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Abstract:In this study, the magnon excitations in multiferroic BiFeO3<(BFO) have been discussed. The studies are based on the spin wave theory and Katsura's model. The influence of the spin wave excitations on the terahertz absorption is discussed. The antiferromagnetic and ferroelectric interactions in multiferroic BFO were included using an effective fermion Hamiltonian. This Hamiltonian is bosonized and diagonalized, using Holstein-Primakoff and Bogoliubov transformations, respectively. An effective boson Hamiltonian is diagonalized to determine the excitation energy of the spin wave. The results obtained in this study are in qualitative agreement with the experimental data. © The Author(s) 2011.