

OPTIMIZATION OF MULTI-DIMENSIONAL STOCHASTIC SYSTEMS AND STABILITY OF
SOLUTIONS

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ABSTRACT

Two important cases of the problem of optimization of multidimensional stochastic systems are considered. The first case is related to the regulator problem for a stochastic system which describes a regulating nonstochastic and nonstationary device. The second one arises from problems in which some moments must have specified properties. It is shown that the above problems are among the non-well-posed-ones. Hence it is difficult to use experimental data on moments of random processes for the study of an optimization process. The method of synthesis of multi-dimensional systems is proposed and a projection method for the solutions of the exact equation with respect to the impulse response functions is obtained. Theorems on evaluation of the errors of approximate solutions are formulated.