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Nernst and Seebeck coefficients of the iron-pncitide superconductor $Ba_{1-x}K_xFe_2As_2$ XIGANG LUO, H. SHAKERIPOUR, J. CHANG, F. LALIBERTE, J. -PH. REID, N. DOIRON-LEYRAUD, L. TAILLEFER, Universite de Sherbrooke, M.A. TANATAR, R. PROZOROV, Ames Laboratory, H.Q. LUO, Z.S. WANG, H.-H. WEN, Institute of Physics, Beijing — The Nernst and Seebeck coefficients of the iron-pnictide superconductor $Ba_{1-x}K_xFe_2As_2$ were measured in single crystals for K concentrations ranging from the parent compound at x=0 to the optimally-doped superconductor at x=0.40, where Tc=38 K. Both coefficients show sharp anomalies at T_N, the onset temperature for antiferromagnetic order. This allows us to track the doping dependence of T_N and hence to map out the T-x phase diagram of $Ba_{1-x}K_xFe_2As_2$. The reconstruction of the Fermi surface by the antiferromagnetic order causes a huge enhancement of the quasiparticle Nernst signal, suggesting that carrier density and Fermi temperature are dramatically reduced in the magnetic phase. The Nernst signal due to superconducting fluctuations is small by comparison, and it remains detectable up to a temperature approximately 15% above T_c, in the optimally-doped sample.

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