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**Matrix product state formulation of frequency-space dynamics at finite temperatures** SALVATORE R. MANMANA, ALEXANDER C. TIEGEL, ANDREAS HONECKER, Institute for Theoretical Physics, University of Goettingen — We consider finite temperature properties of dynamical spectral functions of $S = 1/2$ XXZ chains with Dzyaloshinskii-Moriya (DM) interactions in magnetic fields and analyze the effect of these symmetry breaking interactions on the nature of the spectral functions by comparing to results obtained for systems without DM interactions. This is achieved by extending matrix product state approaches working at finite temperatures to compute dynamical spectral functions in the frequency domain. We provide proof of principle results for the computation of experimentally relevant quantities like line shapes in neutron or light-scattering experiments. Based on our results, we provide an outlook for further improvements and developments of finite temperature approaches to dynamical spectral functions.

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