Numerical linked cluster expansions for quantum quenches in one-dimensional Lattices KRISHNANAND MALLAYYA, MARCOS RIGOL, Pennsylvania State Univ — We discuss the application of two complementary numerical linked cluster expansions (NLCEs) – a site expansion and a maximally connected expansion – to the study of quantum quenches in one-dimensional systems of hard-core bosons. We compare the NLCE results with those of exact diagonalization in finite systems with periodic boundary conditions. We show that NLCE results converge faster than exact diagonalization ones to the thermodynamic limit result. Furthermore, we discuss the effectiveness of resummation techniques in extending the region of convergence of NLCEs.

Krishnanand Mallayya
Pennsylvania State Univ

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