Contribution ID: **103** Type: **Parallel talk**

Beauty production in small systems with ALICE at the LHC

Wednesday 4 May 2022 12:30 (20 minutes)

Measurements of the production of hadrons containing beauty quarks
in pp and p–Pb collisions provide an important test of quantum chromodynamics calculations as well as the possibility to investigate fragmentation mechanims and modifications of the PDF in nuclei.

The use of machine-learning techniques for multi-class classification, coupled with the excellent particle identification, track and decay-vertex reconstruction capabilities of the ALICE experiment, is exploited to separate the non-prompt and prompt D mesons and $\Lambda_{\rm c}$ baryons, respectively produced in beauty-hadron decays and directly from the charm-quark fragmentation. The same technique also allows for the first time the measurement of the non-prompt $\rm D^*$ polarization and the analysis of the non-prompt D-meson fractions as a function of multiplicity in pp collisions at $\sqrt{s} = 13$ TeV.

The beauty production is also investigated via the measurements of b-tagged jets in pp and p–-Pb collisions at $\sqrt{s_{\rm NN}} = 5.02$ TeV. The final results will be presented. The nuclear modification factor $R_{\rm pPb}$ is found consistent with unity and the fraction of b-jets among inclusive jets down to $p_{\rm T} = 10$ GeV/c is found lower than in previous measurements of b-jets done at the LHC. The measurements of the $\rm b\bar{b}$ production cross section at midrapidity are compared to FONLL predictions and to NNLO calculations.

Submitted on behalf of a Collaboration?

Yes

Author: ANTONIOLI, Pietro (Universita e INFN, Bologna (IT))

Presenter: ANTONIOLI, Pietro (Universita e INFN, Bologna (IT))

Session Classification: WG4: QCD with Heavy Flavours and Hadronic Final States

Track Classification: WG4: QCD with Heavy Flavours and Hadronic Final States