Contribution ID: **101**   Type: **not specified**

Multilevel integration for meson propagators

Monday, 23 July 2018 15:00 (20 minutes)

The computation of hadronic correlation functions in lattice QCD is severely hindered by a signal-to-noise ratio that exponentially decreases with the distance between source and sink.
Recent developments for the factorization of both the fermion propagator and the fermion determinant pave the way for the implementation of multilevel Monte Carlo integration techniques, which are already known to provide a solution to this problem in pure gauge theory.
In this talk, we discuss a novel strategy to compute the leading factorized contribution to connected meson propagators based on noise sources.
Finally, results for vector and scalar meson propagators obtained using this technique will be presented and their numerical effectiveness will be compared to that of a standard Monte Carlo simulation.

Primary authors: Dr NADA, Alessandro (DESY Zeuthen); Prof. GIUSTI, Leonardo (Universita' di Milano-Bicocca and INFN, sezione di Milano-Bicocca); Dr SCHAEFER, Stefan (DESY Zeuthen); Dr HARRIS, Tim (Milano Bicocca)

Presenter: Dr NADA, Alessandro (DESY Zeuthen)

Session Classification: Algorithms and Machines

Track Classification: Algorithms and Machines