Microwave modes of two dimensional electron systems near macroscopic ferromagnets\textsuperscript{1} BRENDE 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 \cite{1} confined under the edges of the magnets by the large magnetic field gradients there. \cite{1} See, for example, V. A. Volkov and S. A. Mikhailov, Sov. Phys.-JETP \textbf{67}, 1639(1988).

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Brenden Magill
NHMFL and MARTECH, FSU

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