

Abstract Submitted
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Inner Shell Studies of Negative Ions R.C. BILODEAU, Western Michigan U. and LBNL - ALS, J. D. BOZEK, Lawrence Berkeley National Laboratory - ALS, C. W. WALTER, Denison University, N.D. GIBSON, Denison University, G.D. ACKERMAN, Lawrence Berkeley National Laboratory - ALS, I. DUMITRIU, Western Michigan University, N. BERRAH, Western Michigan University — The peculiar binding potential in negative ions leads to structure and spectra significantly different from their atomic and positive ion cousins, including for example the absence of Rydberg series. In addition, the highly correlated ground and excited states formed in negative ions offer stringent tests of the latest high-level theoretical models of electron correlation, and close interaction between these theories and basic experiments can elucidate processes of importance in many fields. A summary of recent experiments lead by our team on BL 10.0.1 IPB at the ALS will be presented. These include studies targeting the prototypical He negative ion [1], investigations of the unusual near-threshold cross section onset of negative ions, including demonstration of the Wigner threshold law angular momentum dependence, observation of multi-electron ejection leading to high charge-state products, and inner-shell studies of cluster negative ions. This work is funded by DOE, BES. We would like to thank B.S. Rude for his timely and valuable help during these experiments. [1] R. C. Bilodeau et al., Phys. Rev. Lett. 93, 193001 (2004).

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