

Abstract Submitted
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Magnetic Field Induced Interlayer Charge Transfer in Interacting Electron Bilayer Systems HAO DENG, Princeton University, YANG LIU, Stanford University, LOREN N. PFEIFFER, KENNETH W. WEST, KIRK W. BALDWIN, MANSOUR SHAYEGAN, Princeton University — We report that the layer densities of an asymmetric electron bilayer system change with the sweeping of perpendicular magnetic field. By monitoring each layer's density independently, we observe oscillations of layer densities as a function of magnetic field. The interlayer charge transfer can be partially explained by the alignment of Landau levels in different layers. A simple calculation based on this mechanism qualitatively explains the experimental results; the discrepancy, however, points to the role of many-body interaction in bilayer systems. This interlayer charge transfer provides a means to study the interlayer interaction in the presence of high magnetic fields. Work supported by the NSF (Grants DMR-1305691, ECCS-1508925, and MRSEC DMR-1420541), the DOE Basic Energy Sciences (Grant DE-FG02-00-ER45841), the Gordon and Betty Moore Foundation (Grant GBMF4420), and the Keck Foundation.

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