PROBING H-ATOM PRODUCTION CHANNELS IN THE FORMIC ACID DIMER

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

Three radical channels (HCO + OH, HCOO + H, and H + COOH) exist for the dissociation of formic acid after excitation to its first electronically excited state. We are interested in the competition between the two hydrogen channels of formic acid dimer. Partial deuteration allows for detection of either hydrogen channel. Both room temperature photoacoustic detection and jet cooled action spectra of $(HCOOD)_2$ and $(DCOOH)_2$ have been taken in the CH(D) stretch region. These results provide a more accurate assigment of the CH(D) stretch fundamental of formic acid dimer. The CD action spectrum reveals combination bands coupled to the CD stretch fundamental of $(DCOOH)_2$, while the CH action spectrum of $(HCOOD)_2$ shows no nearby states with which to couple. In addition, H/D yield studies have been performed which shed light on the branching ratio of these hydrogen channels in the dimer.