MODE SELECTIVE PREDISSOCIATION OF THE PERDEUTERIOMETHOXY RADICAL

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Previous work on several members of the methoxy family of radicals has shown the photodissocation process to be strongly dependent on the vibrational mode excited. For the methoxy radical there exists a Fermi resonance between the two modes, ν_2 and ν_3, that appear to be the most strongly coupled to the dissociative potentials. In order to separate the contributions of ν_2 and ν_3 to the dissociation process, we have undertaken a study of the perdeuteriomethoxy radical in which ν_2 and ν_3 are not mixed by Fermi resonance. In this talk the flourescence temporal decay of the $\tilde{A}$ state of the perdeuteriomethoxy radical and the mode selectivity of its bond fission will be discussed.