Contribution ID: **268** Type: **not specified**

Soft photon emission at the LHC and LBK theorem

Thursday 28 September 2023 14:22 (22 minutes)

The emission of soft photons plays a fundamental role in our understanding of quantum field theories. However, the calculations for one-photon emission observables appear to be incompatible with the experimental measurements. Future upgrades to the ALICE detector at the LHC are proposed to measure soft photon emission, which is of great interest. Predictions for processes involving soft photons, up to next-to-leading power (NLP) in the photon's energy, can be obtained using the Low-Burnett-Kroll (LBK) theorem. In this talk, I propose a form of the LBK theorem which relies on evaluation of the non-radiative amplitude with on-shell, physical momenta. We use this form to numerically study the impact of NLP contributions to cross-sections for pp and e^-e^+ processes involving soft photon emission.

Summary

Primary author: BALSACH, Roger (University of Münster, Institute of Theoretical Physics)

Co-authors: KULESZA, Anna (University of Muenster); BONOCORE, Domenico (University of Münster)

Presenter: BALSACH, Roger (University of Münster, Institute of Theoretical Physics)

Session Classification: Parallel Session Thursday: Phenomenology I

Track Classification: Particle Phenomenology