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DEPENDENCE OF THE Z-PRODUCTION VIA ep-DIS ON THE IDENTIFICATION OF THE PARAMETER $f_q(x', \tilde{Q}^2)$ INVOLVED IN THE QUARK DISTRIBUTION FUNCTIONS

We discuss Z-production in Deep Inelastic Scattering $e + p \rightarrow e + Z + X$ using the Parton Model, in the context of the Standard Model. In contrast to the deep inelastic ep-scattering ($e + p \rightarrow e + X$), where $\tilde{Q}^2$ the transferred momentum square is unique in the case of boson production it depends upon the mechanism involved, that it is related to the EW interaction. We argue that the kinematics of the process and the usual criterion for $\tilde{Q}^2$, lead to a simple and practical prescription to calculate Z-production via $ep-$DIS. We present estimates for the total cross section as a function of $\sqrt{s}$, taking the energy of the ep system in the range $300 \leq \sqrt{s} \leq 1.3$ TeV, and also for different assignments of $\tilde{Q}^2$. We added non-leading contribution by using the CalcHEP program.

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