

Abstract Submitted
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Magnetoresistance and microwave photoresistance of a periodically modulated high-mobility 2D electron gas Z. Q. YUAN, C. L. YANG, K. STONE, R. R. DU, Rice University, L. N. PFEIFFER, K. W. WEST, Bell Laboratories, Lucent Technologies — We have measured the magnetoresistance (R_{xx}) and the microwave (MW) photoresistance on a high-mobility 2D electron gas patterned with a large period (1200 and 1500 nm) triangular antidot lattice [1]. Our experiments were performed in a MW frequency range from 26 to 150 GHz and at temperatures (T) from 0.3 to 10 K, samples were Hall bars having low T mobility as high as 2.5×10^6 cm²/Vs after the patterning. We observed remarkably sharp (up to seventh order) geometrical resonance (GR) peaks in R_{xx} . Moreover, under irradiation, MW-induced resistance oscillations (MIRO) and magnetoplasmon resonance (PR) modes were observed. Analysis shows that MIRO, MP, and GR are decoupled from each other in these large-period modulated 2D electron gas samples. [1] Yuan *et al*, Phys. Rev. B **74**, 075313(2006).

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