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Development of information systems for theoretical and applied tasks on the basis of the HybriLIT platform

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The report gives an overview of two information systems (IS) under development on the basis of the HybriLIT platform. The major goal of creating these ISs is to automate calculations, as well as to ensure data storage and analysis for different research groups.

The information system for radiobiological research provides tools for storing experimental data of different types, a software set for analyzing behavioral patterns of laboratory animals and studying pathomorphological changes in the central nervous system after exposure to ionizing radiation and other factors. The given IS comprises blocks for storing and providing access to experimental data and a data analysis block based on machine and deep learning and computer vision algorithms.

In addition, a virtual research environment (VRE) for modeling physical processes in complex systems based on Josephson junctions is being developed within the HybriLIT platform. The VRE combines convenient tools based on web technologies for creating models, an interface for performing calculations on the HybriLIT heterogeneous computing platform and visualizing calculation results, as well as provides different research groups with an environment for organizing joint studies, exchanging models and calculation results.

Summary

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