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D meson nuclear modification factor and v_n harmonics in PbPb collisions at 5.02 TeV with CMS

Tuesday, 7 February 2017 16:30 (20 minutes)

The measurement of heavy flavour production is a powerful tool to study the properties of the high-density QCD medium created in heavy-ion collisions as heavy quarks are sensitive to the transport properties of the medium and may interact with the QCD matter differently from light quarks. In particular, the comparison between the nuclear modification factors (R_{AA}) of light- and heavy-flavour particles provides insights into the expected flavour dependence of in-medium parton energy loss. Furthermore, azimuthal anisotropy coefficient (v_n) of heavy-flavor particles provide insights into the degree of the thermalization of the bulk medium at low p_T, and unique information about the path length dependence of heavy quark energy loss at high p_T. Using the large statistics proton-proton and PbPb samples collected at 5.02 TeV during the 2015 LHC run, high precision open charm measurements are performed with the CMS detector in a wide transverse momentum range. This allows us to set an important milestone in our understanding of the interactions between charm quark and the medium. In this talk, the most recent results of R_{AA}, v_2 and v_3 of D^0 mesons in PbPb collisions at 5.02 TeV are presented and compared to the same results for charged hadrons at the same energy.

Preferred Track

Open Heavy Flavors

Collaboration

CMS

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