Institute for Advanced Simulation
Jülich Supercomputing Centre

IAS Seminar

Topic: Multilevel methods for lattice QCD

Speaker: Dr. Stefan Schaefer, NIC Research Group Elementary Particles, DESY Zeuthen

Contents: Fermionic two-point functions play a central role in lattice QCD, e.g. in the computation of hadron masses from their long-distance decay. Apart from a few special cases, these two-point functions suffer from a severe deterioration of the signal-to-noise ratio as the distance between source and sink is increased. Since this deterioration is typically exponential in the distance, an exponentially growing number of measurements is needed to compensate for it, making calculations exceedingly expensive.

Multi-level Monte Carlo techniques can mitigate the problem, but so far have not been amenable to fermionic observables. I give an introduction into the ideas behind multilevel techniques and demonstrate that such methods can be used in quenched QCD.

Time: Tuesday, 7 June 2016, 10:30

Venue: Jülich Supercomputing Centre, Besprechungsraum 5, building 16.3v, room 2021

Anyone interested is cordially invited to participate in this seminar.

sgd Prof. Dr. Dr. Thomas Lippert