Materials of Conferences

SIMULATION MODELING OF INFORMATION SECURITY SYSTEMS

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The passage of our society from the post-industrial to informational caused such notion as information environment. Information environment is a subject's field of activity closely related to the creation, transformation and consumption of information. Information security provides the state of information environment protectability. In fact it means informational threat absence and as a result resistance of general human fields of activity to possible dangerous informational influences. Information environment as a fundamental factor of the social activity is a set of conjunct segments that include informational resources, hardware and software means. So comprehension of existing and potential threats to information security objects allows to provide an appropriate security system.

Any informational threat represents some input data, intended for activization of algorithms that break the normal mode of system's functioning in information environment. Separated research of information security threats according to single indices doesn't produce an expected affect, that's why it's necessary to reflect complexly all signs of measuring applying to each threat. As a consequence, it's necessary to use the simulation modeling for complex research of threats to information security.

Simulation models is a combination of traditional mathematical modeling with modern computer technologies. The maximum similarity between the model and real object, and achievement of the maximum exactness of it's description is the purpose of simulation models development.

Simulation models pretend to fulfill explanatory and prognostic functions.

The simulation models are realized by using building block concept that allows to divide the simulation system into several subsystems connected between each other by insignificant quantity of generalized interactions. This subsystems allow independent modeling with the usage of it's own mathematical tool. Such an attitude allows rather simple construction of new simulation models by changing of separated blocks.

So, as stated above, the resolving of problems of information security is based on:

- detailed quantitative analysis of the informational vulnerability in the informatization object;

- scientifically-based determination of the required security level of each object and under concrete conditions of it's functioning;

- creation of optimal security system;

The simulation modeling makes it possible.

FRICTION LOSS ENHANCEMENT IN ELECTRIC DRIVEN PUMP OF SPACE VEHICLES

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Electric driven pumps (EDP) of low power ($N \leq 300$ W) provide circulation of fluid coolant at closed circuit of a temperature-control system (TCS) of space vehicles (SV). Reduction of energy consumption (EDP) is a relevant issue of SV temperature control rationalization.

Let's see the possibility of friction loss enhancement in EDP by way of example of a centrifugal electric driven pump. Let's analyze balance of loss in power in EPD power end not taking into consideration loss in its pump part (fig. 1, pos. I).
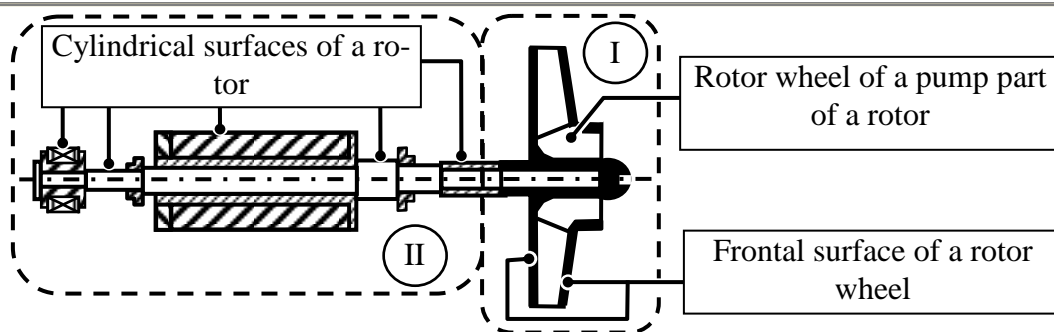

Fig. 1. Structure division of a EPD rotor:
I – pump part of a rotor; II – power end part of a rotor