

# Recent developments in open heavy-flavour physics: ALICE highlights

*Wednesday 15 January 2025 16:35 (18 minutes)*

Recent advances in the field of open heavy-flavour physics have provided profound insights into the behavior of heavy quarks (charm and beauty) in extreme conditions of matter created in high-energy heavy-ion collisions. The ALICE experiment at the Large Hadron Collider (LHC) has been at the forefront of these studies, offering precision measurements and groundbreaking results that shed light on the properties of the quark-gluon plasma (QGP).

This mini-review talk will summarize recent ALICE highlights in open heavy-flavour physics, focusing on the production, propagation, and hadronization of heavy quarks in heavy-ion collisions. Key topics include the energy loss of heavy quarks in the QGP, constraints on the transport coefficients of the medium, and the interplay between heavy-flavour hadronization and the surrounding QGP. Results from proton-proton (pp) and proton-lead (p-Pb) collisions will also be discussed.

In addition, the presentation will offer a glimpse into upcoming challenges and opportunities in the field, highlighting planned upgrades to ALICE and prospects for future measurements. With the next phase of experiments on the horizon, the discussion will emphasize how these new findings will shape our understanding of heavy-flavour interactions and the properties of the QGP.

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**Session Classification:** Parallel D