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Novel interaction-induced magneto-oscillations in ac conductivity of 2D electron gas TIGRAN SEDRAKYAN, University of Wisconsin-Madison, MIKHAIL RAIKH, University of Utah — We demonstrate that electron-electron interactions in a high-mobility 2D electron gas give rise to the *oscillatory* correction, $\delta\sigma^{int}(\omega)$, to the ac magnetoconductivity, $\sigma(\omega)$. Similarly to the conventional single-particle harmonics of the cyclotron resonance, the oscillating correction is periodic in ω_c^{-1}, where ω_c is the cyclotron frequency. However, unlike the single-particle oscillations, which are periodic with ω, the interaction correction is periodic with $\omega^{3/2}$. Oscillatory behavior of the interaction-induced magnetoconductivity develops at very low magnetic fields, $\omega_c \ll \omega$; at such fields the conventional harmonics are suppressed by the disorder. The underlying physical process of the new effect is *double* backscattering of an electron from the impurity-induced Friedel oscillations. Unlike the case of single-particle oscillations, the electron travels only a *small portion* of the Larmour circle during the time $\sim \omega^{-1}$ between the two backscattering events.

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