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Relaxation and thermalization dynamics in the one-dimensional Bose-Hubbard-model[1] FABIAN HEIDRICH-MEISNER, STEFAN SORG, LODE POLLET, LEV VIDMAR, LMU Munich — Motivated by experiments recently carried out with ultracold atomic gases [1], we study the relaxation and thermalization dynamics of several observables in the one-dimensional Bose-Hubbard-model with integer filling after a global interaction quantum quench. Using exact diagonalization, we analyze the distribution of the diagonal matrix elements and the energy distribution of initial states in the framework of the eigenstate thermalization hypothesis, discussing its applicability in different regimes of U/J. We observe that time-averages of typical observables are well described by standard statistical ensembles.

[1] Ronzheimer et al., Phys. Rev. Lett., 110, 205301 (2013)

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