## XXVIII International Workshop on Deep-Inelastic Scattering and Related Subjects



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## Measurements of beauty-hadron production in pp and Pb-Pb collisions with ALICE

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In hadronic collisions, beauty quarks are produced in hard-scattering processes with large momentum transfer. The production of hadrons containing beauty quarks provides a very important test of perturbative QCD calculations in pp collisions. The measurement of the production of beauty-strange mesons relative to that of beauty hadrons without strange-quark content is useful to study the fragmentation of beauty quarks into beauty mesons. Moreover, the measurement of beauty-hadron production in heavy-ion collisions is a unique tool to investigate the properties of the colour-deconfined medium created, the quark-gluon plasma (QGP). In particular, beauty quarks, being four times heavier than charm quarks, can be exploited to study the mass dependence of the in-medium energy loss.

In this contribution, the latest results about beauty-hadron production via non-prompt  $D^0$ ,  $D^+$ ,  $D_s^+$  and  $J/\psi$  mesons, as well as beauty-decay electrons and dielectrons in pp collisions at a centre-of-mass energy of  $\sqrt{s} = 5.02$  TeV, and their comparison to pQCD calculations will be presented. The ratio of the beauty-quark fragmentation fraction to strange beauty mesons and that to non-strange beauty mesons will be compared to the same quantity for the charm sector and to previous measurements in  $e^+e^-$ ,  $e^\pm p$ , and  $p\overline{p}$  collisions. The extrapolated  $b\overline{b}$  cross section per unit of rapidity at midrapidity obtained from these measurements will be compared to pQCD calculations with next-to-leading order accurancy with all-order resummation of next-to-leading logarithms (FONLL) and with next-to-next leading order (NNLO) accurancy. Finally, the production of non-prompt  $D^0$  mesons in Pb–Pb collisions at  $\sqrt{s_{NN}} = 5.02$  TeV will be compared to the one of prompt  $D^0$  mesons and to different theoretical models.

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