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Flavor Filtered Fermions

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We present a new discretization of the lattice Dirac operator that preserves chiral symmetry while suppressing the effects of doubler states. The new operator is constructed from the naive Dirac operator by filtering out doubler states while preserving one physical quark state. In the simplest version the filtering is only approximate and the filter would require fine tuning to produce a single flavor in the continuum limit. We will present results from quenched simulations for the doubler suppression, locality and topology of the operator. We also discuss prospects for improving the filter to reduce and possibly eliminate the need for fine tuning.

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