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Evolution of the linear-polarization-angle-dependence of the radiation-induced magnetoresistance-oscillations with the microwave power[1] TIANYU YE, RAMESH MANI, Department of physics and Astronomy, Georgia State University, Atlanta, GA 30303, USA, WERNER WEGSCHEIDER, Laboratorium fur Festkorperphysik, ETH Zurich, 8093 Zurich, Switzerland — Microwave radiation-induced magnetoresistance oscillations (MRIMRO) are huge photo-excited oscillations in the resistance in a transverse magnetic field, which are sensitive to different aspects of the microwave radiation such as the microwave frequency, microwave power, and linear polarization angle. As a consequence, MRIMROs are potentially interesting for sensing applications. In order to better understand the role of the microwave power and the linear polarization angle in MRIMROs, the role of these variables have been more carefully examined in this experimental study. Thus, the diagonal resistance R_{xx} was measured as a function of both the microwave power (P) and the linear polarization angle (θ) at the MRIMRO extrema. Color contour plots reveal that R_{xx} vs θ follows a cosine square function at relatively low microwave power with systematic lineshape distortions occurring with increasing microwave power. Here, we demonstrate that the non-linearity of R_{xx}vs P relation is the main factor that influences the lineshape distortion from the sinusoidal R_{xx} vs θ relation observed at low P.

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Tianyu Ye
Georgia State University

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