

Talk title:

Spiraling energy dispersion of arc states in Weyl semimetals

Abstract:

Weyl semimetals host topologically protected electron surface states. The Fermi lines of these states form arcs connecting projections of Weyl nodes of opposite chirality onto the plane of momentum parallel to the crystal surface. I will show that static electric fields that are necessarily present near the crystal surface result in a spiraling structure of Fermi arcs. The winding angle of the spiral is controlled by the chirality of the Weyl node the magnitude of the surface potential. This allows tuning of the helical structure of arc state dispersion by electrostatic gating.