Contribution ID: **9** Type: **not specified**

Lattice computation of the nucleon sigma terms using the Feynman-Hellmann-theorem

Monday 26 September 2016 18:25 (35 minutes)

Summary

The light and strange nucleon sigma terms measure the corresponding quark contents of the nucleon. Especially the strangeness content is of significant interest for dark matter searches as it determines the coupling of several dark matter candidates to hadronic matter. While the sigma terms can not be measured directly they can be determined via lattice QCD from first principles.

In this talk recently determined values of the the up-/down- and strange-sigma term by the BMW collaboration are discussed. The sigma terms have been extracted via the Feynman-Hellmann-theorem from the light quark and strange quark dependence of the nucleon mass. Furthermore individual u- and d-quark-contents for both the proton and the neutron are considered.

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Session Classification: Direct searches of Dark Matter