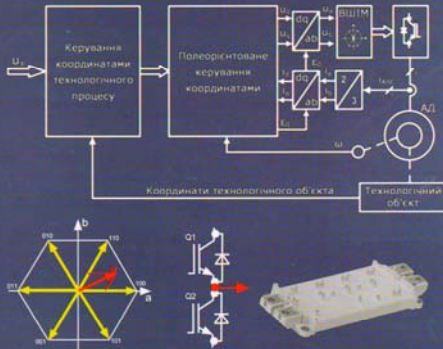


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ЕНЕРГОЕФЕКТИВНІ ЕЛЕКТРОМЕХАНІЧНІ СИСТЕМИ ШИРОКОГО ТЕХНОЛОГІЧНОГО ПРИЗНАЧЕННЯ



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The monograph presents research results of the means for increasing energy efficiency of electromechanical systems of different technology purposes. Based on the development of vector control theory, a theoretical generalization and new solution of a recent scientific and practical problem of synthesis and analysis of electromechanical systems with vector-controlled electric drives, are obtained. A method of non-driving (without measuring mechanical coordinates) vector control in electromechanical systems with asynchronous motors is developed. The boundaries of a family existence of zero-sequence functions for problem submodulation of the output voltages of semiconductor

converters for electric drive when using a pulse-width modulation, are determined. A use of the signal spectrum of a power consumed by a three-phase motor for diagnosis of its defects is substantiated. A methodology of the structural and algorithmic synthesis of systems of optimal control of technological objects on the basis of a modified symmetry principle is considered. Theoretical bases of dynamics of a wide class of electromechanical systems with a nonlinear friction are developed. The results of experimental studies and introduction of energy-efficient electric drives are presented.

The monograph is intended for the specialists engaged in the development and research of electric drives, graduate students and students of relevant specialties.