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Optical Spectroscopy of Fermi Liquids THOMAS TIMUSK, JESSE HALL, NATHAN ARMSTRONG, KIM MORTIMER, MAHSA MOVASSAGH, McMaster University, URMAS NAGEL, TOOMAS RÕÕM, Nat. Inst. Chem. Phys. & Biophys., Tallinn, Estonia, YOSHITERU MAENO, Kyoto University, ANDREW MACKENZIE, MPI Dresden, St. Andrews University, BYEONG MIN, YONG KWON, DGIST, Daegu, Republic of Korea — Metallic materials are normally characterized as Fermi liquids if their low temperature dc resistivity has a T^2 temperature dependence. It was shown by Gurzhi that there is is also a frequency dependence and the overall resistivity is given by $\rho(\omega, T) = C(\omega^2 + b\pi^2 T^2)$, where the scaling constant $b = 4$ for a Fermi liquid with umklapp scattering [1]. A survey of literature shows that where spectroscopic experiments exist, $b = 4$ is hardly ever observed [2]. We will present spectroscopic data on LiFeAs, Sr_2RuO_4 and $Sr_3Ru_2O_7$, three materials that show T^2 resistivity at low temperatures and discuss their excitation spectra.

[1] R. N. Gurzhi, Sov. Phys. JETP **14**, 886 (1962).
[2] U. Nagel *et al.* PNAS **109**, 19161 (2012).

Thomas Timusk
McMaster University

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