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## A SOFTWARE PACKAGE FOR STUDYING THE SYSTEM OF LONG JOSEPHSON JUNCTIONS ON HYBRID COMPUTING ARCHITECTURES

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The report presents the work on developing of a software package for investigating the system of long Josephson junctions. It makes possible to perform computations on heterogeneous computation architectures: Intel processors (CPU), Intel Xeon Phi processors (KNL), NVIDIA graphics processors (GPU). A comparative analysis of the acceleration and efficiency of the developed parallel implementations depending on the task parameters and the parallelization scheme was performed; analysis of the effectiveness of the developed parallel implementations using OpenMP, MPI and CUDA technologies for a single Josephson junction has been carried out in order to select the optimal computing architecture for the solution of the task. The calculations were carried out on a heterogeneous platform HybriLIT (LIT JINR).

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