Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Cubic Topological Kondo Insulators[1] VICTOR ALEXANDROV, Rutgers University, MAXIM DZERO, Kent State Unversity, PIERS COLEMAN, Rutgers University — Current theories of Kondo insulators employ the interaction of conduction electrons with localized Kramers doublets originating from a tetragonal crystalline environment, yet all Kondo insulators are cubic. Here we develop a theory of cubic topological Kondo insulators involving the interaction of spin quartets with a conduction sea. The spin quartets greatly increase the potential for strong topological insulators, entirely eliminating the weak-topological phases from the diagram. We show that the relevant topological behavior in cubic Kondo insulators can only reside at the lower symmetry X or M points in the Brillouin zone, leading to a three Dirac cones in ARPES measurements. [the work is accepted for publication in PRL]

[1]OBR-RIP-220573, DE-FG02-99ER45790, DMR-0844115

Victor Alexandrov
Rutgers University

Date submitted: 15 Nov 2013 Electronic form version 1.4