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Increases in Electron Drag in Intermediate Magnetic Fields SANGHUN AN, GOKUL GOPALAKRISHNAN, YUKO SHIROYANAGI, DONGKYUN KO, TOM GRAMILA, Department of Physics, The Ohio State University, LOREN PFEIFFER, KEN WEST, Bell Labs, Lucent Technologies —

It has been reported that measurements of electron drag in intermediate magnetic fields show anomalous dependences on temperature and magnetic field. Although extensive theoretical investigations of drag in magnetic fields have been done, the behavior currently lacks a theoretical explanation. The experimental findings show that for intermediate magnetic fields, where the Landau level spacing is comparable to temperature, electron drag is substantially increased, even while very little change is observed in the longitudinal resistivity, suggesting that the effect's origin does not lie in changes in the density of states. There is, furthermore, very little dependence on temperature, and the increase varies roughly as the cube of magnetic field. We report drag measurements designed to examine the potential role of spin in the effect and detailed measurements examining the specific temperature dependence, as approaches towards the identification of the source of this unusual behavior.

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