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Quantum Hall Viscosity and the Torsional Response of Topological Insulators ROBERT LEIGH, TAYLOR HUGHES, EDUARDO FRADKIN, University of Illinois at Urbana-Champaign — In this talk I will discuss a dissipationless viscosity that has recently appeared in connection with the quantum Hall effect. I will show that this can be connected to the response of time-reversal breaking 2+1-d topological insulators under a mechanical torque. The torque is represented by a coupling of the electronic degrees of freedom to external torsion fields and gives rise to a Chern-Simons-like term commonly seen in gravitational theories in the presence of spacetime torsion. I will discuss possible thought experiments which illustrate the effects and will briefly cover the extension to 3+1-d topological insulators.

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