

Abstract Submitted
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Entanglement perturbation theory for the excitation spectrum in one dimension SUNG CHUNG, Western Michigan University — A novel many-body method, entanglement perturbation theory, is developed for the excitation spectra in one dimension. Applied to the antiferromagnetic Heisenberg chains with spin one-half and 1, converging and hence exact results are obtained, including known Bethe Ansatz result for spin one-half and DMRG results for spin 1. We have found that the magnons are spread over about 4 lattice sites. An essential ingredient in this theory is the exact, un-renormalized ground state of arbitrary system sizes, which are also calculated by EPT in a simple, general and exact manner.

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