

Abstract Submitted
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Crystal Synthesis of Novel Yb-Pt-Pb Phases¹ CARLOS MARQUES, Brookhaven National Laboratory and Stony Brook University, YURI JANSSEN, Brookhaven National Laboratory, MARCUS BENNET, University of Michigan, MOO SUNG KIM, KEESEONG PARK, Brookhaven National Laboratory, PETER KHALIFAH, MEIGAN ARONSON, Brookhaven National Laboratory and Stony Brook University — We have used flux techniques to explore the Yb-Pt-Pb ternary phase diagram, and have grown a number of intermetallic compounds including YbPt, Yb₃Pt₅, and the new Yb₅Pt₉, YbPt₂, Yb₃Pt₄ and Yb₂Pt₂Pb, as well as Yb₃Pt₅Si and YbPtSi. The crystal structure of these different compounds will be compared. A particular focus has been the synthesis of single crystals of quantum critical antiferromagnet (AF) Yb₃Pt₄, and we show that it is possible to synthesize crystals which are large enough for neutron diffraction measurements. Laue patterns and neutron rocking curves along with other methods show that these crystals are of very high quality. Initial results of neutron diffraction and inelastic scattering experiments on single Yb₃Pt₄ crystals and arrays of multiple Yb₃Pt₄ crystals will be presented.

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