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Chirality, Causality, and Fluctuation-Dissipation Theorems in Nonequilibrium Steady States[1] DIMA FELDMAN, Brown University, CHEN-JIE WANG, University of Chicago — Edges of some quantum Hall liquids and a number of other systems exhibit chiral transport: excitations can propagate in one direction only, e.g., clockwise. We derive a family of fluctuation-dissipation relations in nonequilibrium steady states of such chiral systems. The theorems connect nonlinear response with fluctuations far from thermal equilibrium and hold only in case of chiral transport. They can be used to test the chiral or nonchiral character of the system.

[1] C. Wang and D. E. Feldman, Phys. Rev. Lett. 110, 030602 (2013)

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