FAST SORTING OF VIBRONIC BANDS CONTAINING NON-TOTALLY SYMMMETRIC VIBRATIONS IN THE $\tilde{A} \leftarrow \tilde{X}$ TRANSITION OF ACETYLENE USING FILTERED FLUORESCENCE CROSS CORRELATION

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Observed rovibrational features in the $\tilde{A} \leftarrow \tilde{X}$ UV-LIF spectrum of acetylene have been sorted according to the number of quanta in the trans-bending (ν_3) vibration by simultaneously recording the LIF spectrum with two different photomultiplier tubes plus filter combinations that are each sensitive the emission from one of the two classical turning points of the trans-bending vibration. The relative intensities of the two channels, in combination with the the approximate energy, is used to evaluate the number of quanta of ν_3 and therefore to infer the number of quanta in the non-totally symmetric vibrations (ν_4, ν_6). The rapid spectral sorting provided by filtered fluorescence cross correlation aids the identification of weak and fragmentary perturbations in dense spectral regions and obviates the need to record dispersed fluorescence spectra of each feature. Analysis of some of the observed features are presented and their impact on our understanding of intensity sharing mechanisms in the $\tilde{A}$ state is discussed.