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B-periodic oscillations in microwave irradiated high-mobility 2D electron gas K. STONE, C.L. YANG, Z.Q. YUAN, R.R. DU, Rice University, L.N. PFEIFFER, K.W. WEST, Bell Laboratories, Lucent Technologies — Recently a new type of B-periodic magneto-oscillations was observed [1] in the Hall bar samples of a 2D electron gas under the irradiation of microwaves (MW, frequency ω). The period ΔB is determined by ω, the electron densityn_s, and the distance between potential probes L, $\Delta B \propto n_s/\omega L$. The phenomenon is explained by coherent excitation of edge magnetoplasmons in the region near the contacts. Using very high-mobility (8-20 $\times 10^6$ cm^2/Vs) GaAs/Al_xGa_{1-x}As heterostructures, we were able to observe both the MW-induced resistance oscillations, which is 1/B -periodic, and the B-periodic oscillations in the same sample, in the frequency range 27 to 130 GHz. Experimental data as well as a brief discussion will be presented. [1] Kukushkin et al, Phys. Rev. Lett. 92, 236803 (2004).

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