

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

*A.G. Danilevich*

Institute of Magnetism, Nat. Acad. of Sci. of Ukraine  
and Ministry of Education and Science of Ukraine  
(36b, Academician Vernadsky Blvd.,  
Kyiv 03142, Ukraine; e-mail: [alek\\_tony@ukr.net](mailto:alek_tony@ukr.net))

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.