

Abstract Submitted
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Gluon Field Digitization for Quantum Computers¹ HENRY LAMM IV, University of Maryland, NUQS COLLABORATION — Simulations of QCD on quantum computers in the NISQ-era require the digitization of gluon field variables that uses the minimum amount of qubits. We present a scheme for digitizing $SU(3)$ gauge theories via its discrete subgroup $S(1080)$ with a modified action that allows simulations in the scaling regime down to lattice spacings of order $a \approx 0.08$ fm. With a classical Monte Carlo, we compute a set of observables with sub-percent precision at multiple lattice spacings and show that the continuum extrapolated value agrees with the full $SU(3)$ results.

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