Abstract Submitted
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In-plane structural and electronic anisotropy in de-twinned ($\mathbf{Ba_{1-x}K_x}$)$\mathbf{Fe_2As_2}$ ERICK BLOMBERG, M.A. TANATAR, W.E. STRASZHEIM, The Ames Laboratory, Ames, IA, USA., B. SHEN, H.H. WEN, Nanjin Universtiy, Nanjin, China., R. PROZOROV, The Ames Laboratory, Ames, IA, USA. — The iron-pnictides undergo a tetragonal to orthorhombic structural transition below a doping - dependent temperature T_s. In the absence of external stress or strain, the orthorhombic phase is divided into four degenerate, equally populated, "twin" structural domains, obscuring direct measurement of in-plane anisotropy. This degeneracy may be broken through mild mechanical stress or strain leaving the sample de-twinned. The properties of de-twinned ($Ba_{1-x}K_x$)Fe_2As_2 with x=0.1, 0.18 (hole under-doped) were discussed previously [1]. Here we report polarized-light microscopy and AC transport measurements of strain-detwinned ($Ba_{1-x}K_x$)Fe_2As_2 with a dopping range from x=0.15 to x=0.35. Our results provide new insight into a region of coexisting magnetic and superconducting order parameters.

[1] J. J. Ying, et al. Phys. Rev. Lett. **107** 067001 (2011).

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