Contribution ID: **227** Type: **not specified**

A precise determination of the $N_\mathrm{f} = 3$ QCD Λ-parameter from lattice QCD

Thursday 1 September 2016 16:15 (15 minutes)

In this talk we present the ALPHA-collaboration computation of the three-flavour QCD Λ-parameter. Starting from the value of Λ in units of an intermediate energy scale $\mu = 1/L_0 \sim 4\,\mathrm{GeV}$ (cf. talk by S. Sint), we first discuss the connection of this scale and a given hadronic scale, $1/L_\mathrm{had}$, of a few hundred MeV. The latter is obtained very precisely by determining the non-perturbative scale-evolution of the recently proposed gradient flow coupling between these scales. In a second step, $1/L_\mathrm{had}$ is expressed in terms of some measurable hadronic quantity using results from the CLS-collaboration effort. This allows the Λ-parameter to be determined in physical units.

Summary

Primary author: DALLA BRIDA, Mattia (DESY - Zeuthen)

Co-authors: RAMOS MARTINEZ, Alberto (CERN); SIMMA, Hubert (DESY); BRUNO, Mattia (BNL); FRITZSCH, Patrick (H); SOMMER, Rainer Paul (DESY); SCHAEFER, Stefan (Deutsches Elektronen-Synchrotron (DE)); SINT, Stefan (Trinity College Dublin (IE)); KORZEC, Tomasz (University of Wuppertal)

Presenter: DALLA BRIDA, Mattia (DESY - Zeuthen)

Session Classification: Section E

Track Classification: Section E: QCD and New Physics