Down the Rabbit Hole: Sinking Electrons in a Weyl Sea

IRG1: Princeton Center for Complex Materials (DMR-1420541)
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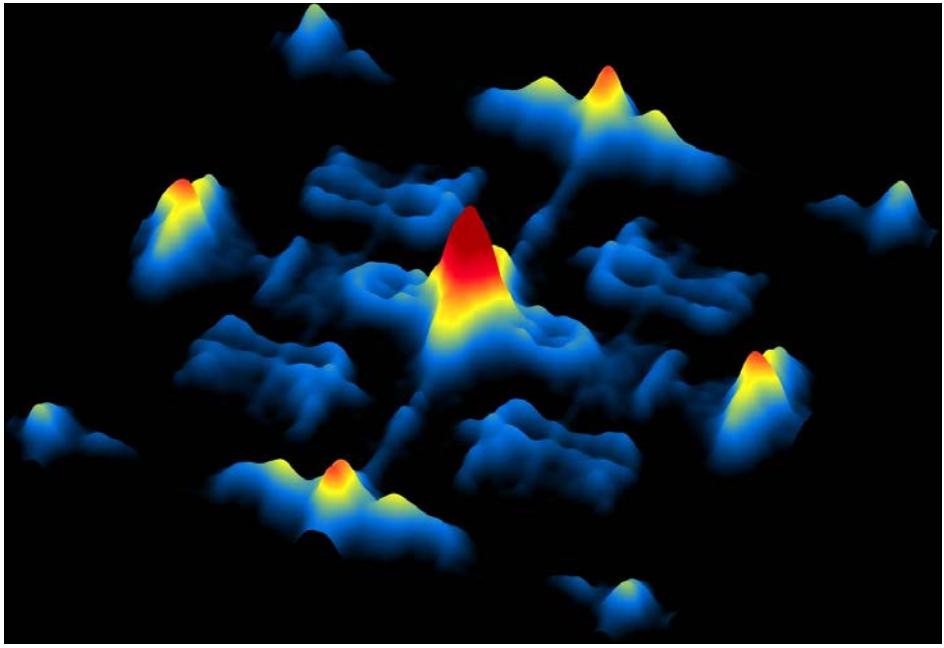
Weyl semimetals are newly discovered topological electronic materials in which surface electrons (Fermi arcs) are topologically connected with those of the bulk. In a clean Weyl semimetal, electrons can transverse the bulk through the special momentum states, called Weyl points, moving between opposing surfaces. Yazdani and Bernevig have found experimental evidence for this exotic behavior of Weyl semimetals by studying the interference of electrons on the surface of the Weyl semimetal TaAs. They find that the interference patterns measured with STM can only be understood if they take into account the surface-bulk connectivity through the Weyl nodes.



"Quasiparticle interference of the Fermi arcs and surface-bulk connectivity of a Weyl semimetal"

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