TRANSFER MATRIX METHOD IN ANTIFERROMAGNETIC SUPERLATTICE.

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9.7 cm

An antiferromagnetic superlattice elementary unit consists of N different simple cubic Heisenberg antiferromagnetic layers is considered. Only the nearest-neighbour exchange interaction is taken into account. The Hamiltonian includes the exchange interaction, the Zeeman and magnetic anisotrophy energies. We apply transfer matrix method to this system. The spin-wave amplitudes are given within each component by a linear combination of the positive and negative-going solutions. Employing the equation of motion within random-phase-appoximation (RPA) for the atomic layers at the interface one can relate amplitudes of the neighbour elementary units by transfer matrix. General dispersion trough the elements of the transfer matrix and also the eigenvalues and the corresponding eigenvectors are defined.

13.4 cm

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