# COLLECTIVE GREEN FUNCTION AND LONGITUDINAL SUSCEPTIBILITY OF ANISOTROPIC HEISENBERG FERROMAGNET AT LOW TEMPERATURES

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S u m m a r y

The longitudinal dynamic susceptibility defining the linear response of an "easy axis" anisotropic Heisenberg ferromagnet on the presence of a weak external magnetic field (supposed time dependent and spatially non-uniform) is studied in the region of low temperatures (relative to the Curie temperature). Linearized quantum equations of motion for the Fourier transforms of the longitudinal components of the spin operators are used to construct the dynamic random phase approximation (DRPA) for the magnon collective Green function. The one-parameter class of the bosonic representations of the spin operators (including as particular cases the Dyson—Maleev and Holstein—Primakoff representations) is used. The dispersion equation, describing the poles of the longitudinal dynamic susceptibility, is studied and it is shown that there are no long-wavelength excitations of the "zero-magnon" type. Moreover, it is shown that the kinematic interaction doesn't contribute to this dispersion equation, which accords completely with the well-known result of Baryakhtar et al. for the isotropic case.