

Abstract Submitted
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Finite temperature dynamics of spin-1/2 chains with symmetry breaking interactions¹ SALVATORE R. MANMANA, ALEXANDER C. TIEGEL, THOMAS PRUSCHKE, Institute for Theoretical Physics, University of Goettingen, ANDREAS HONECKER, LPTM, Université de Cergy-Pontoise — I will discuss recent developments for flexible matrix product state (MPS) approaches to calculate finite-temperature spectral functions of low-dimensional strongly correlated quantum systems. The main focus will be on a Liouvillian formulation. The resulting algorithm does not specifically depend on the MPS formulation, but is applicable for any wave function based approach which can provide a purification of the density matrix, opening the way for further developments of numerical methods. Based on MPS results for various spin chains, in particular systems with Dzyaloshinskii-Moriya interactions caused by spin-orbit coupling and dimerized chains, I will discuss how symmetry breaking interactions change the nature of the finite-temperature dynamic spin structure factor obtained in ESR and neutron scattering experiments.

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