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Linear polarization rotation study of the radiation-induced magnetoresistance oscillations[1] A.N. RAMANAYAKA, R.G. MANI, Georgia State University, Atlanta, GA, J. INARREA, Universidad Carlos III, Madrid, Spain, W. WEGSCHEIDER, ETH Zurich, Zurich, Switzerland — The polarization sensitivity of microwave-radiation-induced magneto-resistance oscillations is investigated by rotating, by an angle θ, the polarization of linearly polarized microwaves with respect to the long-axis of GaAs/AlGaAs Hall-bar electron devices. At low microwave power, P, experiments show a strong sinusoidal variation in the diagonal resistance R_{xx} vs. θ at the oscillatory extrema, indicating linear polarization sensitivity in the microwave radiation-induced magneto-resistance oscillations. Surprisingly, the phase shift θ_0 for maximal oscillatory R_{xx} response under photo-excitation appears dependent upon the radiation-frequency f, the extremum in question, and the magnetic field orientation or sgn(B).

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