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d-wave Kondo liquids POUYAN GHAEMI MOHAMMADI, Massachusetts Institute of Technology, T. SENTHIL, Massachusetts Institute of Technology & Center for Condenced matter theory, Indian Institute of Science — Conventional heavy Fermi liquid phases of Kondo lattices involve the formation of a "Kondo singlet" between the local moments and the conduction electrons. This Kondo singlet is usually taken to be in an internal s-wave angular momentum state. Here we explore the possibility of Fermi liquid phases where the Kondo singlet has internal angular momentum that is d- wave. Such states are readily acessed in a slave boson mean field formulation, and are energetically favorable when the Kondo interaction is between a local moment and an electron at a nearest neighbor site. The properties of the d- wave Kondo lattice are studied. Effective mass and quasiparticle residue show large angle dependence on the Fermi surface. We suggest that such d-wave Kondo pairing may provide a useful route to thinking about correlated Fermi liquids with strong anisotropy along the Fermi surface.

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