CONFORMATIONS AND VIBRONIC MODE MIXING IN THE EXCITED STATE OF SELECTED FLOPPY AROMATIC MOLECULES PROBED BY LASER INDUCED FLUORESCENCE SPECTROSCOPY

PRASENJIT PANDEY, PARTHA BISWAS and TAPAS CHAKRABORTY, *Department of Physical Chemistry and Raman Centre for Atomic Molecular and Optical Sciences, Indian Association for the Cultivation of Science, Jadavpur, Kolkata 700 032, India* ; V. RAMANATHAN, *Department of Chemistry, Indian Institute of Technology Kanpur, Kanpur UP 208 016, India*.

Conformational analysis of p-fluorophenol, phenetole and 1-methoxynaphthalene have been performed by measuring the laser induced fluorescence (LIF) excitation and dispersed fluorescence (DF) spectra under supersonic jet expansion. Vibronic analysis reveals existence of only one conformation of all the molecules. The findings are consistent with predictions of quantum chemistry calculations. The DF spectra measured following excitations to single vibronic levels display interesting features of vibronic mode mixing. Duschinsky analysis under harmonic approximations for vibrational modes in the two electronic states does not reproduce the observed spectral features. The systems exhibit low threshold of anharmonic interactions in the S1 state. The details will be presented in the talk.