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ON THE INHOMOGENEITY OF THE MAGNETIZATION OF CYLINDRICAL CORES IN THE UNIFORM MAGNETIC FIELD

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Abstract

The inhomogeneity of the magnetization of cylindrical cores of an electromagnet in a constant uniform external magnetic field is studied taking into account the nonlinearity of the magnetic properties of the material. The iterative algorithm for calculating resulting magnetic field inside a core, based on the numerical solution of the integral equation for the surface density of fictitious magnetic charges in conjunction with the approximated magnetization curve of a material, is proposed. The convergence of the iterative algorithm for arbitrary initial values of magnetic permeabilities is established. References 9, figures 3, table 1.

Key words: magnetization, cylindrical core, magnetic field, integral equation, fictitious magnetic charge, magnetization curve.

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