopomers [(1) Top=C_6H_6, Stem=C_6D_6, (2) Top=C_6D_6, Stem=C_6H_6] are used. From the time profiles of the pumped and the relaxed levels, the rate constants of intracluster vibrational redistribution (ICVR) at each site and subsequent vibrational predissociation (VP) are discussed.