

Abstract Submitted
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Many-body instabilities and mass generation in slow Dirac materials¹ CHRISTOPHER TRIOLA, William & Mary Coll, JIANXIN ZHU, Center for Integrated Nano Technology, Los Alamos National Laboratory, ALBERT MIGLIORI, Seaborg Institute, Los Alamos National Laboratory, ALEXANDER BALATSKY, Institute for Materials Science, Los Alamos National Laboratory — Some Kondo insulators are expected to possess topologically protected surface states with linear Dirac spectrum, the topological Kondo insulators. Because the bulk states of these systems typically have heavy effective electron masses, the surface states may exhibit extraordinarily small Fermi velocities that could force the effective fine structure constant of the surface states into the strong coupling regime. Using a tight-binding model we study the many-body instabilities of these systems and identify regions of parameter space for which antiferromagnetic, ferromagnetic and charge density wave instabilities occur.

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