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Fermi-liquid effects in propagation of low frequency electromagnetic waves through thin metal films[1] NATALYA ZIMBOVSKAYA, GRIGORY ZIMBOSKIY, University of Puerto Rico-Humacao — In the present work we theoretically analyze the contribution from a transverse Fermi-liquid collective mode to the transmission of electromagnetic waves through a thin film of a clean metal in the presence of a strong external magnetic field. We show that at the appropriate Fermi surface geometry the transverse Fermi-liquid wave may appear in conduction electrons liquid at frequencies ω significantly smaller than the cyclotron frequency of charge carriers Ω provided that the mean collision frequency τ^{-1} is smaller than ω. Also, we show that in realistic metals size oscillations in the transmission coefficient associated with the Fermi-liquid mode may be observable in experiments. Under certain conditions these oscillations may predominate over the remaining size effects in the transmission coefficient.

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