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 **19. Juni, um 15:00 Uhr s.t.** spricht

Dr. **Silvia Necco**

IFIC/Valencia University

zum Thema

Spontaneous Chiral Symmetry Breaking in QCD: a finite-size scaling study on the lattice

Abstract

Lattice QCD can be adopted as powerful non-perturbative tool to match QCD with the chiral effective theory and extract low-energy constant from first principles. In particular I will present the computation of the chiral condensate using (quenched) Ginsparg-Wilson fermions. The matching is realized in the so-called epsilon regime and the low-energy constant is extracted through a finite-size scaling study. I will show that it is possible to construct observables which are free from mass-dependent ultraviolet divergences and which can be efficiently computed using variance-reduction techniques. I will then compare the mass, volume and topology dependence of the condensate with the predictions of the chiral effective theory and extract the corresponding low-energy constant.

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