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Study of non-Fermi Liquid behavior from partial nesting in multi-orbital superconductors. CHANDAN SETTY, PHILIP PHILLIPS, University of Illinois at Urbana-Champaign — Partial nesting between two connected or disconnected regions of the Fermi surface leads to fractional powers of the Coulomb scattering lifetime as a function of temperature and frequency. This result is first demonstrated for a toy band structure where partial nesting occurs within a single band and between different regions of the Brillouin zone. A comparison is then made to a multiband scenario by studying the scattering rate of an effective two orbital model that was proposed in the context of multi-orbital superconductors. In the process, various model independent factors affecting the temperature exponent, n , are identified. The logarithmically divergent contributions of the lowest order vertex correction to the multi-orbital susceptibility, and the role played by nesting in suppressing these divergences is analyzed. The relevance of these results is discussed keeping the recently observed anomalous resistivity in the Co doped Iron superconductor LiFeAs as a backdrop.

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