Theory of the Marginal Fermi liquid[1] ARKADY SHEHTER, CHANDRA VARMA, UC Riverside — Marginal Fermi liquid is a successful phenomenological description of the strange metal phase of cuprates near optimal doping. We cast the theory into the standard microscopic form for interacting fermions, employing particle-hole rescattering and (singular) Landau parameters. We calculate the density-density correlation function and demonstrate its standard relation to the conductivity through the continuity equation. Internal consistency of the theory is ensured by showing that the relevant conservation laws are obeyed. The relation to the kinetic equation is established.

Arkady Shehter
UC riverside

Electronic form version 1.4