

## LIF STUDY FOR THE VIBRONIC STRUCTURE OF PARA-FLUOROPHENOL...AMMONIA BINARY COMPLEX

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Laser-induced fluorescence excitation (LIFE) and dispersed fluorescence spectra of a binary complex between p-fluorophenol (pFP) and ammonia ( $\text{NH}_3$ ) have been measured in a supersonic jet expansion. The measured spectra reveal that para fluorine substitution, which is remote from the binding phenolic site, has a very pronounced effect on the intermolecular vibrational features that appear in the LIFE spectrum. These features also differ significantly compared to those of the 1:1 pFP- $\text{H}_2\text{O}$  complex [1]. The most intense low-frequency feature is the fundamental of the intermolecular stretching mode ( $\sigma$ ), which displays a long progression in the DF spectrum implying occurrence of significant distortion of geometry upon electronic excitation of the complex. In addition, the DF spectra display features of very low threshold for vibrational mixing in the excited state [2]. However, no direct evidence for proton/hydrogen transfer is revealed for vibronic excitation of the complex up to  $1^1$  level ( $822\text{ cm}^{-1}$ ) of the p-FP moiety.

[1] D.P. Mukhopadhyay, S. Biswas, T. Chakraborty, J. Phys. Chem. A 120 (2016) 9159.

[2] D.P. Mukhopadhyay, S. Biswas, T. Chakraborty, Chem. Phys. Lett. 674 (2017) 71.