Imaginary-time evolution following a quantum quench between distinct symmetric phases KEOLA WIERSCHEM, YING-JER KAO, National Taiwan University — Symmetry protected topological phases are a new class of distinct symmetric phases in the presence of a protecting symmetry. An early example of a nontrivial symmetry protected topological state is the ground state of the spin-1 Heisenberg antiferromagnet—the so-called Haldane phase. The Haldane phase is distinct from the symmetric product state of zero spin projection along the $z$ axis $|\mathcal{D}\rangle = \prod_i |0\rangle_i$ that is adiabatically connected to the so-called large-$D$ phase. In this work, we explore the imaginary-time evolution of the state $|\mathcal{D}\rangle$ after a quantum quench into the Haldane phase and present details of a quantum Monte Carlo method that can easily be extended to studies in higher dimensions.

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Date submitted: 12 Nov 2014