

Abstract Submitted
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K-shell photodetachment of small size-selected negative ion clusters: Experiment and theory R.C. BILODEAU, Physics Dept. - Western Michigan University and ALS - LBNL, N. BERRAH, I. DUMITRIU, O. ZATSARINNY, T. GORCZYCA, Physics Dept. - Western Michigan University, J.D. BOZEK, Advanced Light Source - Lawrence Berkeley National Lab., N.D. GIBSON, C.W. WALTER, Dept. of Physics - Denison University, D. TOFFOLI, R.R. LUCCHESI, Dept. of Chemistry - Texas A&M University — K-shell photodetachment of atomic B^- and size-selected B_2^- and B_3^- cluster anions have been calculated and measured, using the photon-ion beamline on the Advanced Light Source beamline 10.0.1. Absolute photodetachment cross sections of B^- measured as a function of photon energy, exhibit three near- threshold shape resonances due to the 3S , 3P , and 3D final partial waves. The clusters exhibit bound resonances below threshold and two shape resonances above the K-shell threshold. The overall agreement between measured and calculated photodetachment cross sections is very good. However, the theoretical studies yielded additional bound resonances not observed in the experimental data and certain significant quantitative discrepancies, even in the atomic case.

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