

Chiral fluctuations in triangular antiferromagnets at $T = 0$

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Abstract

Chiral fluctuations in triangular antiferromagnets at $T = 0$ are studied theoretically. It is considered in detail a case of ferromagnetic interaction along c axis (which is perpendicular to the plane of the lattice), Dzyaloshinskii-Moriya interaction $\mathbf{D}\parallel c$ and a weak magnetic field $\mathbf{H}\parallel c$. The physical realization of such a model is CsCuCl_3 . Expressions for dynamical chirality are derived within the spin-wave approximation. In contrast to non-frustrated systems it is not zero at $D, H = 0$ for one-domain sample. This effect is attributed to frustration. It is shown that the twofold chiral degeneracy of the ground state is in the origin of this unusual behaviour.

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