Abstract Submitted
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Characterizing a conducting-to-nonconducting transition in an inhomogeneous Hubbard model out of equilibrium via tDMRG simulations[1] DANIEL GRUSS, Oregon State University, CHIH-CHUN CHIEN, Los Alamos National Laboratory, MASSIMILIANO DI VENTRA, University of California, San Diego, MICHAEL ZWOLAK, Oregon State University — The study of time-dependent, many-body transport phenomena is increasingly within reach of ultra-cold atom experiments. These systems not only allow experimental emulation of solid state systems, but allow us to probe the dynamics of transport at a previously unreachable level of detail. We will discuss computational results for the dynamics of fermionic transport in optical lattices that emulate an inhomogeneous Hubbard model. We demonstrate that this system displays a many-body, nonequilibrium conducting to nonconducting transition that depends on the interaction strength and filling.[2] We characterize the transition by deconstructing the dynamical behavior of the fermionic density. We will also discuss these results in the context of present-day cold atom experiments.

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[2]New J. Phys. 15 063026

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