SPECTROSCOPY OF *o-, m-,* AND *p*-DIETHYNYLBENZENES

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Aromatic rings with unsaturated substituents may be important photoproducts in planetary atmospheres, particularly as precursors to polycyclic aromatic hydrocarbons. To better understand the nature of these molecules, we have studied the jet spectroscopy of the series of *ortho*-, *meta*-, and *para*-diethynylbenzenes. Electronic spectra were recorded via one- and two-color resonant two photon ionization with time-of-flight mass spectrometry detection. Resonant ion-dip infrared spectroscopy was used to obtain ground state vibrational spectra. *Ab initio* calculations were carried out for both the ground and excited states to aid in the assignment of vibrational and vibronic transitions.