

Abstract Submitted  
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**Inner-Shell Photodetachment of Iron and Ruthenium Negative Ions** ILEANA DUMITRIU, Physics Department WMU, Kalamazoo, MI, R.C. BILODEAU, ALS, LBLN, Berkeley, CA and WMU, Kalamazoo, MI, T. GORCZYCA, Physics Department WMU, Kalamazoo, MI, C.W. WALTER, N.D. GIBSON, Physics Department Denison University, OH, A. AGUILAR, ALS, LBLN, Berkeley, CA, Z. PESIC, D. ROLLES, ALS, LBLN, Berkeley, CA and WMU, Kalamazoo, MI, N. BERRAH, Physics Department WMU, Kalamazoo, MI — Transition metals such as Ru and Fe are of wide application in oceanography, cosmochemistry, and geology due to their catalytic properties and participation of d-orbital electrons in their bonding properties. The first inner-shell photodetachment studies in  $\text{Fe}^-$  and  $\text{Ru}^-$  conducted using the Ion Photon Beamline (IPB) on ALS beamline10.0.1 will be presented. The negative ions extracted from the SNICS ion source are mass selected and merged collinearly with the photon beam. Inner-shell photodetachment and subsequent Auger decay produce positive ions which are detected as a function of photon energy over a range of 48 to 72 eV. Excitations from p-electrons to open d-shells were carried out in both  $\text{Fe}^-$  and  $\text{Ru}^-$ . Two shapes resonances were observed in  $\text{Fe}^-$  and no clear resonance was observed in  $\text{Ru}^-$ . The absolute cross-section for the production of  $\text{Fe}^+$  and  $\text{Ru}^+$  will also be presented.

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