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Study of the phase-shift in the linear-polarization-angle-dependence of the microwave radiation-induced magnetoresistance oscillations in the GaAs/AlGaAs system HAN-CHUN LIU, TIANYU YE, R. G. MANI, Department of Physics and Astronomy, Georgia State University, Atlanta, Georgia 30303, USA, W. WEGSCHEIDER, Laboratorium fur Festkorperphysik, ETH Zurich, 8093 Zurich, Switzerland — Microwave- and terahertz-induced magneto-resistance oscillations (MTIMRO) in the two-dimensional electron system have been a topic of interest since the observation of photo-excited zero-resistance states in the GaAs/AlGaAs system. Some theoretical developments in this area have been based on the premise of linear-polarization-insensitivity of MTIMRO. Recent studies using new experimental methods have shown, however, a strong linear polarization sensitivity of MTIMRO.[1,2] In addition, Ramanayaka *et al.*[2] have observed that the phase shift θ_0 , which is a parameter in a fitting formula to sinusoidal variation of diagonal resistance, R_{xx} , with polarization angle, θ , as $R_{xx}(\theta) = A \pm C \cos^2(\theta - \theta_0)$, depends upon radiation frequency f , magnetic field B , and sign of B . [2] Here, we investigate the dependence of the phase shift θ_0 in the linear-polarization-angle-dependence upon the above-mentioned experimental variables. In particular, we examine the relationship between f and θ_0 . The results will be compared with theory.[3,4] [1] R. G. Mani *et al.*, Phys. Rev. B 84, 085308 (2011). [2] A. N. Ramanayaka *et al.*, Phys. Rev. B 85, 205315 (2012). [3] J. Inarrea, Appl. Phys. Lett. 100, 242103 (2012). [4] X. L. Lei and S. Y. Liu, Phys. Rev. B 86, 205303 (2012). Work has been supported by DOE DE-SC0001762.

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