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Performance optimizations for porting the openQ*D package to GPUs

Friday 30 July 2021 07:00 (15 minutes)

OpenQ*D code has been used by the RC* collaboration for the generation of fully dynamical QCD+QED gauge configurations with C* boundary conditions. In this talk, optimization of solvers provided with the openQ*D package relevant for porting the code on GPU-accelerated supercomputing platforms is discussed. We present the analysis of the current implementations of the GCR solver preconditioned with Schwarz alternating procedure for ill-conditioned Dirac-operators. With the goal of enabling support for GPUs from various vendors, a novel method of adaptive CPU/GPU-hybrid implementation is proposed.

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Session Classification: Algorithms (including Machine Learning, Quantum Computing, Tensor Networks)

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