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Performance Optimization of Baryon-block Construction in the Stochastic LapH Method

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Implementations of measurement kernels in high-level Lattice QCD frameworks enable rapid prototyping, but can leave hardware capabilities significantly underutilized. This is an acceptable tradeoff if the time spent in unoptimized routines is generally small. The computational cost of modern spectroscopy projects however can be comparable to or even exceed the cost of generating gauge configurations and computing solutions of the Dirac equation. One such key kernel in the stochastic LapH method is the computation of baryon blocks; we discuss several implementation strategies and achieve a 3x speedup over the current implementation on Intel Ice Lake.

Primary authors: NGUYEN, Phuong (TU Munich / Intel); Dr HOERZ, Ben (Intel)

Presenter: NGUYEN, Phuong (TU Munich / Intel)

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