Hadronic Contributions to New Physics Searches



Contribution ID: 42

Type: not specified

Pseudoscalar transition form factors: (g-2) of the muon and pseudoscalar decays into lepton pairs

Thursday 29 September 2016 17:50 (35 minutes)

Summary

he projected muon g-2 experiments at Fermilab and JPARC foresee an experimental precision well below the current theoretical uncertainty for this observable. Such uncertainty is fully dominated by the hadronic contributions which require a thorough revision to match the experiment precision. In this work we adress one of the main pieces contributing to the hadronic light-by-light, namely, the pseudoscalar-pole contributions. In our study, we propose a rational approach based on Canterbury approximants for describing the pseudoscalar transition form factors. The method is systematic, data-based and incorporates, at the same time, the appropriate low- and high-energy behavior in the space-like region which this calculation requires. Our method allows, for the first time, to obtain a precise systematic uncertainty and provides an accurate prediction, according to the future g-2 experiments. In addition, we use our approach to discuss the rare pseudoscalar decays to a lepton pair. These could provide additional insights for the pseudoscalar transition form factors, g-2 and possible new-physics phenomena. Particularly, we carefully discuss some overlooked eta and eta' peculiarities which, among others, must be accounted when considering new physics phenomena.

Presenter: SANCHEZ-PUERTAS, Pablo

Session Classification: Muon g-2