

Abstract Submitted  
for the MAR16 Meeting of  
The American Physical Society

**Orbital magnetoresistance of two-dimensional electron systems in the hydrodynamic regime**<sup>1</sup> ANTON ANDREEV, University of Washington, ALEX LEVCHENKO, University of Wisconsin-Madison — We develop a theory of magnetoresistance of two-dimensional electron systems in the hydrodynamic regime. It applies to two-dimensional semiconductor structures with strongly correlated carriers when the electron-electron scattering length is sufficiently short. We find that the magnetoresistance is positive quadratic at weak fields. Although the resistivity is governed by both viscosity and thermal conductivity of the electron fluid, the temperature dependence of magnetoresistance depends on the viscosity only. This enables extraction of viscosity of the electron liquid from magnetotransport measurements.

<sup>1</sup>DE-FG02-07ER46452, NSF-DMR-1401908

Alex Levchenko  
University of Wisconsin-Madison

Date submitted: 04 Nov 2015

Electronic form version 1.4