

Abstract Submitted
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Specific Heat to 35 T in P-doped and Co-doped BaFe₂As₂: Evidence for Nodes or Not?¹ G.R. STEWART, J.S. KIM, P.J. HIRSCHFELD, Physics, University of Florida, F. RONNING, K. GOFRYK, MPA-10, Los Alamos National Laboratory, A.S. SEFAT, MST Division, Oak Ridge National Laboratory, S. KASAHARA, T. SHIBAUCHI, T. TERASHIMA, Y. MATSUDA, Physics, Kyoto University — We have measured the low temperature specific heat of annealed single crystal Ba(Fe_{0.955}Co_{0.045})₂As₂, unannealed single crystal BaFe₂(As_{0.7}P_{0.3})₂, and other BaFe₂As₂ derivatives in fields to 35 T. We report contrasting behavior, with the underdoped Co sample exhibiting behavior (specific heat $\gamma \sim H^{0.7}$) essentially up to H_{c2} similar to the Volovik effect prediction ($\gamma \sim H^{0.5}$) for nodal behavior for fields $H < 0.1H_{c2}$. In contrast, γ up to 35 T (2/3 of H_{c2}) in BaFe₂(As_{0.7}P_{0.3})₂ exhibits linear with field dependence, consistent with fully gapped behavior but inconsistent with indications of nodal behavior from other measurements. Possible explanations, and up-to-date measurements will be presented.

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