

Abstract Submitted
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**Study of microwave reflection
in the regime of the radiation-induced magnetoresistance oscillations in
the high mobility GaAs/AlGaAs 2D electron system¹**

ANNIKA KRIISA, H-C. LIU, R. L. SAMARAWEERA, Georgia State University, Atlanta, GA 30303, M. S. HEIMBECK, Army Aviation & Missile RD & E Center, Redstone Arsenal, Huntsville, AL 35898, H. O. EVERITT, Army Aviation Missile RD & E Center, Redstone Arsenal, Huntsville, AL 35898 and Dept. of Physics, Duke University, Durham, NC 27708, W. WEGSCHEIDER, ETH-Zurich, 8093 Zurich, Switzerland, R. G. MANI, Georgia State University, Atlanta, GA 30303 — Microwave-induced zero-resistance-states in the photo-excited GaAs/AlGaAs system evolve from the minima of microwave photo-excited quarter-cycle shifted magnetoresistance oscillations. Such magnetoresistance oscillations are known to exhibit nodes at cyclotron resonance ($hf = \hbar\omega_c$) and cyclotron resonance harmonics ($hf = n\hbar\omega_c$). Further, the effective mass extracted from the radiation-induced magnetoresistance oscillations is known to differ from the canonical effective mass ratio for electrons in the GaAs/AlGaAs system.[1] In an effort to reconcile this difference, we have looked for cyclotron resonance in the microwave reflection from the high mobility 2DES and attempted to correlate the observations with observed oscillatory magnetoresistance over the $30 \leq f \leq 330$ GHz band. The results of such a study will be reported here. [1] R. G. Mani et al., Phys. Rev. Lett. 92, 146801 (2004).

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