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Frequency-dependence of the linear-polarization-angle phase-shift in the microwave radiation-induced magnetoresistance oscillations HAN-CHUN LIU, RASANGA SAMARAWEERA, Georgia State Univ, WERNER WEGSCHEIDER, ETH-Zurich, Zurich, Switzerland , RAMESH MANI, Georgia State Univ — High-mobility GaAs/AlGaAs heterojunctions subjected to microwave photoexcitation in the perpendicular magnetic field configuration exhibit -cycle phase-shifted oscillatory magnetoresistance and zero-resistance states at low magnetic fields or high filling factors [1]. Recent studies showed that the amplitude of oscillatory magnetoresistance is polarization-angle sensitive and can be described by a fitting formula, Rxx(θ) =ACcos2(θ-θ0) with diagonal resistance, Rxx, polarization angle θ, and the extracted phase shift, θ0. Previous works have demonstrated that θ0 is frequency-dependent by investigating some specific frequencies [2,3]. Here, we examine the continuous variation of θ0 with frequency over the bands, 36-40 GHz and 45-49 GHz. Surprisingly, the results indicate dissimilar θ0 variation within the two frequency bands. A comparison of θ0(f) with the microwave polarization reported by an in-situ polarization sensor suggests that the frequency variation of θ0 might be caused by two different mechanisms in the two examined bands. [1] R. G. Mani et al., Nature 420, 646 (2002). [2] A. N. Ramanayaka et al., Phys. Rev. B 85, 205315 (2012). [3] Han-Chun Liu et al., J. Appl. Phys. 117, 064306 (2015)

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