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Dependence of the Z-production via ep-DIS on the choice of the parameter Q^2 involved in the PDF's

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We discuss Z-production in Deep Inelastic Scattering (DIS) $e+p \rightarrow e+Z+X$ using the Parton Model (PM), in the context of the Standard Model (SM). In contrast to the Deep Inelastic ep -scattering ($e+p \rightarrow e+X$), where Q^2 the transferred momentum square is unique, in the case of boson production it depends upon the mechanism involved, that is related to the electroweak interaction. We present results for the total cross section rates for ep collisions with an electron energy of 60 GeV and the proton energy of 7 TeV, these energies are expected to be reached at LHeC. We use different assignments for Q^2 ; namely Q^2 , Q^2_{γ} . We perform our calculations at NNLO by making use of the Calc-HEP package.

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