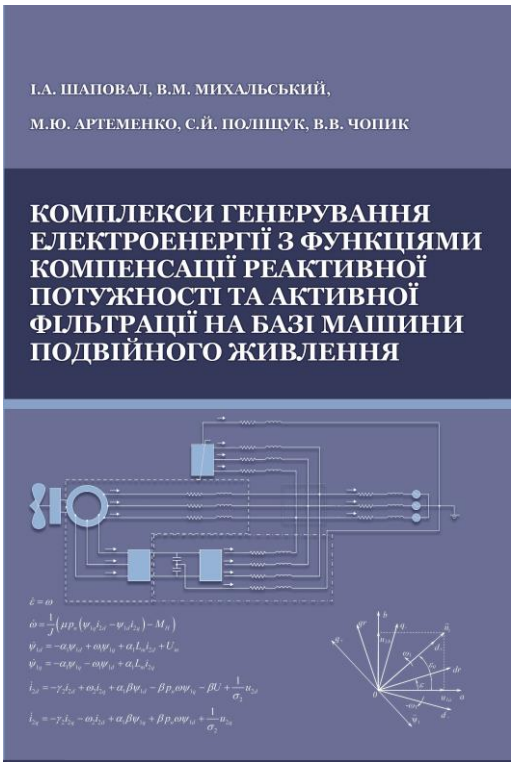

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The monograph presents the results of research of power generation complexes based on a doubly-fed induction machine with converters in the rotor and stator circuits, aimed at improving the quality of generated electric energy. The strategy of compensation of unbalance and non-sinusoidal of the generated currents of the doubly-fed induction machine in the conditions of connection of nonlinear loads has been developed. A new control method of a fully controlled doubly-fed induction machine has been developed. A new combined method of compensation of harmonic components of the generated current of a doubly-fed induction machine is shown, which consists of combining the compensating effects of a doubly-fed induction machine and a semiconductor converter in a rotor circuit to improve the quality of generated electric energy. This makes it possible to meet the requirements for electromagnetic compatibility when nonlinear loads are connected to the common connection point. The results of experimental research on electric power generation complexes based on a doubly-fed induction machine are presented.
It is for professionals involved in the development and research of generation systems, graduate students, and students of relevant specialties.