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Fermi liquid scaling of the optical conductivity in MnSi J. STEVEN DODGE, LALEH MOHTASHEMI, AMIR FARAHANI, Simon Fraser University, ERIC KARHU, THEODORE L. MONCHESKY, Dalhousie University — We present measurements of the low-frequency optical conductivity of MnSi thin films made with time-domain terahertz spectroscopy. At low temperatures and low frequencies, the conductivity is consistent with the prediction of Fermi liquid theory, $\rho(\omega,T) \equiv [\sigma(\omega,T)]^{-1} = \rho_0 + A[(\hbar\omega)^2 + (2\pi k_B T)^2]$. As the temperature increases, the system loses quasi-particle coherence: deviations from Fermi liquid behavior appear, while the plasma frequency inferred from a Drude fit decreases dramatically. Above T$\approx$ 50 K, $\sigma_2(\omega)$ develops a negative slope that indicates a sharp pseudogap in the conductivity spectrum.

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