Beitrag ID: **160** Typ: **Talk**

Measurements of D^0 mesons production and collective flow with CMS at 5.02 TeV

Mittwoch, 29. März 2023 14:00 (20 Minuten)

The interaction of heavy quarks with the quark-gluon plasma (QGP) affects their azimuthal distribution and p_{T} spectrum, hence measurement of azimuthal anisotropy coefficients (v_n) and nuclear modification factors (R_{AA}) of heavy flavor hadrons turns out to be an important probe of the QGP. However, simultaneous modeling of v_n and R_{AA} is still challenging. This talk reports the first nonprompt D^0 measurements of the azimuthal anisotropy elliptic (v_2) and triangular (v_3) coefficients in large systems, using !PbPb collisions at $\sqrt{s_{\mathrm{NN}}} = 5.02$ TeV, collected with the CMS apparatus. The measurements are performed as a function of transverse momentum, spanning 1–30 GeV /c, in three centrality classes, from central to midcentral collisions. Compared to the prompt D^0 results, the nonprompt D^0 v_2 flow coefficients are systematically lower and show less dependence on p_{T} and centrality. An indication of non-zero v_3 coefficient of the nonprompt D^0 is observed. A wide pT range enables the study of various flow generation mechanisms, like diffusion at low p_{T} and path-dependent parton energy loss at high p_{T}. In addition, measurements of both prompt and nonprompt D^0 mesons cross sections in PbPb and pp collisions, as well as R_{AA}, will be shown. The results will be compared to theoretical predictions.

Experiment/Theory

CMS

Affiliation

CMS

Hauptautor: STOJANOVIC, Milan (Purdue University)

Vortragende(r): STOJANOVIC, Milan (Purdue University)

Sitzung Einordnung: Parallel: Heavy Flavours & Quarkonia

Track Klassifizierung: Heavy flavor and quarkonia