Contribution ID: **41** Type: **Talk**

Linear dispersion with a tilt: analog black holes, electron lenses and Berry curvature effects

Wednesday, 3 May 2023 10:00 (30 minutes)

In this talk, I present our recent study about transport in Weyl semimetals with spatially varying nodal tilt profiles. We discuss two complementary approaches that characterise the electron flow: solutions of the semi-classical equations of motion, in analogy to those encountered in black hole spacetimes, and large-scale microscopic simulations of a scattering region surrounded by semi-infinite leads. We show that the two approaches lead to equivalent results when the wave packet is sufficiently far from the center of the tilt. The two methods are arguably a powerful toolset in the pursuit of tiltronic devices such as e.g. electronic lenses.

Abstract category

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