

References:

1. Gordon J. Computer viruses are not secrets. - M.: New Publishing House, 2008.
2. Kasperski K. Notes computer virus researcher. - SPb.: Peter, 2007.
3. Parandowski AA Computer Virus Encyclopedia. - M: Solon-P., 2010.
4. Kasperski K. Computer viruses inside and out. - SPb.: Peter, 2008.

A.A. Mozgovenko

Research supervisor: V.M. Malkina, Doctor of Technical Sciences, Professor

Language supervisor: S.V. Symonenko

Tavria State Agrotechnological University

INFORMATION SYSTEM OF ORTHOGONAL DESIGN CONSTRUCTION OF EXPERIMENTS UNDER THE D-EFFICIENT MINIMIZATION CRITERIA

The experimental plan is a skeleton of the experiment. If it is viewed from this angle, the experiment plan is likened to a model that needs to be completed by specific procedures in order to get an answer to the question: what is the purpose of the experiment?

Unlike standard classical plans such as a factor and a small factor, D-optimal planning matrons are usually non-orthogonal and have correlated effect evaluations.

This optimality criterion leads to a minimization of the generalized variance of the parameter estimates for a pre-set model. As a result, the "optimality" of this D-optimal design depends on the model. That is, the experimenter must specify a design model before the computer can generate specific processing combinations. Taking into account the total amount of processing performed for the experiment and the determined model, the computer algorithm chooses the optimal set of project trajectories from a set of candidates for possible design procedures. This candidate set of processing usually consists of all possible combinations of different factor levels to be used in the experiment.

The information system uses Hadamard matrices and the field of Arithmetic, namely the Kronecker product, to construct orthogonal matrices of planning. The system is designed to provide the user with the ability to automate the construction of orthogonal plans from complete factor plans. Conducting an experiment on such a plan allows obtaining data for constructing an adequate model of a phenomenon or a process. The introduction of such a system will reduce the duration of the experiments.

When evaluating or confirming the characteristic being studied, it must be ensured that the results obtained are not due to a random variation. This refers to assessments that are performed on a given standard, and mostly when comparing two or more systems. Experiment planning allows performing such evaluations with a given confidence probability. The main advantage of planning experiments is its relative efficiency and economy when investigating the effects of numerous factors in the process compared with the study of each factor separately. In addition, its ability to determine the interaction between certain factors can contribute to a better understanding of the process. Such advantages are especially evident when considering complex processes (that is, processes that contain a large number of potentially influential factors).

Conclusion: An experiment means an action aimed at creating conditions for the realization of one or another phenomenon and, if possible, of the most frequent one. The main purpose of the experiment is to identify the properties of the objects under study, to test the validity of the hypotheses and the broad and deep study of the topic of the scientific research.