INFLUENCING THE PHOTODISSOCIATION DYNAMICS OF PHENOL

AMANDA S. CASE, Y. HEIDI YOON, MICHAEL L. HAUSE, F. FLEMING CRIM, *Department of Chemistry, University of Wisconsin-Madison, Madison, WI 53706*.

Photoinduced hydrogen elimination reactions in phenol-d_5 have been studied by use of velocity map ion imaging. Examination of phenol dissociation along the OH stretching coordinate shows that the S_2 state, which is optically dark, cuts through the S_0 state and the S_1 state, which is the dominant state by which absorption from the ground state occurs. In multiple dimensions, these crossings become conical intersections. Comparing total kinetic energy release distributions of H-atom fragments from both one-photon dissociation and vibrationally mediated photodissociation of phenol-d_5 reveals that initial vibrational excitation influences the dissociation dynamics. We have looked at the effect of an internal influence (OH stretch) on the dissociating system; it would be interesting to look at the effect of an external perturbation on the dissociating molecule, perhaps through use of a mixed dimer.