

Abstract Submitted
for the MAR06 Meeting of
The American Physical Society

Magnetoplasmons and cyclotron resonance in a two-dimensional electron gas GERARD MARTINEZ, Grenoble High Magnetic Field Laboratory, C. FAUGERAS, Thales Group, Paris, France, YU. A. BYCHKOV, L. D. Landau Institute, Moscow, Russia, A. RIEDEL, R. HEY, K.J. FRIEDLAND, Paul Drude Institute, Berlin, Germany — Cyclotron resonances (CR) transitions in quasi two-dimensional electron gas (2DEG) are known to involve magnetoplasmons (MP) dispersion. It has been recently [1] possible to derive in the frame of the MP picture, assuming the Hartree-Fock approximation, the magneto conductivity response of such systems for any value of the filling factor ν and including non-parabolicity effects. As compared to the one-electron picture, the MP theory predicts specific behavior of the response concerning both the oscillator strength as well as the energy variation of the CR transitions as a function of ν . These predictions are confronted to absolute magneto-transmission results obtained on high mobility 2DEG embedded in GaAs quantum wells. It is shown that the MP theory reproduces quite well the experimental findings for $2n+1 < \nu < 2n+2$ whereas clear discrepancies appear for $2n < \nu < 2n+1$. The possible origin of these discrepancies are discussed. [1] Yu. A. Bychkov and G. Martinez, Phys. Rev. B **72**, 195328 (2005)

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Date submitted: 28 Nov 2005

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