

# LONGITUDINAL SPIN DYNAMICS IN ANTIFERROMAGNETS: GREEN FUNCTIONS APPROACH

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## Abstract

A microscopic model is used to describe longitudinal spin excitations in a two-sublattice antiferromagnet (AFM). The diagrammatic technique for spin operators allows to overcome limitations typical for phenomenological approaches. We have obtained an expression for the longitudinal dynamic spin susceptibility  $\chi_{zz}(q, \omega)$  applicable in all regions of frequency  $\omega$  and wave vector  $q$  space beyond the hydrodynamical and critical regimes. Virtual processes that determine the AFM longitudinal dynamical susceptibility are considered. It is shown that the frequency determined by the excitation/absorption of two magnons lies energetically above transverse spin wave frequency and it remains even in the absence of thermal excitations.

## Type of Book of Abstracts

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**Session Classification:** Physics of Magnetism

**Track Classification:** Physics of Magnetism