

Abstract Submitted
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Heating and decoherence from continuous measurement of the local density of lattice bosons¹ YARIV YANAY, ERICH MUELLER, MUKUND VENGALATTORE, Cornell Univ — We explore the dynamics of a Bose Hubbard system when a weak local probe continuously measures the occupation of all sites. We find that this poissonian measurement process drives the system towards a thermodynamic distribution with high entropy. The final distribution does not depend on the interaction strength, but the time until steady-state does. Using a master equation for quantum observables, we calculate the heating rate and decoherence time for the system, and follow the time evolution of the two-point and four-point correlation functions in real and momentum space.

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