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Magnetotransport anisotropy in microstructures of Yb_2Pt_2Pb
TONI HELM, PHILIP J.W. MOLL, NoneMax-Planck-Institute for Chemical Physics of Solids, Dresden, Germany — The Yb^{3+} moments in Yb_2Pt_2Pb (YPP) form a strongly frustrated Shastry-Sutherland lattice (SSL) [1]. Below 2 K, a dimerized antiferromagnetic order consisting of two AF sublattices has been recently identified by neutron diffraction [2]. Unlike other quantum magnets, YPP is a highly conductive metal and the large Sommerfeld coefficient $\Gamma \sim 300$ mJ/molK^2 suggests hybridization of the Yb-4f states with the conduction band [3]. This opens the possibility to search for signatures of the metamagnetism associated with the plateaus at fractions of the saturation magnetization, a characteristic of SSL systems. To study the influence of YPPs rich magnetic structure on the anisotropic charge transport, we fabricated micron-sized transport devices from single crystalline YPP by Focused Ion Beam etching. This technique enables thickness and length dependent magnetotransport measurements along the most relevant lattice directions. [1] M. S. Kim et al. PRB 77,144425 (2008) [2] W. Miiller et al. arXiv:1408.0209v1 (2014) [3] M. S. Kim, M. C. Aronson, PRL 110, 017201 (2013)

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