

MAR17-2016-020115

Abstract for an Invited Paper
for the MAR17 Meeting of
the American Physical Society

Modelling SmB₆: Distinct topological crystalline phases, surface states, and surface reconstruction

MATTHIAS VOJTA, TU Dresden, Germany

SmB₆ has been proposed to be both a strong topological insulator and a topological crystalline insulator. For this and related cubic topological Kondo insulators, we discuss a set of tight-binding bandstructure models. We prove the existence of four different topological phases, distinguished by the sign of mirror Chern numbers. For all phases, we compute the properties of topological surface states on generic (lmn) surfaces. We highlight the possibility of transitions between different topological states and explore their signatures. Finally, we investigate a 2×1 surface reconstruction and its effect on surface quasiparticle-interference (QPI) spectra.