Abstract Submitted
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Inner-shell Photodetachment from Li^- and C^{-1} C.W. WALTER, N.D. GIBSON, Denison University, R.C. BILODEAU, N. BERRAH, Western Michigan University, J.D. BOZEK, G.D. ACKERMAN, Lawrence Berkeley Lab - ALS — Photodetachment from the K-shell of Li^- and C^- has been investigated using the merged ion-photon beam technique on the Advanced Light Source Beamline 10.0.1. Photoexcitation and detachment of $1s$ electrons leaves the neutral atoms in core-excited states that subsequently Auger decay to produce positive ions which are detected as a function of photon energy. Recent experiments yield higher resolution spectroscopy than our previous studies [1,2] and provide new measurements of the absolute cross sections for double detachment. Several resonances are investigated for Li^- in the photon energy range 57-66 eV, while the spectrum for C^- shows one prominent resonance near 281.8 eV. Comparisons of the cross sections, the character of observed resonances, and the effects of post-collision interactions will be discussed.
[1] N. Berrah *et al.*, Phys. Rev. Lett. **87**, 253002 (2001); [2] N.D. Gibson *et al.*, Phys. Rev. A **67**, 030703 (2003).

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