THE INFLUENCE OF MAGNETOELASTIC INTERACTION ON THE FIRST TRANSVERSE SOUND IN A FERROMAGNET OF CUBIC SYMMETRY IN A VICINITY OF THE MARTENSITIC TRANSFORMATION

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S u m m a r y

The dispersion laws of coupled magnetoelastic waves have been calculated for all ground states of a ferromagnet with the cubic symmetry. It is shown that the magnetoelastic interaction with the first transverse sound takes place for all equilibrium directions of the magnetization vector. The obtained dispersion laws testify that the magnetoelastic interaction coefficient depends on the magnetization and wave vector directions. The quantitative calculations of the dispersion relations for the shape memory alloy Ni–Mn–Ga are made on the basis of the obtained results. The results of research demonstrate that a decrease in the elastic modulus gives rise to an appreciably stronger magnetoelastic interaction.