

Low-Mode Averaging for Precision Lattice QCD Correlation Functions

Precision calculations from lattice Quantum Chromodynamics (QCD) play a crucial role in connecting the theory of strong interactions to experimental measurements. A central challenge is controlling statistical uncertainties in correlation functions. We explore the use of Low Mode Averaging (LMA), a noise reduction technique that exploits the low-lying eigenmodes of the Dirac operator to capture the dominant long-distance physics efficiently. LMA enables precision improvements in two- and three-point correlation functions that would otherwise be out of reach. These gains are particularly relevant for quantities like nucleon charges and the hadronic contributions to the muon anomalous magnetic moment ($g-2$), where they allow for more robust comparisons between theoretical predictions and experimental measurements.

Author: SCHNEIDER, Christian (University of Cyprus)

Presenter: SCHNEIDER, Christian (University of Cyprus)

Session Classification: Poster session