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Support of domain decomposition-based solvers in Chroma

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In multilevel integration, the correlation functions are decomposed into factors that depend only on fields localized into lattice subdomains so that they can be independently integrated. Although the standard formulation of the LQCD action is not local in the presence of fermions, past studies have shown approximations of the quark propagator and the fermionic determinant dependent on the gauge fields within specific subdomains can still be effective.

We will present our current progress in supporting domain decomposition within Chroma, which is necessary for multilevel integration approaches. The efforts are focused on extending the code base to efficiently manipulate subdomains for lattice fields and operators and performing inversions and eigendecompositions within domains.

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