



Contribution ID: 55

Type: **Poster**

Azimuthal anisotropy studies of beauty-decay electrons in Pb–Pb collisions with ALICE

Tuesday 11 June 2019 18:45 (2 hours)

The study of the interaction of heavy quarks with the constituents of the medium created in heavy-ion collisions provides important information about the characteristics of the Quark-Gluon Plasma (QGP). The production of heavy quarks occurs prior to the formation of the QGP, implying that they experience the entire evolution of the system. To infer the properties of the partonic interactions of charm and beauty quarks in the medium, it is useful to investigate how heavy quarks are influenced by the collective expansion of the system. A sufficiently strong interaction could lead to a thermalization of the heavy quarks which then would move along with the flow of the surrounding medium constituents leading to a substantial azimuthal anisotropy in non-central collisions.

The excellent particle-identification capabilities of the ALICE detector allow for an investigation of beauty production via the measurement of beauty-hadron decay electrons. The separation from background electrons is achieved stochastically, based on the track impact parameter distribution. This distribution is wider for the beauty-decay electrons due to the comparatively larger decay length of their parent hadrons ($c\tau \approx 500 \mu\text{m}$). This poster shows the current status of the measurements of the azimuthal anisotropy measurements of beauty-decay electrons in Pb–Pb collisions with ALICE.

Collaboration name

ALICE

Track

Heavy Flavour

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Session Classification: Poster session with "aperitivo"