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Fermi energy and dispersion anomalies in a bad metal[1] WENHU XU, KRISTJAN HAULE, GABRIEL KOTLIAR, Rutgers Univ — The transport measurements in strongly correlated metals often reveal a vanishing Fermi liquid temperature. It is unexpectedly smaller than the effective Fermi energy indicated by spectroscopic measurements. We attribute this dichotomy to the strong temperature dependence and asymmetry in quasiparticle renormalization near Fermi surface. The quasiparticles hold as well-defined excitations up to much higher energy than the Fermi liquid scale implied by transport. Furthermore, the asymmetry leads to incoherent spectral weight only for quasiparticles near Fermi surface, thus the discontinuity in dispersion rises as a natural consequence.

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