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Photoconductivity in AC-driven modulated two dimensional electron gas¹ MANUEL TORRES, Instituto de Fisica, UNAM Mexico , ALEJANDRO KUNOLD, Departamento de Ciencias Basicas, UAM Mexico — We study the photoconductivity of two-dimensional electron system in a perpendicular homogeneous magnetic field, under the influence of periodic modulation potential and microwave irradiation. The model includes the microwave and Landau contributions in a non-perturbative exact way, the periodic potential is treated perturbatively. The Landau-Floquet states provide a convenient base with respect to which the lattice potential becomes time-dependent, inducing transitions between the Landau-Floquet levels. Based on this formalism, we provide a Kubo-like formula that takes into account the oscillatory Floquet structure of the problem. The total resistivity exhibits strong oscillations, leading to negative resistance states as the electron mobility and the intensity of the microwave power increases. It is proposed that, depending on the geometry, negative conductance states or negative resistance states may be observed in lateral superlattices fabricated in *GaAs/AlGaAs* heterostructures.

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