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Charm fragmentation and associated $J/\psi+Z/W$ production at the LHC

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We consider the production of electroweak Z or W^\pm bosons associated with J/ψ mesons at the LHC conditions. Our attention is focused on new partonic subprocesses which yet have never been considered in the literature, namely, the charmed or strange quark excitation subprocesses followed by the charmed quark fragmentation $c \rightarrow J/\psi + c$. Additionally we take into account the effects of multiple quark and gluon radiation in the initial and final states with subsequent fragmentation. We find that the contributions from the new mechanisms are important and significantly reduce the gap between the theoretical and experimental results on the $J/\psi + Z$ and $J/\psi + W^\pm$ production cross sections.

Preferred track

Hadron Structure

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