INVERSION BARRIERS IN THE S_0 AND S_1 ELECTRONIC STATES OF p-FLUOROANILINE

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Rotationally resolved spectra of p-fluoroaniline are obtained in both the ultraviolet and microwave regions for several vibronic bands that involve motion along the inversion coordinate. Additional spectra of the deuterated amine structures are used to determine the vibrationally averaged coordinates of these atoms in the principal axis frame and have aided in the identification of the inversion levels. The symmetric double minimum potentials in both electronic states are determined from these energy level patterns. The barrier to inversion is found to be significantly reduced ($>$10 fold) upon electronic excitation. High resolution fluorescence excitation spectra from a new UV laser/molecular beam spectrometer being constructed at NIST may also be presented.