Contribution ID: **470** Type: **Poster**

Measurement of b-jets in 5.02 TeV pp collisions by ALICE using ML

Wednesday, 6 April 2022 18:10 (4 minutes)

Heavy-flavour (charm and beauty) jets are excellent probes to study Quantum Chromodynamics (QCD). Their precise measurements in proton-proton collisions are used to verify perturbative QCD calculations and improve our modelling capabilities by constraining Monte Carlo generators. They also serve as the reference measurements for more complex systems such as Pb–Pb collisions, helping to disentangle various energy loss mechanisms and their dependence on the quark mass.

In this contribution, we present a measurement of b-jets in pp collisions at $\sqrt{s} = 5.02$ TeV using a machine-learning-based method. This method, which utilizes the long lifetime of beauty hadrons, was chosen to optimize b-jet tagging performance in terms of efficiency and purity. It also provides flexibility in the working point selection, enabling smooth switching from high efficiency to high purity settings. The projected performance gain, with enhanced b-jet purity relative to other approaches, will enable methodologically consistent measurements in Pb–Pb collisions, and more differential jet studies in pp collisions.

Primary author: BYSIAK, Sebastian (Institute of Nuclear Physics Polish Academy of Sciences (PL))

Co-author: ON BEHALF OF THE ALICE COLLABORATION

Presenter: BYSIAK, Sebastian (Institute of Nuclear Physics Polish Academy of Sciences (PL))

Session Classification: Poster Session 1 T04_2

Track Classification: Jets, high-pT hadrons, and medium response