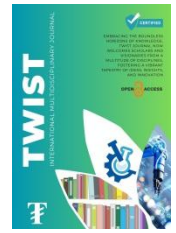




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Measuring the Magnetostrictive Effect on Ferromagnets Using a Michelson Interferometer

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Abstract

Magnetostriction is the change in size or shape of objects during magnetization. In ferromagnets, magnetostriction reaches large values. In antiferromagnets, paramagnets and diamagnets, this value is very small. In modern theory of magnetism, magnetostriction is considered to be the result of two main types of interactions in ferromagnetic bodies: electrical exchange and magnetic interaction. Accordingly, the magnetostriction in a crystal lattice can be of two types depending on the nature of the deformation [2]. Due to changes in magnetic forces and changes in alternating forces (dipole-dipole, spin-orbital). In this paper, a linear change in the magnetic field of some ferromagnetic substances was measured using a Michelson interferometer. The measurement accuracy of the Michelson interferometer is shown to be 10-7m. A graph of the linear variation of iron and nickel as a function of the magnetic field value is plotted.

Keywords

Linear change, Magnetic field, Ferromagnetic substances

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