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Specific Heat in High Magnetic Fields of BaFe₂(As_{1-x}P_x)₂ CAMILLA M. MOIR, FSU/NHMFL, JOSE A. GALVIS, NHMFL, PHILLIP WALMSLEY, Stanford, JAMES G. ANALYTIS, UC Berkeley, JIUN-HAW CHU, IAN R. FISHER, Stanford, ARKADY SHEKHTER, NHMFL, GREG S. BOE-BINGER, FSU/NHMFL, SCOTT C. RIGGS, NHMFL — We measure the magnetic field dependence of the specific heat in BaFe₂(As_{1-x}P_x)₂ with x ranging from x=0.31 to x=0.6 in fields up to 34.5T. We report three important observations: \sqrt{H} behavior indicating a nodal superconducting gap with a linear energy dispersion, saturation of the heat capacity at the magnetic field that corresponds to the resistive onset [1], and a calculated quasiparticle mass using the increase in the electronic specific heat coefficient when entering the normal state, $\Delta \gamma = -\gamma(34.5T) - \gamma(0T)$, as a measure of the normal state specific heat. [1] James G. Analytis, H-H. Kuo, Ross D. McDonald, Mark Wartenbe, P. M. C. Rourke, N. E. Hussey & I. R. Fisher. *Nature Phys.* 10, 194–197 (2014)

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