Contribution ID: **97** Type: **Talk**

Multigrid-accelerated Low-Mode Averaging

Thursday, 16 July 2015 11:00 (20 minutes)

Disconnected contributions to hadronic quantities are noisy and still computationally challenging. Here, we explore the possibilities of Multigrid-based eigensolvers for Low-mode averaging and related methods.

Using only the few lowest approximate eigenmodes of the Hermitian Dirac operator $\gamma_5 M$ allows us to avoid expensive exact solves and improve the signal efficiently.

In this first test we apply the method to pion and eta correlators for $N_f = 2$ Wilson-Clover fermions at several quark masses, down to $m_\pi = 150MeV$ and volumes of up to 64^4 sites.

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Session Classification: Algorithms and Machines

Track Classification: Algorithms and Machines