## Abstract Submitted for the MAR13 Meeting of The American Physical Society

Probing the f-state configuration of  $\alpha U$  and  $URu_2Si_2$  with RXES SCOTT MEDLING, CORWIN H. BOOTH, Lawrence Berkeley National Lab, RYAN BAUMBACH, ERIC D. BAUER, Los Alamos National Lab — We directly probed the electronic configuration of several uranium compounds using Resonant X-ray Emission Spectroscopy (RXES). Previous investigations by several groups into the magnetic properties of uranium compounds (such as  $URu_2Si_2$ ) suggested that some are multiconfigurational. RXES is particularly useful for probing the configurations because measuring the energies of both the incident and scattered photons reveals information about both the empty and occupied electronic states. We collected data for several uranium samples ( $\alpha U$ ,  $UO_2$ , and  $URu_2Si_2$ ) which indicate that in some of these compounds the uranium is multiconfigurational, with a mixture of  $f^1$ ,  $f^2$ , and  $f^3$  occupancies. The degree of intermediate valence that this implies will be related to electronic and magnetic properties of the compound.

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