

Pseudoscalar flavor-singlets and staggered fermions

Presenter: Eric Gregory (University of Liverpool)

E.B. Gregory, A.C. Irving, C. McNeile, C.M. Richards

Abstract: Because the propagators of flavor-singlet states incorporate both disconnected and connected diagrams, they are sensitive to any differences in the actions governing sea and valence fermions on the lattice. As such, they present the possibility of a probe of the validity of the "fourth-root trick" in the staggered fermion formulation. We present an update on our progress toward measuring the η' mass on 2+1-flavor Asqtad staggered gauge configurations, including methods and preliminary results. We also show that a strong correlation between $\text{Tr}(\gamma_5 \times 1)$ and the topological is evident in these configurations, as predicted by the index theorem.