

Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

Strongly correlated bosons on optical superlattices: Dynamics and relaxation in the superfluid and insulating regimes¹ MARCOS RIGOL, MAXIM OLSHANII, University of Southern California, ALEJANDRO MURAMATSU, University of Stuttgart — We study the nonequilibrium dynamics of hardcore bosons (HCB's) on one-dimensional lattices. The dynamics is analyzed after a sudden switch-on or switch-off of a superlattice potential, which can bring the system into insulating or superfluid phases, respectively. A collapse and revival of the zero-momentum peak can be seen in the first case. We study in detail the relaxation of these integrable systems towards equilibrium. We show that after relaxation time averages of physical observables, like the momentum distribution function, can be predicted by means of a generalization of the Gibbs distribution. [M. Rigol, A. Muramatsu, and M. Olshanii, *Phys. Rev. A* 74, 053616 (2006).]

¹This work was supported by National Science Foundation grants Nos. DMR-0240918, DMR-0312261, PHY-0301052, and a grant from Office of Naval Research No. N00014-03-1-0427.

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Date submitted: 01 Dec 2006

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