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Optimization of Lattice QCD with CG and multi-shift CG on Intel Xeon Phi Coprocessor

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We implemented lattice QCD on Xeon Phi coprocessor using intrinsics as vectorization method, and OpenMP and MPI as parallelization method. Our implementation uses double precision conjugate gradient (CG) solver which also supports multi-shift CG.
We present our optimization methodology and performance for key steps in CG algorithms.

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