DYNAMICS OF ACETYLENE ISOTOPOMERS REVEALED BY INTENSITY ANALYSIS

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Intensity analysis of the Dispersed Fluorescence spectra of Acetylene Isotopomers ($^{12}C_2H_2$, $^{13}C_2H_2$, $^{12}C_2HD$) has yielded information about the dynamics on both the $\tilde{X}$ state and $\tilde{A}$ state potential surfaces. A local mode calculation of the Franck-Condon factors for the $\tilde{A} \leftrightarrow \tilde{X}$ transition is introduced and both its theory and application will be presented. For the analysis of HCCD in particular, this calculation makes it possible to show that the CCH and CCD local bends undergo IVR at profoundly different rates.