Abstract Submitted
for the TSF19 Meeting of
The American Physical Society

Probing the stability of Shastry Sutherland lattice in Er2Pd2Sn and Er2Pd2In GICELA SAUCEDO SALAS, BAIDYANATH SAHU, ANDRE STRYDOM, HARIKRISHNAN NAIR, None, UNIVERSITY OF JOHANNESBURG COLLABORATION — The group of 221 compounds crystalizing in the Mo2FeB2 structure type, more commonly known as R2T2X intermetallic (R = rare earth, T = transition metal, X =main group), have been reinvestigated recently owing to the spin liquid state in the underlying Shastry Sutherland lattice (SSL) formed by the R [1, 2]. Our motivation in investigating this compound is to explore the interplay of frustration and quantum criticality. The present study we have selected less-investigated Er2Pd2In and Er2Pd2Sn. X-ray powder diffraction studies and subsequent Rietveld refinements confirmed that the compounds were phase-pure and crystallized in the tetragonal Mo2FeB2 structure. Both the compounds obeyed Curie-Weiss law in the paramagnetic regime, as judged from magnetic susceptibility data, which indicated antiferromagnetism. Specific heat data on both the compounds revealed a double peak indicating complex magnetic structure and phase transitions. We will present a detailed analysis of the magnetization and specific heat on both Er2Pd2(Sn/In) and motivate our future planned neutron diffraction experiment to determine the magnetic structure of these SSL compounds to probe for novel magnetic phases.

Gicela Saucedo Salas
None

Date submitted: 27 Sep 2019 Electronic form version 1.4