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Domain Wall Fermion Simulations with the Exact One-Flavor Algorithm

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As algorithmic developments have driven down the cost of simulating degenerate light quark pairs the relative cost of simulating single quark flavors with the Rational Hybrid Monte Carlo (RHMC) algorithm has become more expensive. TWQCD has proposed an exact one-flavor algorithm (EOFA) that allows for HMC simulations of a single quark flavor without taking a square root of the fermion determinant. We have independently implemented EOFA for Shamir and Möbius domain wall fermions, and begun to optimize and test our implementation against RHMC. In this talk we will discuss the derivation of the EOFA action, our tests of its equivalence to RHMC, and the current state of our implementation and optimization.

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