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Fermi-liquid effects in the magnetization oscillations in quasi-two-dimensional conductors ALEXANDER ZIMBOVSKY, Urals State Mining University, NATALYA ZIMBOVSKAYA, University of Puerto Rico at Humacao — In this work we present the results of theoretical analysis of the Haas-van Alphen oscillations in quasi-two-dimensional metals. We have been studying the effect of the Fermi-liquid correlation of charge carriers on the above oscillations. It was shown that at reasonably low temperatures and weak electron scattering the Fermi-liquid interactions may cause noticeable changes in both amplitude and shape of the oscillations even at realistically small values of the Fermi-liquid parameters. Also, we show that the Fermi-liquid interactions in the system of the charge carriers may cause magnetic instability of a quasi-two-dimensional metal near the peaks of quantum oscillations in the electron density of states at the Fermi surface, indicating the possibility for the diamagnetic phase transition within the relevant ranges of the applied magnetic fields. The obtained results are applicable to strongly anisotropic organic metals, and to other quasi-two-dimensional compounds.

Natalya Zimbovskaya
University of Puerto Rico at Humacao

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