Emergent Hamiltonian description for dynamics of interacting integrable models RYAN CADIGAN, DEEPAK IYER, Bucknell University — Recent work has shown that in some cases the time evolution of a quantum state after a quench is equivalent to one of the eigenstates of an "emergent" Hamiltonian where the time enters as a coupling parameter. Here, we study the dynamical behavior of integrable models on a one-dimensional lattice starting from spatially localized initial states using such an effective description, as well as directly, and show the equivalence explicitly. We further study the development of correlations and entanglement in these time evolving states.

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