

Abstract Submitted
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Semi-classical orbits in spin-orbit coupled three-dimensional SU(2) Landau levels SAAVANTH VELURY, University of Illinois at UrbanaChampaign, YI LI, Johns Hopkins Univ — Time-reversal invariant generalizations of Landau levels from two to three dimensions gave rise to continuum descriptions of topological insulators in three dimensions. In this talk, we study the corresponding generalization of familiar cyclotron motion of charged particles under a magnetic field to three-dimensional (3D) trajectories with spin-angular momentum locking in 3D Landau levels with a 3D rotationally invariant SU(2) gauge. Because of effective Larmor precession with respect to the spin of the particle, we find that orbits display various spin-orbit coupled motions under different initial conditions. The analogy with a quantum top will also be presented.

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