# HYDROGEN BOND MEDIATED VIBRONIC MODE MIXING AND ELECTRONIC ENERGY TRANSFER IN BENZOIC ACID DIMERS

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Fluorescence excitation, hole burning and dispersed fluorescence spectra for SVL excitations of the pure and mixed dimers of benzoic acid and 3-fluorobenzoic acid are measured in a supersonic jet expansion. The spectral analysis reveals that the vibronic modes of benzoic acid are extensively mixed with the low-frequency intermolecular modes of the dihydrogen bonded interface, and the mixing is sensitive to the position of the fluorine substitution at the aromatic ring and overall symmetry of the conformers. In case of the mixed dimer, three electronic origin bands are identified corresponding to excitations of the benzoic acid and two conformers of 3-fluorobenzoic acid moieties, and the former is about 700 wavenumbers higher in energy that the latter two. Partial transfer of electronic energy is observed when the electronic origin of the benzoic acid moiety is excited state, and this occurs even there is no visible overlap between the emission spectrum of the donor and absorption spectra of the acceptor moieties. The spectra of different dimeric species will be presented and the role of hydrogen bonds in energy transfer process will be discussed.