

Abstract Submitted  
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**Interband magneto-optical transitions between bound and delocalized states in quantum dots** VANESSA PREISLER, Laboratoire Pierre Aigrain, FRANCISCO TERAN, Laboratoire de Champs Magnétiques Intenses, LOUIS-ANNE DE VAULCHIER, ROBSON FERREIRA, YVES GULDNER, Laboratoire Pierre Aigrain, ARISTIDE LEMAITRE, Laboratoire de Photonique et de Nanonstructures — Semiconductor quantum dots are frequently described as artificial atoms. This description implies that the quantum states and exciton transitions are well isolated from their environment. However, since the dots are embedded in a semiconductor material and furthermore sit on top of an underlying wetting layer quantum well, there exists transitions involving the quantum dot states and the delocalized states in the dot's surrounding environment.<sup>1</sup> We present the results of low temperature (4K) interband photoluminescence excitation measurements on an ensemble of InAs/GaAs dots under strong magnetic field (up to 28T) applied along the growth axis. Along with the expected p-p excited state transitions, we observe several other pics in the PLE spectrums. We attribute these pics to crossed transitions between the wetting layer and the discrete states of the quantum dot. A theoretical model is proposed to describe the above transitions.

<sup>1</sup>A. Vasanelli *et al.*, Phys. Rev. Lett. **89**,216804 (2002).

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