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Magneto-resistance oscillations in very high Landau levels of two-dimensional electron systems¹

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When a two-dimensional electron system (2DES), most famous for quantum Hall effects, is subject to a weak perpendicular magnetic field and low temperature, the resistivity exhibits well-known Shubnikov-de Haas oscillations. If a high-mobility 2DES is further exposed to microwave radiation, dc electric field or elevated temperatures, other classes of magneto-oscillations emerge. These oscillations are known as microwave-, Hall field- and phonon-induced resistance oscillations, respectively. Under certain conditions oscillation minima can extend all the way to zero producing zero-resistance and zero-differential resistance states. This talk will discuss recent experimental developments focusing on the effects of strong dc electric fields and electron-electron interactions responsible for the temperature dependence of magneto-oscillations in a high-mobility 2DES.

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