

Abstract Submitted
for the MAR11 Meeting of
The American Physical Society

Remote sensing of transport in microwave photo-excited GaAs/AlGaAs heterostructure devices¹ TIANYU YE, G. CHAND, A.N. RAMANAYAKA, R.G. MANI, W. WEGSCHEIDER, GEORGIA STATE UNIVERSITY COLLABORATION, ETH-ZURICH, SWITZERLAND COLLABORATION — The GaAs/AlGaAs two dimensional electron system (2DES) exhibits magnetoresistance oscillations under microwave and terahertz photo-excitation at liquid Helium temperatures. Such oscillations are understood in terms of the displacement and inelastic models for photo-excited transport in this system. In order to identify the relative physical contributions, we report on transport measurements and concurrent “remote” sensing of the 2DES. Hence, measurements under microwave photo-excitation were carried out on Hall bars fabricated from high mobility GaAs/AlGaAs single heterostructures, as a sensor above the specimen served to look for concurrent changes in response. We report here on the observed noticeable changes in the remote sensor and correlate the observations with the observed transport response of the photo-excited 2DES.

¹Work has been supported by the ARO under W911NF-07-01-0158, and by the DOE under DE-SC0001762.

Tianyu Ye

Date submitted: 22 Dec 2010

Electronic form version 1.4