



Contribution ID: 286

Type: **Parallel Talk**

Optimizing Staggered All-to-All for GPUs

Tuesday, 1 August 2023 17:20 (20 minutes)

We present our implementation of the all-to-all meson field and low mode averaging (LMA) calculations, built on the Grid and Hadrons libraries. We discuss code optimizations made for staggered fermions and GPU offloading, as well as benchmark comparisons on leadership-class resources. We conclude with the statistical gains achieved using LMA for vector-current two-point functions relevant for computing the HVP contribution to muon $g - 2$. The calculation is performed on 2+1+1 HISQ ensembles at physical pion mass and lattice spacings as small as 0.06 fm. We discuss the effect of this low-mode-improved data set on long-distance noise and the results of combining our new data with our previous high-statistics data.

Topical area

Software Development and Machines

Primary author: LYNCH, Michael (University of Illinois, Urbana-Champaign)**Presenter:** LYNCH, Michael (University of Illinois, Urbana-Champaign)**Session Classification:** Software Development and Machines