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Multiplicity dependence of W boson and associated hadron production in pp collisions at $\sqrt{s} = 13$ TeV with ALICE

Recent measurements of the self-normalised yield as a function of charged-particle multiplicity in pp collisions at $\sqrt{s} = 13$ TeV showed a faster than linear increase for both light-flavour and heavy-flavour hadrons, which is found to be more pronounced for high

p_T particles. Models accounting for multiparton interactions (MPI) and color-reconnection (CR) effects describe the trends observed in data. On the other hand, it is pointed out that the $\text{\mbox{autocorrelation}}$ between particles produced in association with the measured hadrons and the charged-particle multiplicity plays a role in the observed yield enhancement. Since W^\pm bosons are insensitive to strong interaction, their production is expected to be less sensitive to CR effects than hadron production. Additionally, they are less correlated with the charged-particle multiplicity because they are mainly produced in isolation, i.e. without additional associated charged particles, reducing the impact of autocorrelation effects. Therefore, their measurements give insight into the multiplicity dependence of particle production in pp collisions.

This poster presents the final results of the ALICE Collaboration on the multiplicity dependence of e^\pm production from W^\pm bosons and associated hadrons at midrapidity in pp collisions at $\sqrt{s} = 13$ TeV, based on data from Run 2.

Category

Experiment

Collaboration (if applicable)

ALICE collaboration

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