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EW corrections on top-quark pair production: the impact of the photon PDF

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I will discuss the impact of EW corrections on differential distributions in top-quark pair production at the LHC and future hadron colliders, focusing on the effects of initial-state photons. Performing a calculation at NLO in QCD+EW accuracy, the impact of photon-initiated channels is investigated in detail, on central values as well as PDF and scale uncertainties at order $\alpha_s\alpha$ and $\alpha_s^2\alpha$. A thorough comparison of results, obtained with the NNPDF2.3QED and CT14QED PDF sets, is performed at 8, 13 and 100 TeV. At 8 TeV there is a further comparison with data from differential measurements performed by ATLAS and CMS. The aforementioned content is based on arXiv:1606.01915 [hep-ph]. Specifically for 13 TeV, new results will be presented at NNLO QCD + NLO EW accuracy using the newest available PDF sets including the photon i.e. the NNPDF3.0QED and the LUXqed PDF sets. This part is based on an ongoing project.

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