Title: Exotic saddle-like topological surface states in ZrPtGe materials family

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Abstract: Topological surface states in materials reflect the presence of nontrivial topologies in the underlying 3D band structures. These states are robust against disorder because they are protected by constraints of various symmetries. In this talk, we will discuss energy dispersions of topological states with focus on the role of surface and bulk crystalline symmetries in driving their material-specific properties. With the example of ZrPtGe, a low-symmetry material, we will see how a strong Z2 topological insulator phase emerges with exotic symmetry-allowed topological states with a saddle-like energy dispersion. This is in sharp contrast to the well-known topological states in Bi_2Se_3 with a Dirac cone energy dispersion. The saddle points in the energy spectrum give rise to saddle-point Van Hove singularities, suggesting that ZrPtGe would provide an exciting new platform for addressing the interplay between topology and strong electron correlation physics.