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SEARCH METHODS IN THE STRATEGY OF OPERATING HIGH-DUTY TECHNICAL SYSTEMS

The authors analyze the problems that arise when controlling the operation of unique high-duty technical systems. Discussed are the difficulties in estimating and predicting their technical condition, that are caused by the lack of information about regular patterns of random processes of parametric variation, unavailability or lack of information about disturbing effects and the impact of external factors on the ongoing processes. The authors demonstrate feasibility of reducing the method of controlling the operation of unique high-duty technical systems to the decision-making problem under conditions of uncertainty with a guaranteed result. The application of search optimization algorithms that do not use information about the derivatives of optimized functions and allow parallelization of computational processes is considered.

Keywords: high-duty technical systems, forecast, control of the technical condition, uncertainty condition, search optimization, parallel computing technology, stochastic searching algorithms.

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