

ELECTRONIC SPECTRA OF BENZENE ISOTOPOMERS IN HELIUM NANODROPLETS

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We have recorded high-resolution ultraviolet spectra of four benzene isotopomers (C_6H_6 , C_6H_5D , $1,3,5-C_6H_3D_3$, and C_6D_6) in helium nanodroplets in the region of the first Herzberg-Teller allowed vibronic transition ${}^1B_{2u} \leftarrow {}^1A_{1g} 6_0^1$. The spectra could not be observed by laser-induced fluorescence, but were recorded by beam depletion using bolometric detection. Like tetracene and pentacene,^a these benzene isotopomers show multiple absorption lines spread over $\sim 10\text{ cm}^{-1}$. The structures of these lines are found to be qualitatively different for the various isotopomers. The zero-phonon lines are blue shifted with respect to the gas phase transitions by 3 to 4 cm^{-1} , as predicted by Even *et al.*^b

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^bU. Even, I. Al-Hroub, and J. Jortner, *J. Chem. Phys.* **115**, 2069 (2001)