

Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

In-plane electronic anisotropy in underdoped $\text{Ba}(\text{Fe}_{1-x}\text{Co}_x)_2\text{As}_2$ revealed by detwinning in a magnetic field¹ JIUN-HAW CHU, JAMES ANALYTIS, DAVID PRESS, KRISTIAAN DE GREVE, THADDEUS LADD, YOSHISHI YAMAMOTO, IAN FISHER, Stanford University — We present results of angle-dependent magnetoresistance measurements and direct optical images of underdoped $\text{Ba}(\text{Fe}_{1-x}\text{Co}_x)_2\text{As}_2$ which reveal partial detwinning by action of a 14T magnetic field. Driven by a substantial magneto-elastic coupling, this result provides evidence for an electronic origin of the lattice distortion in underdoped iron pnictides. The observed anisotropy in these partially detwinned samples implies a substantial in-plane electronic anisotropy in the broken symmetry state, with a smaller resistivity along the antiferromagnetic ordering direction.

¹This work is supported by the DOE, Office of Basic Energy Sciences, under contract no. DE-AC02-76SF00515.

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Date submitted: 19 Nov 2009

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