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B meason analysis with CMS

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Hadrons with heavy quarks are promising probes to investigate the detailed properties of hot and dense medium generated by heavy-ion collisions at collider energies. Since heavy quarks are sensitive to the transport properties of the medium, the energy-loss pattern of them is expected to be quite different from that of light quarks in a strongly-interacting matter. On the other hand, in order to elicit the actual effects caused by the hot and dense medium, it is necessary to understand the cold nuclear matter effect in pA collisions. For example, the pPb data is expected to provide a baseline for the study of the b-quark energy loss in medium produced by PbPb collisions. Therefore, the CMS Collaboration at the Large Hadron Collider (LHC) has analyzed the production cross sections of B^+, B^0, B_s^0 mesons in pPb collisions as a function of rapidity and the transverse momentum at the nucleon-nucleon center-of-mass energy of 5.02 TeV . In addition, the nuclear modification factors of the B mesons have been constructed using the theoretical pp reference spectra estimated by the perturbative Quantum ChromoDynamics (pQCD) model.

On behalf of collaboration:

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