DYNAMICS OF VIBRATIONALLY EXCITED PHENOL-CO

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The dynamics of vibrationally excited complexes can be very intriguing, particularly the inefficient energy transfer and nonstatistical predissociation caused by the mismatch in frequencies of inter- and intra-molecular vibrational modes. We are looking at such dynamics in the one-to-one complex of phenol with carbon monoxide. These complexes are weakly bound by about 660 cm^{-1} in a planar minimum consisting of a nearly linear hydrogen bond between the phenolic hydrogen and the carbon end of the CO moiety. Both dissociation products (phenol and CO) can be conveniently probed with REMPI. We are taking advantage of this to study the dynamics of vibrationally excited phenol-CO. Looking beyond energy transfer and vibrational predissociation, it would be interesting to study both the one-photon and vibrationally mediated photodissociation dynamics of hydrogen production in this complex. Such studies could provide information on the effect the CO has on the dissociation of phenol, emphasizing its influence at the conical intersections.