Particle Physics Challenges



Contribution ID: 32

Type: not specified

Associated production of a top quark pair with a W or Z boson at the LHC at NNLL+NLO

Wednesday 26 September 2018 17:36 (15 minutes)

The measurements of associated production of a vector boson with a top-antitop quark pair provide an important test for the Standard Model at the LHC. These are not only key processes to measure the top quark properties but also are very relevant in searches for new physics, both as being directly sensitive to it and as providing an important background. While NNLO calculations for this particular type of 2 to 3 processes are currently out of reach, a class of corrections beyond NLO can be taken into account with the help of resummation methods. In this talk we consider an application of soft gluon resummation in Mellin space to these processes at hadron colliders and discuss numerical predictions at NNLL matched to NLO precision for the LHC.

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Session Classification: Parallel Session: Pheno 3

Track Classification: Particle Phenomenology