

Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Semiclassical theory of Hall viscosity RUDRO BISWAS, University of Illinois at Urbana-Champaign — Hall viscosity is an intriguing stress response in quantum Hall systems and is predicted to be observable via the conductivity in an inhomogeneous electric field. This has been studied extensively using a range of techniques, such as adiabatic transport, effective field theories, and Kubo formulae. All of these are, however, agnostic as to the distinction between strongly correlated quantum Hall states and non-interacting ones, where the effect arises due to the fundamental non-commuting nature of velocities and orbit positions in a magnetic field. In this talk I shall develop the semiclassical theory of quantized cyclotron orbits drifting in an applied inhomogeneous electric field and use it to provide a clear physical picture of how single particle properties in a magnetic field contribute to the Hall viscosity-dependence of the conductivity.

Rudro Biswas
University of Illinois at Urbana-Champaign

Date submitted: 15 Nov 2013

Electronic form version 1.4