RESONANCE ENHANCED MULTIPHOTON IONIZATION (REMPI) SPECTROSCOPY OF WEAKLY BOUND COMPLEXES

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We have recently implemented Resonance Enhanced Multiphoton Ionization (REMPI) spectroscopy in our laboratory as a spectroscopic probe of transient species. We will report on initial gas-phase studies of the spectra of weakly bound van der Waals and halogen bonded complexes involving aromatic organic donors. The complexes are formed in the rarified environment of a supersonic molecular beam, which is skimmed prior to passing into the differentially pumped flight tube of a linear time-of-flight mass spectrometer. Ionization is initiated both by 1+1 and 1+1' REMPI schemes; the latter is used to minimize fragmentation. Our initial studies have examined van der Waals and halogen bonded complexes involving the phenol and toluene chromophores. Progress in the coupling of a discharge source into this apparatus will also be discussed.