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Mixed QCD-electroweak corrections to the Drell-Yan process in the high invariant mass region

Friday, 8 July 2022 17:00 (15 minutes)

The Drell-Yan process offers an interesting opportunity to test the Standard Model (SM) and possibly reveal New Physics beyond it.

Indeed, dilepton production at high invariant masses is sensitive to beyond SM effects, while also being extremely well controlled both theoretically and experimentally and producing sufficient events for in-depth analyses.

In this talk I will present the recent calculation of mixed QCD-electroweak corrections to the neutral-current Drell-Yan production of a pair of massless leptons in the high invariant mass region.

At a relative high values of the dilepton invariant mass, $m_{\ell\ell} \sim 1$ TeV, we observe that these corrections can be well approximated by the product of QCD and electroweak corrections. Hence, thanks to the well-known Sudakov enhancement of the latter, they increase at large invariant mass and reach e.g. -3% at $m_{\ell\ell} = 3$ TeV. I will discuss some technical aspects of the calculation, as well as results for fiducial cross sections and a selection of kinematic distributions.

In-person participation

Yes

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