

The pion transition form factor - why it is interesting and how to calculate it

Wednesday, 12 November 2014 11:00 (20 minutes)

speaker: Stefan Leupold

coauthors: M. Hoferichter, B. Kubis, F. Niecknig, S.P. Schneider

abstract: The pion transition form factor denotes the process where a pion converts to a real or virtual photon by emitting another virtual photon. In general, form factors parametrize the deviation from point-like behavior. Therefore the pion transition form factor encodes information about the intrinsic structure of the pion. In addition, the pion transition form factor is needed for the high-precision standard-model prediction of the magnetic moment of the muon [1]. This process shows some deviation between standard-model prediction and experiment. Therefore it is one of the candidates where beyond-standard-model physics might become visible if the experimental and the standard-model uncertainties can be reduced. One necessary input is the knowledge of the pion transition form factor with a reliable, i.e. model independent, uncertainty estimate. I will show first results from our ongoing project to calculate the pion transition form factor based on dispersion theory [2].

[1] E. Czerwinski et al., MesonNet Workshop on Meson Transition Form Factors, e-Print: arXiv:1207.6556 [hep-ph].

[2] M. Hoferichter, B. Kubis, S. Leupold, F. Niecknig, S.P. Schneider, work in progress.

Primary author: LEUPOLD, Stefan (Uppsala University)

Presenter: LEUPOLD, Stefan (Uppsala University)

Session Classification: SFS-KF

Track Classification: SFS-KF