Gemeinsame Veranstaltung von
Humboldt-Universität zu Berlin, Institut für Physik
(Theorie der Elementarteilchen / Computerorientierte Theoretische Physik)
DESY, Zeuthen

SEMINAR
Feldtheorie auf dem Gitter und Phänomenologie der Elementarteilchen

Am Dienstag, dem **15. Januar, um 15:00 Uhr s.t.** spricht

Dr. **Hidenori Fukaya**

Niels Bohr Institute

zum Thema

Lattice QCD, Random Matrix Theory and chiral condensates

Abstract

The low-lying QCD Dirac spectrum is expected to match with that of chiral random matrix theory (ChRMT), in which the chiral condensate plays a crucial role. We perform two-flavor lattice QCD simulations near the chiral limit with the dynamical overlap quarks which respects the exact chiral symmetry. On a $16^3 \times 32$ lattice with the lattice spacing $a = 0.11$fm, we reduce the sea quark mass down to around 3 MeV and find a good agreement of the Dirac spectrum with the analytical prediction of ChRMT. The chiral condensate is extracted without chiral extrapolations. The renormalization factor is calculated by a non-perturbative scheme.

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