Abstract Submitted
for the MAR16 Meeting of
The American Physical Society

Universal aspects of thermalization after a quantum quench JAMES R. GARRISON, University of California, Santa Barbara, TARUN GROVER, Kavli Institute for Theoretical Physics — A very fundamental problem in quantum statistical mechanics involves whether—and how—an isolated quantum system will thermalize at long times. The Eigenstate Thermalization Hypothesis (ETH) posits that when thermalization occurs, it occurs at the level of each individual energy eigenstate. In recent work [1], we examined an isolated quantum system that obeys ETH and identified the precise class of operators for which ETH is satisfied. Here, we use similar techniques to study the more general case of a time-evolved system after a quantum quench. Given a "typical" initial state, we investigate the class of operators that thermalize and the associated time scales, and remark on the similarities and differences compared with a single eigenstate at finite energy density. Possible experimental implications will be discussed. [1] J. R. Garrison and T. Grover, arXiv:1503.00729.

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Date submitted: 06 Nov 2015 Electronic form version 1.4