Abstract Submitted
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Anisotropic Fermi surface reconstruction in the cuprate superconductor $YBa_2Cu_3O_y$ NICOLAS DOIRON-LEYRAUD, OLIVIER CYR-CHOINIERE, SVEN BADOUX, BASTIEN MICHON, AREZOO AFSHAR, ALEXANDRE OUELLET, LOUIS TAILLEFER, Universite de Sherbrooke, RUIXING LIANG, DOUG BONN, WALTER HARDY, University of British Columbia — Recent X-ray scattering experiments on underdoped $YBa_2Cu_3O_y$ have revealed a transition from two-dimensional short-range charge-density wave modulations to a state of three-dimensional long-range charge order as a function of magnetic field [1]. Transport experiments have shown that the Fermi surface reconstruction (FSR) occurs at that transition [2]. To examine the symmetry of this FSR we have measured the thermopower of high-quality single crystals of $YBa_2Cu_3O_y$ with dopings p = 0.11 and 0.12 as a function of magnetic field up to 45 T. At low temperatures we observe a clear anisotropy of the Seebeck coefficient between the a and b axes, strong evidence of a uniaxial stripe-like FSR. The onset of this a-b anisotropy as a function of magnetic field and temperature correlates well with other transport, thermodynamic, and diffraction measurements, defining a high-magnetic field and low-temperature long-range quasi-1D charge-ordered state. [1] S. Gerber et al., Science aac6257 (2015). [2] G. Grissonanche et al., arXiv:1508.05486.

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