ERGODICITY OF THE HEISENBERG CHAIN

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9.7 cm

The relevance of zero-energy functions, coming from zero-energy modes and present in the structure of bosonic Green's functions, is often underestimated. Usually, their values are fixed by assuming the ergodicity of the dynamics, but it can be shown that this is not always correct. As the zero-energy functions are connected to fundamental response properties of the system under analysis (specific heat, compressibility, susceptibility, etc.), their correct determination is not an irrelevant issue. In this paper we present some results regarding the zero-energy functions for the Heisenberg chain of spin-1/2 with various boundary conditions as functions of the number of sites, temperature and magnetic field. Calculations are pursued for finite chains, using exact diagonalization and Lanczos technique, and the extrapolation to thermodynamic limit is studied.

13.4 cm

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