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Stirring by Staring: Measurement Induced Chirality[1] MATTHEW WAMPLER, BRIAN KHOR, University of Virginia, GIL REFAEL, California Institute of Technology, ISRAEL KLICH, University of Virginia — Controlling the dynamics of quantum systems is a current frontier of quantum many-body physics. Recent advancements in experimental techniques suggest exciting new directions in drive-induced quantum states. Here, we present a simple scheme that relies solely on occupation measurements to induce a chiral quantum phase. Namely, we show that by utilizing a pattern of repeated quantum measurements we can produce chiral edge transport of fermions hopping on a Lieb lattice. We study in detail the dependence on measurement frequency, showing that in the Zeno limit the system can be described by a classical stochastic dynamics, yielding protected transport. As the frequency of measurements is reduced, the charge flow is reduced and vanishes when no measurements are done.

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