

Abstract Submitted
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Nonequilibrium Hall Response After a Topological Quench¹ F.

NUR UNAL, Max-Planck Institute PKS, ERICH MUELLER, Cornell University, M. O. OKTEL, Bilkent University — We theoretically study the Hall response of a lattice system following a quench where the topology of a filled band is suddenly changed. In the limit where the physics is dominated by a single Dirac cone, we find that the change in the Hall conductivity is two-thirds of the quantum of conductivity. We explore this universal behavior in the Haldane model, and discuss cold-atom experiments for its observation. Beyond linear response, the Hall effect crosses over from fractional to integer values. We investigate finite-size effects, and the role of the harmonic confinement. Furthermore, we explore the magnetic field quenches in ladders formed in synthetic dimensions.

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