



SK01K0032

THE ROLE OF COMPUTER SIMULATION IN NUCLEAR TECHNOLOGY DEVELOPMENT

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The second half of the twentieth century will come into history as a time of fast development of scientific technologies. These technologies are widely applied in practically all phases of human activity.

One of the important achievements of modern science is the appearance and wide application of computer simulation. Computer simulation is a powerful tool for scientific research. It has opened a new approach to research, given a new qualitative push for science and scientific technology development.

In the report, the role and purpose of computer simulation in nuclear technology development is discussed. The authors consider such applications of computer simulation as:

- Nuclear safety research

- Optimization of technical and economic parameters of acting nuclear plant
- Planning and support of reactor experiments
- Research and design new devices and technologies
- Design and development of "simulators" for operating personnel training

Among marked applications, the following aspects of computer simulation are discussed in the report:

- Neutron-physical, thermal and hydrodynamics models
- Simulation of isotope structure change and damage dose accumulation for materials under irradiation
- Simulation of reactor control structures