INFRARED SPECTRA OF BENZENE-DIACETYLENE CLUSTERS: $C_6H_6 \cdot C_4H_2$ and $C_6H_6 \cdot (C_4H_2)_2$

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Resonant two photon ionization spectra of the benzene:diacetylene 1:1 cluster have been taken across the $6^1{}_0$ transition region of the cluster with time-of-flight mass spectrometry detection. IR/UV holeburning has shown that one of the peaks in the spectrum is the benzene:diacetylene 1:2 cluster. The resonant ion dip infrared spectra of both the 1:1 cluster and the 1:2 cluster have been recorded. Possible structures of these clusters will be discussed.