Abstract Submitted
for the MAR15 Meeting of
The American Physical Society

Structure and physical properties of R2Os2O7 Pyrochlores[1] RYAN RAWL, Univ of Tennessee, Knoxville, STUART CALDER, Oak Ridge National Laboratory, ZHIYING ZHAO, HAIDONG ZHOU, DAVID MANDRUS, JIAQIANG YAN, Univ of Tennessee, Knoxville — The spin-orbit coupling (SOC) in 4d/5d transition metal oxides is enhanced to such a degree, relative to 3d oxides, that it can alter the electronic structure and have a dramatic effect on materials properties. A good example of this is the SOC assisted metal-insulator transition in Sr2IrO4, which has been extensively studied in the last few years. In a strong SOC scenario, a nonmagnetic ground state is expected for systems with d4 electronic configuration. R2Os2O7 pyrochlores, in which Os4+ has d4 electron count, provides a material playground to study the magnetism of d4 and effect of R3+-Os4+ interplay on the ground states. This series has only undergone limited studies, with the only published data investigating the lattice parameters and electrical resistivity at room temperature. In this talk, I will report our study on the magnetic, transport, thermodynamic, and structural properties of R2Os2O7 pyrochlores.

[1]Part of the work was supported by the CEM, and NSF MRSEC, under grant DMR-1420451

Ryan Rawl
Univ of Tennessee, Knoxville

Date submitted: 14 Nov 2014 Electronic form version 1.4