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Interplay between charge fluctuations and magnetic order in a stacked triangular-Kagome lattice : Applications to FeCrAs JEFFREY RAU, HAE YOUNG KEE, University of Toronto — The recently studied antiferromagnet FeCrAs [Wu et al, EPL, 85 17009 (2009)] exhibits a surprising combination of experimental signatures, with Fermi liquid like specific heat but resistivity showing strong non-Fermi liquid character. From the material properties we motivate a minimal model for the low energy degrees of freedom, and study its properties using slave-rotor mean field theory. Using this approach we find a variety of exotic phases and propose that the features of FeCrAs can be qualitatively explained by a spin liquid proximate to a metal-insulator transition.

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