A HIGH RESOLUTION STUDY OF THE ELECTRONIC SPECTRA OF CONFORMERS OF 1,3 AND 1,4 DIVINYLBENZENE: UNEXPECTED EXCITED STATE BEHAVIOR

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The vibrationally resolved $S_1\leftarrow S_0$ electronic spectra of 1,3- and 1,4-divinylbenzene each exhibited two origin bands that are $\sim 800 \text{ cm}^{-1}$ and $\sim 1000 \text{ cm}^{-1}$ apart respectively. Intrigued by this observation, we have recorded the different bands at full rotational resolution in a molecular beam. Analyses of these data show that the two bands are the $S_1\leftarrow S_0$ of the different conformers, cis and trans, in each molecule, which are remarkably far apart. Typically, such systems exhibit more closely spaced origin bands. A model that accounts for this unexpected behavior will be discussed.

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