

Studies of beauty suppression via measurements of nonprompt D^0 mesons in PbPb collisions at 5.02 TeV

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The transverse momentum spectra of D^0 mesons from b hadron decays are measured in pp and PbPb collisions at a nucleon-nucleon center of mass energy of 5.02 TeV with the CMS detector at the LHC. The measurement is performed in the D^0 p_T range of 2–100 GeV /c and in the rapidity range of $|y| < 1$. The D^0 mesons from b hadron decays are distinguished from prompt D^0 mesons by their decay topologies. In PbPb collisions, the $B \rightarrow D^0$ yield is found to be suppressed in most of the measured p_T range compared to pp collisions. The suppression is weaker than that of prompt D^0 mesons and charged hadrons for p_T around 10 GeV /c. While theoretical calculations incorporating partonic energy loss in the quark gluon plasma can successfully describe the measured $B \rightarrow D^0$ suppression at higher p_T , the data show an indication of larger suppression than the model predictions in the range of $2 < p_T < 5$ GeV /c.

Summary

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