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Spectrum of preconditioned Moebius domain-wall operators

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The convergence property of iterative solvers strongly depends on the spectrum of Dirac operator. For most of the standard algorithms to work, the real part of the spectrum should be positive. The domain-wall operator does not satisfy this condition, and this is one the reasons for difficulty in applying the multi-grid algorithms. In this presentation, we examine several preconditioning operators for the Moebius domain-wall operator and investigate their spectra. We implement the code using Bridge++ code set, and report its performance. We will also discuss application to multi-grid algorithm with the preconditioned operators.

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