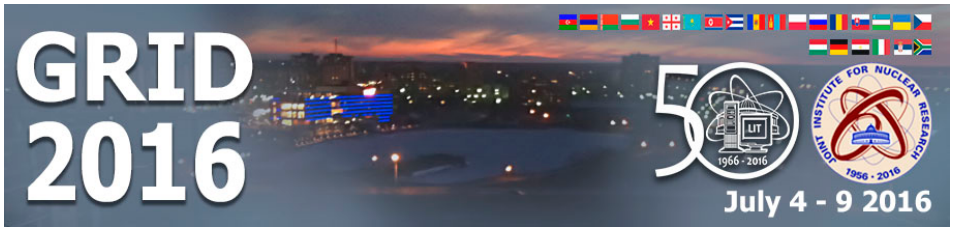

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Research of MPI application efficiency on cloud and heterogeneous infrastructures of MICC JINR

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A comparative analysis of the efficiency of a distributed computing system based on the cloud infrastructure of MICC JINR and the heterogeneous cluster HybriLIT for parallel applications with MPI technology has been carried out. The calculations include both test problems and MPI-implementation of a program complex for calculations of physical characteristics in long Josephson junctions. Dependence of the amount of interprocessors interactions on speedup of computations in parallel mode has been investigated. For the model of Josephson junctions, parameter values of computational schemes based on 4-step Runge-Kutta method and 1-step Euler method has been obtained. The use of these parameters facilitates the efficiency of calculations with the cloud infrastructure in its current configuration.
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