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### *Extremely Correlated Fermi Liquids*

I will review recent progress in the formalism of Extremely Correlated Fermi Liquids, summarizing the calculation of Fermi surface characteristics, the magnitudes and thermal dependence of resistivity and the Hall constant as well as the Hall angle in infinite dimensions [1,2,3]. I also review a parallel calculation in 2-dimensions [4] from the same set of equations. In these calculations, the strong suppression of the quasiparticle weight  $Z$  due to Gutzwiller correlations is demonstrated as  $n$  exceeds 0.8. Of particular note is the sensitive dependence of  $Z$  and resistivity on the sign and magnitude of second neighbour hopping parameter  $t'$  in 2-dimension found in [4], which holds the promise of an explanation of the distinction between hole doped and electron doped cuprate superconductors.

[1] "A Strange Metal from Gutzwiller correlations in infinite dimensions II: Transverse Transport, Optical Response and Rise of Two Relaxation Rates", Wenxin Ding, Rok Zitko, and B. Sriram Shastry, arXiv:1705.01914. (In press, Phys. Rev. B)

[2] "A Strange Metal from Gutzwiller correlations in infinite dimensions", Wenxin Ding, Rok Zitko, Peizhi Mai, Edward Perepelitsky and B. Sriram Shastry, arXiv:1703.02206v2; Phys. Rev. B 96, 054114 (2017).

[3] "Low energy physics of the  $t$ - $J$  model in  $d = \infty$  using Extremely Correlated Fermi Liquid theory: Cutoff Second Order Equations", B. S. Shastry and E. Perepelitsky", arXiv:1605.08213. Phys. Rev. B 94, 045138 (2016).

[4] "Extremely Correlated Fermi Liquid theory of the  $t$ - $J$  model in 2 dimensions: Low energy properties", B Sriram Shastry and Peizhi Mai, arXiv:1703.08142