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Nucleon sigma terms in chiral effective field theory

Monday 26 September 2016 15:00 (35 minutes)

Summary

Chiral effective field theory is a well suited tool to study the strong interactions at hadronic scales. With the advent of precision measurements for searches of physics beyond the standard model, chiral EFT has proved to provide important results from first principles. In this talk, we show how recent developments of chiral EFT with baryons can provide important results for future challenges in hadron and nuclear physics. Namely, that with relativistic baryon chiral EFT, one deduces a large value of the pion-nucleon sigma term, $\sigma_{\pi N} = 59(7)$, relying on modern information from pion-nucleon scattering data and pionic atoms spectroscopy. In addition, we show that one can accommodate a value for the sigma term of ~ 60 MeV with a small strangeness content in the nucleon, and connect these results to dark matter searches.

Presenter: Dr ALARCON, Jose Manuel

Session Classification: Direct searches of Dark Matter