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# Efficient Low-Mode Averaging for Meson and Baryon Correlators at the Physical Point

*Tuesday 4 November 2025 18:00 (1h 30m)*

We present an analysis of deflation and low-mode averaging techniques applied to two- and three-point correlation functions of mesons and baryons at the physical point. The focus is on improving the signal quality at large Euclidean time separations, where statistical noise typically dominates. We quantify the computational cost and statistical gains across several ensembles, identifying the regimes where low-mode averaging provides a net advantage. Practical strategies for implementing the method efficiently in large-scale simulations are discussed, with emphasis on the balance between eigenmode computation and correlator improvement. Our results demonstrate clear benefits in selected observables and provide guidelines for the optimal use of low-mode techniques in precision lattice QCD calculations.

## Parallel Session (for talks only)

Algorithms and artificial intelligence

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