Abstract Submitted
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Transport, magnetic and thermal properties of MFePO M = La, Pr, and Nd single crystals[1] RYAN BAUMBACH, JAMES HAMLIN, LEI SHU, DIEGO ZOCCO, NICOLE CRISOSTO[2], M. BRIAN MAPLE, Department of Physics and IPAPS, University of California, San Diego — The recent discovery of T_c values near 26 K in the compound $LaFeAsO_{1-x}F_x$ induced a torrent of publications on what are now recognized as a new class of Fe-based high temperature superconductors. To date, the phosphorus based versions of these compounds have recieved little attention due to their comparitively low T_c values. In this work we report the low temperature electrical resistivity, magnetic susceptibility, and specific heat data of single crystalline PrFePO and NdFePO. We also report the effect of annealing on the properties of LaFePO, PrFePO, and NdFePO. A systematic comparison of the occurence of superconductivity in the series MFePO and MFeAsO (where M is a lanthenide) points to a possible difference in the origin of the superconductivity in these two series of compounds.

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