

*Materials of Conferences***IDENTIFICATION AND STRUCTURAL ANALYSIS OF SIGNALS**

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The tendency of modern development is to solve complex problems that require multiple resources, the close relationship of various aspects of social life and lead to the need to consider the complex difficult to describe objects, phenomena and processes.

Technology, economics, sociology, education is increasingly turning in operating complex ergatic systems, i.e. systems of one of the elements which is man himself, (space projects, innovative economic and social programs, the problem of building effective models and transformation of the professional activities, etc.). Separate development of the individual components of this systems, such as engineering, technology or management does not solve complex problems, in particular the quality of life of sustainable growth, and is not provided, in turn, change the individual influencing factors: new technology, improving the organization of work, professional development and performers etc.

So today was becoming increasingly pronounced decrease from existing and need to formulate new methodological approaches to solving these problems. Changing the type of scientific and practical problems, their transformation into actual management tasks the organization and operation of complex systems is accompanied by the need to develop new scientific and special-scientific concepts, ideas using a systematic approach.

It is increasingly clear that a systematic approach is a generalized methodological concept that allows building new means of studying complex systems. This fact is becoming increasingly important due to the control problems of complex objects, complete an adequate description of which is either unavailable or can not be obtained, for economic or technological reasons.

Complex systems are characterized by a large number of different elements, the presence of various types (heterogeneous) the links between elements , a high level of integrity , integration, robustness , as well as a new , non-traditional in the sense of the formalization of properties , which include unique , no clearly formalized purpose of existence , the lack of optimality . Such systems is difficult to assign a large number of different kinds of parameters which set does not fully unambiguous description of their integrity and parametric description of complex systems , in most cases they do not provide an unambiguous assessment.

Development of methods for classification and identification of signals in a wide semantic meaning of the word "signal" is identified with concepts such as communication and information, it is urgent to solve various scientific and practical problems and, in particular, the problems of managing complex geographically distributed objects.

Under such objects are generally understood semantic objects of any nature (both physical and abstract) having a distributed structure, i.e. objects to control which requires monitoring geographically or functionally segregated totality of their elements.

The essence of the problem is the identification information (signals) obtained in particular from the distributed object and a decision about the state of the object on the basis of identification results. Existing methods for the solution of this problem, a common approach to signal analysis that consists in allocating them in so-called informative signs used subsequently to classify signals.

However, in the process of solving the problem of classification, as a rule, there is a problem multicriteriality, the characteristic feature of which is the consideration of the two spaces – the space of variables (signal parameters) used in the construction of its mathematical model, and space criteria. The problem of multi-criteria evaluation signal, regardless of its nature, is actually reduced to the problem of estimating the importance (significance) of the evaluation criteria of private properties and characteristics of the signal when evaluating the integral measure of the difference (distance) within classes and between classes. This problem, in our opinion, is generated by the fact that the aggregate partial criteria (properties and characteristics of signals) are special systems that have their own structure and properties different from the properties of the integral evaluated signal, as a system. In addition, the existing classification methods in constructing measures of difference, as a rule, involve the use of analytical expressions relating the parameters of the signals with independent arguments and differences of scales, which makes their implementation.

In such a situation suitable research towards finding new solutions to the problems under consideration until a drastic change very concept mapping (representation) of the signal, in particular, through the use of the ideas and methods of the structural approach in the orientation system and then solving problems identification and structural analysis.

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