

# The role of strangeness in heavy quark hadronisation from small to large collision systems with ALICE

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Production measurements of strange hadrons originating from the hadronisation of charm quarks (prompt) and from beauty-hadron decays (non-prompt) offer a unique tool to study the heavy-quark hadronisation across different collision systems. The comparisons between the measurements of charm hadrons with and without a strange valence quark in proton-proton (pp) and proton-lead (p-Pb) collisions provide important tests for pQCD calculations and the possible influence of cold nuclear matter effects, respectively. In Pb-Pb collisions, the production of heavy-flavour hadrons with strange-quark content is sensitive to the hadronisation mechanisms of charm and beauty quarks in the quark-gluon plasma and to final-state effects.

This contribution discusses the final results of the ALICE Collaboration obtained by measuring strange D mesons in pp, p-Pb, and Pb-Pb collisions collected during the LHC Run 2. Additionally, the production measurements of prompt and non-prompt  $D_s^+$  mesons are compared to those of non-strange mesons across the different collision systems. The first measurements of the production of orbitally excited charm-strange mesons  $D_{s1}^+$ ,  $D_{s2}^{*+}$  in pp collisions and the measurement of prompt  $\Xi_c^0$ -baryon production are also reported. To conclude, the first studies of strange and non-strange D mesons with the data sample of pp collisions at  $\sqrt{s} = 13.6$  TeV harvested from the start of LHC Run 3 are presented.

## Category

Experiment

## Collaboration

ALICE

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