Abstract Submitted
for the MAR05 Meeting of
The American Physical Society

Optical properties of a spherical 2D electron gas in the presence of a uniform magnetic field ALI GOKER, PETER NORDLANDER, Rice University — Using the RPA, we calculate the plasmon frequencies of an electron gas on a two-dimensional spherical surface in the presence of a weak magnetic field[1]. We show that the magnetic field results in a coupling between electronic states with different angular momentum numbers. This coupling results in a blueshift of the dipolar plasmon resonance with increasing magnetic field. We also investigate how the plasmon energies vary as a function of the number of electrons and radius of the sphere. We discuss how the calculation can be generalized to an electron liquid confined in a spherical shell of finite thickness. [1] A. Goker and P. Nordlander, J. Phys.: Cond. Mat. 16(2004) 8233

Ali Goker
Rice University

Date submitted: 04 Dec 2004 Electronic form version 1.4