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Effect of excitation parameters on the damping of microwave induced magnetoresistance oscillations in GaAs/AlGaAs 2D electron system RASANGA SAMARAWEERA, BINUKA GUNAWARDANA, HAN-CHUN LIU, Georgia State Univ, USA, CHRISTIAN REICHL, WERNER WEGSCHEIDER, ETH Zurich, Switzerland, RAMESH MANI, Georgia State Univ, USA, ETH ZURICH COLLABORATION, GSU TEAM — Two-dimensional electron systems (2DES) realized with GaAs/AlGaAs heterostructures, with 2D electron mobilities well above 10^7 cm^2/Vs, exhibit interesting electrical and physical phenomena including novel microwave induced zero-resistance states and associated radiation-induced magnetoresistance oscillations. Previous studies reveal the effect of different experimental factors such as microwave power, temperature, and linear polarization angle, etc., on the radiation-induced magnetoresistance oscillations of GaAs/AlGaAs 2DES [1-2]. In this experimental study, we present the effect of the excitation current on the microwave-induced magnetoresistance oscillations, and present a quantitative analysis of the results. The aim of the study is to determine the correlation between the applied excitation and the damping of the microwave induced magnetoresistance oscillations. [1].A. N. Ramanayaka, R.G. Mani and W. Wegscheider, Phys. Rev. B.83, 165303 (2011). [2].R. G. Mani, C. Gerl, S. Schmult, W. Wegscheider and V. Umansky, Phys. Rev. B.81, 125320 (2010).

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