Contribution ID: **175** Type: **Poster**

Reconstruction of Bottom Jets in Proton-Proton Collisions at $\sqrt{s} = 13$ TeV with ALICE

Tuesday 11 June 2019 18:45 (2 hours)

When partons traverse the Quark-Gluon Plasma (QGP), they lose energy via collisional and radiative processes. This manifests in a suppression of the measured jet yield and a modification of the jet fragmentation pattern in heavy-ion collisions relative to proton-proton collisions, for which no QGP is expected to form. The amount of energy that is lost is expected to depend on the respective parton flavour and mass. Thus, a detailed understanding not only of the light-flavour but also of the charm and bottom-jet production is needed for the characterisation of the QGP via parton energy loss.
The long lifetime of B hadrons ($c\tau \sim 500\,\mu$m) is reflected in a displacement of their decay tracks with respect to the primary vertex. Signed impact parameter distributions, as a measure for this distance, therefore offer a great opportunity for the construction of a bottom-jet tagger. First steps of a respective analysis on signed impact parameter distributions for tracks from light-flavour, charm and bottom jets in proton-proton collisions at $\sqrt{s}$ = 13 TeV are presented and discussed.

Collaboration name

ALICE Collaboration

Track

Heavy Flavour

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Session Classification: Poster session with ”aperitivo”