

Abstract Submitted  
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**The gap structure of  $\text{BaFe}_2(\text{As}_x\text{P}_{1-x})_2$  determined from specific heat measurements** L. MALONE, University of Bristol, Y. MIZUKAMI, Kyoto University, P. WALMSLEY, University of Bristol, C. PUTZKE, S. KASAHARA, T. TERASHIMA, T. SHIBAUCHI, Y. MATSUDA, Kyoto University, A. CARRINGTON, University of Bristol — The structure of the superconducting gap of the pnictide superconductors is an unresolved but crucial issue to understanding their mechanism of superconductivity. While some experiments and theories support a fully gapped  $s_+/s_-$  state, several experiments have revealed evidence for nodes in some families of pnictides. Detailed knowledge of the superconducting gap structure and how it varies as a function of material properties can be useful in helping to decide between microscopic theories.  $\text{BaFe}_2(\text{As}_x\text{P}_{1-x})_2$  is a pnictide family with a nodal gap structure and evidence for quantum critical behavior [1]. We have measured the specific heat of several samples of  $\text{BaFe}_2(\text{As}_x\text{P}_{1-x})_2$  in a range of  $x$  values. We examine the temperature, field and field angle dependence of the specific heat to deduce the changes in the superconducting gap structure as the material is tuned to the quantum critical point. [1] K. Hashimoto et al, Science, 336,

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