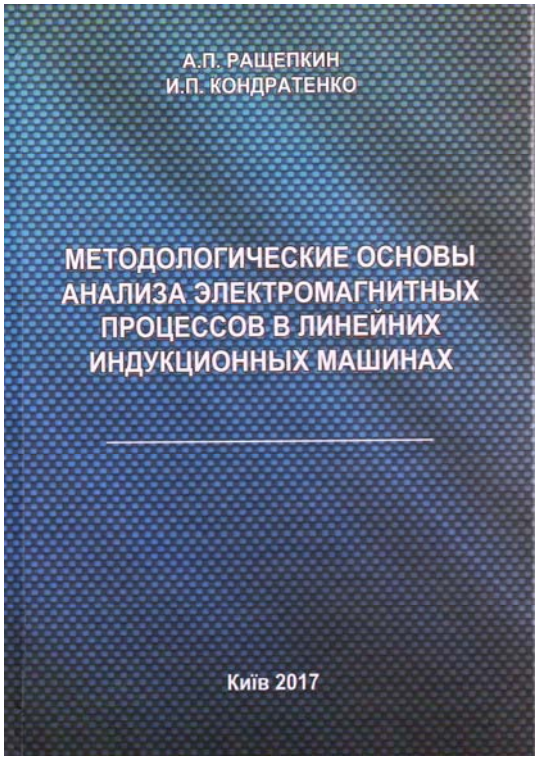

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The monograph presents the study results of electromagnetic, thermal, and hydrodynamic processes in linear induction machines of various technical application: in induction MHD machines for transporting liquid metals and MHD transformation of energy, in induction installations for heat treatment of flat metal, in which the heated metal is a rotor of a linear induction machine, and in other branches of engineering. New methods of excitation of travelling magnetic field are developed, and the structure of electromagnetic processes in MHD machines is described, taking into account an influence of velocity profile and electrically conductive channel borders. An influence of longitudinal and transverse heterogeneities of a distribution of electrical conductivity and magnetic field structure on a heat emission in linear induction machines intended for heating flat metal, is studied. An analysis of electromagnetic processes in linear induction machines is carried out by the method of the Riemann boundary value problem. The methods of controlling distribution of heat dissipation in a band and methods of electrical parameters symmetry of linear induction machines, are proposed. The foundations of the theory are outlined, and analytical dependencies are deduced, which can be used in calculation and design of such machines.

The monograph is intended for scientists, engineers, post-graduate and students interested in linear induction machines of various technological purposes.