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Eigenspectrum calculation of the non-Hermitian O(a)-improved Wilson-Dirac operator using the Sakurai-Sugiura method

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We are developing a computer code for calculating eigenvalues of the non-Hermitian O(a)-improved Wilson-Dirac operator. We introduce here the Sakurai-Sugiura method, which is an eigensolver algorithm based on a contour integral, allowing us to calculate desired eigenvalues located inside a given contour. We report the test results for low-lying eigenvalues obtained with free-case, quenched and full QCD configurations up to a lattice size of 96⁴.

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