

Abstract Submitted
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Enhanced **quasi-**
particle scattering and scaling of $\text{Ba}(\text{Fe}_{1-x}\text{Co}_x)_2\text{As}_2$ flux-flow resistivity under the superconducting dome¹ XINYI HUANG, DEREK HANEY, YOGESH SINGH, SHUAI ZHANG, Kent State University, HAI-HU WEN, Nanjing University, TAO HU, Shanghai Institute of Microsystem and Information Technology, CAS, MAXIM DZERO, CARMEN ALMASAN, Kent State University — We utilize the current-voltage (I-V) technique to probe the quasiparticle scattering in the mixed state of $\text{Ba}(\text{Fe}_{1-x}\text{Co}_x)_2\text{As}_2$ crystals. Analysis of the free-flux-flow resistivity within the vortices shows a sharp increase in the quasiparticle scattering with decreasing temperature and applied field. This abrupt flux-flow resistivity behavior is attributed to the presence of critical spin fluctuations inside the vortex core. The fluctuations are strongest for $x = 0.06$, and is suppressed on either side of this doping. For each doping measured, at different temperatures and applied fields, the vortex dissipation curves scale and show an exponential relationship. We will discuss the physics behind the observed scaling behavior.

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