

Abstract Submitted
for the MAR16 Meeting of
The American Physical Society

Magnetotransport experiments in two-dimensional electron gases exposed to electromagnetic hybrid superlattices JAKOB SCHLUCK, STEFAN FASBENDER, STEPHAN WISSENBERG, THOMAS HEINZEL, Heinrich-Heine University Duesseldorf, KLAUS PIERZ, HANS-WERNER SCHUMACHER, PTB Braunschweig, DIMITRIS KAZAZIS, ULF GENNSER, CNRS-LPN Marcousis — Hybrid lateral superlattices composed of a square array of antidots and a periodic one-dimensional magnetic modulation are prepared in Ga[Al]As heterostructures. The two-dimensional electron gases exposed to these superlattices are characterized by magnetotransport experiments in various magnetic field configurations. Commensurability resonances as a function of a parallel external magnetic field are observed even in the absence of closed orbits, and interpreted with the help of numerical simulations based on the semiclassical Kubo model. [1] In additional homogeneous perpendicular magnetic fields, quantum effects emerge, which can be attributed to the formation of closed quantized orbits.

[1] J. Schluck et al., Phys. Rev. B 91, 195303 (2015)

Jakob Schluck
Heinrich-Heine University Duesseldorf

Date submitted: 06 Nov 2015

Electronic form version 1.4