

Abstract Submitted
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Landau quantization and spin-momentum locking in topological Kondo insulators¹ PEDRO SCHLOTTMANN, Florida State University — SmB₆ has been predicted to be a strong topological Kondo insulator and experimentally it has been confirmed that at low temperatures the electrical conductivity only takes place at the surfaces of the crystal. Quantum oscillations and ARPES measurements revealed several Dirac cones on the (001) and (101) surfaces of the crystal. We considered three types of surface Dirac cones with an additional parabolic dispersion and studied their Landau quantization and the expectation value of the spin of the electrons. The Landau quantization is quite similar in all three cases and would give rise to very similar de Haas-van Alphen oscillations [1]. The spin-momentum locking, on the other hand, differs dramatically. Without the additional parabolic dispersion the spins are locked in the plane of the surface. The parabolic dispersion, however, produces a gradual canting of the spins out of the surface plane.

[1] P. Schlottmann, Phys. Rev. B **90**, 165127 (2014).

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