

Abstract Submitted
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Microwave modes of two dimensional electron systems near macroscopic ferromagnets¹ BRENDEN MAGILL, NHMFL and MARTECH, FSU, L. W. ENGEL, NHMFL/FSU, M. P. LILLY, J. A. SIMMONS, J. L. RENO, Sandia National Laboratory — We report on microwave measurements of a high mobility two dimensional electron system (2DES) in a homogenous external field B_0 , and with cylindrical ferromagnets of radii r_m placed on the surface of the sample with the long axis perpendicular to the 2DES. The magnet materials are Dy and permalloy, and r_m varies from 0.5 mm to 0.125 mm. Microwave spectra measured for transmission between two ohmic contacts show resonant absorption at peak frequency, f_{pk} , decreasing as B_0 or r_m increase. We will interpret the data in terms of plasma excitations similar to edge magnetoplasmons [1] confined under the edges of the magnets by the large magnetic field gradients there. [1] See, for example, V. A. Volkov and S. A. Mikhailov, Sov. Phys.-JETP **67**, 1639(1988).

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