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Hard-core Bosons in time-varying traps ADITYA RAGHAVAN, University of Southern California, MARCOS RIGOL, Georgetown University, STEPHAN HAAS, University of Southern California — We present a study of the time evolution of hard-core bosons (HCBs) in a one-dimensional, time-varying optical trap. Previous results have shown that one-dimensional HCBs can form superfluid and Mott-insulator phases. Using an exact numerical approach, we study the dynamics of the system when the trap curvature is modulated. We find the dynamics to be markedly different in the two phases, and address its relevance in the observation of these phases in optical lattice experiments.

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