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Relativistic Chiral EFT with baryons: recent developments and future prospects.

Friday, 4 September 2015 12:00 (30 minutes)

In this talk I will present some of the recent developments in relativistic Chiral Effective Field Theory with Baryons. I will focus on the application of this formulation to the pion-nucleon scattering process at low energies, and on how to extract important information out of this reaction with Chiral EFT. As the most prominent example, I will consider the extraction of the pion-nucleon sigma term, which has been object of debate during many years. I will show that modern experimental information points to a value of the sigma term close to 60 MeV. I will also discuss the phenomenological implications of this relatively large value, making special emphasis on the strangeness content of the nucleon. Finally, I will show how the so-known "Strangeness Puzzle" is solved by the relativistic formulation of Chiral EFT, giving rise a picture of the sigma-term and strangeness content of the nucleon consistent with experimental information and lattice QCD calculations. The outreach of these results in current and future applications will be discussed as well.

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