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Studies of Beauty Suppression via Nonprompt D0 Mesons in Pb-Pb Collisions at sNN =5.02 TeV (Article) (Open Access)

Sirunyan, A.M.[a], Tumasyan, A.[a], Adam, W.[b], Ambrogi, F.[b], Asilar, E.[b], Bergauer, T.[b], Brandstetter, J.[b], Dragicevic, M.[b], Erö, J.[b], Escalante Del Valle, A.[b], Flechl, M.[b], Frühwirth, R.[b], Ghete, V.M.[b], Hrubec, J.[b], Jeitler, M.[b], Krammer, N.[b], Krätschmer, I.[b], Liko, D.[b], Madlener, T.[b], Mikulec, I.[b], Rad, N.[b], Rohringer, H.[b],

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Abstract

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The transverse momentum spectra of D0 mesons from b hadron decays are measured at midrapidity (|y|<1) in pp and Pb-Pb collisions at a nucleon-nucleon center of mass energy of 5.02 TeV with the CMS detector at the LHC. The D0 mesons from b hadron decays are distinguished from prompt D0 mesons by their decay topologies. In Pb-Pb collisions, the B?D0 yield is found to be suppressed in the measured pT range from 2 to 100 GeV/c as compared to pp collisions. The suppression is weaker than that of prompt D0 mesons and charged hadrons for pT around 10 GeV/c. While theoretical calculations incorporating partonic energy loss in the quark-gluon plasma can successfully describe the measured B?D0 suppression at higher pT, the data show an indication of larger suppression than the model predictions in the range of 2<pT<5 GeV/c. © 2019 CERN.

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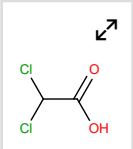

Indexed keywords

Engineering controlled terms: Binary alloys | Bosons | Energy dissipation | Hadrons

Engineering uncontrolled terms: B-hadron decays | Center-of-mass energies | Charged hadrons | Model prediction | Pb-Pb collisions | Quark-gluon plasma | Theoretical calculations | Transverse momenta

Engineering main heading: Lead alloys

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Funding text #1

The transverse momentum spectra of D 0 mesons from b hadron decays are measured at midrapidity (| y | < 1) in p p and Pb-Pb collisions at a nucleon-nucleon center of mass energy of 5.02 TeV with the CMS detector at the LHC. The D 0 mesons from b hadron decays are distinguished from prompt D 0 mesons by their decay topologies. In Pb-Pb

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Funding text #2

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