Time Resolved Stimulated Emission Pumping Of Bianthryl-Water Complexes

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Bianthryl-water complexes in a supersonic jet have been investigated using a variety of spectroscopic techniques. The laser induced fluorescence spectrum of this complex displays a red shift of a torsional progression similiar to that of bare bianthryl. The hole-burning spectra show this progression results from a single species. Solution phase studies of bianthryl in polar solvents show a pronounced red shift in emission which has been attributed to charge transfer. The dispersed fluorescence spectra of the bianthryl complex with a single water molecule show a non-resonant, stuctureless, emission also which is evidence of charge transfer character. This stuctureless emission suggests a very fast barrier crossing, therefore a picosecond transient approach is necessary. Time resolved stimulated emission pumping was done on this complex to resolve the resonant fluorescence spectrum. The data are then used to investigate the combination of a single excitation and multiple emission excited-state torsional potential energy surfaces.