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Antiferromagnets at low temperatures

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Abstract content

Summary

The low-temperature properties of the Heisenberg antiferromagnet in 2+1 space-time dimensions are analyzed within the framework of effective Lagrangians. It is shown that the magnon-magnon interaction is very weak and repulsive, manifesting itself through a term proportional to five powers of the temperature in the pressure. The structure of the low-temperature series for antiferromagnets in 2+1 dimensions is compared with the structure of the analogous series for antiferromagnets in 3+1 dimensions. The model-independent and systematic effective field theory approach clearly proves to be superior to conventional condensed matter methods such as spin-wave theory.

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