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Light vector meson production in p-Pb and Pb-Pb collisions measured with the ALICE detector

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Light vector meson (ρ, ω, ϕ) production provides key information on the hot and dense state of strongly interacting matter produced in high-energy heavy-ion collisions. In particular, strangeness production can be accessed through the measurement of the ϕ meson, while the measurement of the ρ spectral function can be used to reveal in-medium modifications of hadron properties close to the QCD phase boundary. The detection of vector mesons through their decay in dileptons has the advantage, with respect to hadronic decays, that the decay products are not influenced by final state interactions.

The ALICE experiment at the LHC can access vector mesons produced at forward rapidity through their decays in muon pairs. We present results on vector meson production in p-Pb collisions at $\sqrt{s_{\mathrm{NN}}} = 5.02$ TeV and Pb-Pb collisions at $\sqrt{s_{\mathrm{NN}}} = 2.76$ TeV.
In p-Pb collisions, measurements of the ϕ yield and the nuclear modification factor in the rapidity ranges $2.03 < y < 3.53$ and $-4.46 < y < -2.96$ are shown.
An asymmetry between the yields at forward and backward rapidity is observed.
Data are compared to the predictions provided by commonly used event generators.
In Pb-Pb collisions, the ϕ yield and the nuclear modification factor are obtained as a function of centrality in the intermediate p_{T} region ($2 < p_{\mathrm{T}} < 5$ GeV/c) and for $2.5 < y < 4$.
Dimuon data at forward rapidity are compared to the measurement in the KK channel at mid rapidity and to theoretical predictions based on hydrodynamic calculations.

On behalf of collaboration:

ALICE

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