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Double Photoionization of Deuterated Benzene[1] RALF WEHLITZ, PAVLE JURANIC[2], Synchrotron Radiation Center, Univ. of Wisconsin–Madison, MAX YOUNG[3], Univ. of Idaho, Moscow, BETHANY REILLEY[4], Taylor Univ., Upland, Indiana — Previously we had noticed modulations at certain excess energies in the double-to-single photoionization ratio of C60. When those excess energies are converted into de Broglie wavelengths of an electron, then they corresponded to the inter-atomic distances of the C60 cluster[5] such as the carbon-carbon distance, the diameter of a hexagon, and the diameter of the cluster. We attempted to observe a similar effect in benzene (C6H6). However, C6H6 can fragment creating C3H3 ions, which have the same mass-to-charge ratio as the doubly charged C6H6 ions and thus cannot be distinguished with our current ion Time-of-Flight analyzer. In order to avoid this problem we have used deuterated benzene (C6H3D3) to measure the double photoionization probability from threshold to 160 eV.

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