

STUDYING THE DYNAMICS OF THE RING-OPENING REACTION OF 1,3– CYCLOHEXADIENE

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Upon excitation by an ultra-violet photon 1,3– Cyclohexadiene loses its cyclic structure and becomes one of the isomers of 1,3,5– hexatriene. This ring-opening reaction serves as a model for a large number of photochemical processes. While many detailed studies have shed considerable light on this reaction, many details of the reaction pathway through the excited electronic states still have not yet been well determined. We have studied the ring-opening reaction using fluorescence spectroscopy and obtained the first free jet fluorescence spectrum. The spectrum provides clues about the excited states populated upon excitation. We have also examined the reaction process using pump-probe gas-phase electron diffraction. This technique gives a direct picture of the excited state structures accessed during the reaction. Preliminary results will be presented.