

# Energy and system dependence of light- and heavy-flavor hadron production in pp, p-Pb, Xe-Xe and Pb-Pb collisions at the LHC

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## Collaboration

ALICE

## Abstract content

We report the measurement of light- and heavy-flavor hadron production in central ( $|\eta| < 0.9$ ) and forward ( $-4.0 < \eta < -2.5$ ) rapidities in pp ( $\sqrt{s} = 2.76$  TeV, 5.02 TeV and 7 TeV), p-Pb ( $\sqrt{s_{NN}} = 5.02$  TeV), Xe-Xe ( $\sqrt{s_{NN}} = 5.44$  TeV) and Pb-Pb ( $\sqrt{s_{NN}} = 2.76$  TeV and 5.02 TeV) collisions with ALICE at the LHC. We present the transverse momentum ( $p_T$ ) spectra and  $p_T$ -integrated yields for different hadron species. The hadron production for different collision systems is compared as a function of collision energy, collision centrality or charged particle multiplicity. It allows us to explore the effect of multiple-parton interactions on hadron production in small systems as well as to characterize the thermodynamic and transport properties of hot and dense QCD matter produced in heavy-ion collisions. The measurement of a comprehensive set of resonances with lifetimes in a wide range of 1-46 fm/c is suitable for a systematic study of the role of re-scattering and regeneration in the hadronic phase. The  $p_T$ -integrated hadron yields are compared to predictions from thermal-statistical models. Hydrodynamic and recombination models are tested against the measured spectra and particle ratios (baryon/meson, resonance/non-resonance) at low and intermediate  $p_T$ . Finally, the  $p_T$  spectra measured in p-Pb, Xe-Xe and Pb-Pb collisions are compared to those in pp collisions in terms of nuclear modification factors and are confronted with the parton energy loss models.

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