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Measurement of B-s(0) meson production in pp and PbPb collisions at root S-NN=5.02 TeV

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Abstract

The production cross sections of B-s(0) mesons and charge conjugates are measured in proton-proton (pp) and PbPb collisions via the exclusive decay channel B-s(0)-> J/psi phi -> mu(+) mu(-) K+K- at a center-of-mass energy of 5.02 TeV per nucleon pair and within the rapidity range vertical bar y vertical bar < 2.4 using the CMS detector at the LHC. The pp measurement is performed as a function of transverse momentum (P-T) of the B-s(0), mesons in the range of 7 to 50 GeV/c and is compared to the predictions of perturbative QCD calculations. The B s production yield in PbPb collisions is measured in two P t intervals, 7 to 15 and 15 to 50 GeV/c, and compared to the yield in pp collisions in the same kinematic region. The nuclear modification factor (R-AA) is found to be 1.5 +/- 0.6(stat) +/- 0.5(syst) for 7-15 GeV/c, and 0.87 +/- 0.30(stat) +/- 0.1 7(syst) for 15-50 GeV/c, respectively. Within current uncertainties, the B-s(0) results are consistent with models of strangeness enhancement, and suppression by parton energy loss, as observed for the B+ mesons. Published by Elsevier B.V.

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