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High precision in Drell-Yan and electroweak input schemes

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At hadronic colliders, the Drell-Yan processes are crucial for testing the Standard Model via the template-fit determination of electroweak parameters, such as the W-boson mass and the weak mixing angle. Monte Carlo event generators play an important role to provide reliable templates for such measurements.
The Z_ew-BMNNPV code is dedicated to the simulation of neutral-current Drell-Yan in the POWHEG-BOX framework, delivering NLO QCD plus NLO EW accuracy with exact matching to QCD and QED parton showers. The most recent updates to the code are here presented: in particular, we discuss the implementation of several options for the electroweak input-parameter and renormalization schemes, e.g. the ones with the weak mixing angle in its effective or MSbar definition as input, which allow the high-precision determination of this parameter at hadron colliders. We provide a critical comparison among the predictions obtained within different schemes and quantify the related theoretical uncertainties.

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