

Abstract Submitted  
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**Inner-Shell Photodetachment of Nickel Negative Ions** ILEANA DUMITRIU, Hobart and William Smith Colleges, RENE BILODEAU, University of Connecticut, DANIEL GIBSON, WES WALTER, Denison University, THOMAS GORCZYCA, Western Michigan University, ALEX AGUILAR, ReVera Inc, DANIEL ROLLES, Kansas State University, ZORAN PESIC, ThermoScientific, NORA BERRAH, University of Connecticut — Transition metals are of interest for their catalytic properties and participation of *d*-orbital electrons in the bonding properties. Theoretical studies of transition metal negative ions are challenging due to strong electron correlation effects and existence of low-lying electronic states as a result of open *d*-shell configurations. Experimental studies of transition metal negative ions are limited compared with the ions belonging to the main groups of periodic table and these studies have mostly investigated the valence-shell electrons using laser spectroscopy. Our experiment focuses on inner-shell photodetachment studies of Ni<sup>-</sup> transition metal ions using the Ion-Photon Beamline on the ALS beamline 10.0.1. Inner-shell photodetachment spectrum was recorded over a range of 30 to 90 eV which includes the 3*p* threshold for Ni<sup>-</sup>. The higher-charge state formation was also observed, indicating multi-electron ejection processes. The absolute cross-section for the production of Ni<sup>+</sup> will also be presented.

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