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Measuring the system size dependence of the strangeness production with ALICE

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Measurements of light-flavour particle production in small collision systems at the LHC energies have shown the onset of features (e.g. collective evolution, strangeness enhancement) that resemble what is typically observed in nucleus-nucleus collisions. These features were shown at the LHC to scale with the charged-particle multiplicity independently on the collision system and energy.
New results on the (multi-)strange hadron production in Pb–Pb collisions at $\sqrt{s_{\mathrm{NN}}}$ = 5.02 and 5.36 TeV collected in the Run 2 and Run 3 of the LHC will be presented. These results are discussed in the context of recent measurements of light-flavour hadron production in pp collisions at $\sqrt{s}$ = 0.9 and 13.6 TeV collected by the ALICE experiment during Run 3 of the LHC. With the wealth of data collected with the ALICE upgraded detector, it is possible to bridge the gap in multiplicity between small and large systems, improving the measurement precision and exploring the lowest multiplicity region. The ratios between strange and non-strange hadron yields are measured in pp collisions up to charged-particle multiplicity values comparable to those reached in peripheral Pb–Pb collisions, providing insight into the collision system dependence of strangeness enhancement. Multiplicity, energy and system size dependencies are investigated, comparing with predictions from state-of-the-art models.

Auteurs principaux: COLLABORATION, ALICE; NEPEIVODA, Roman (Lund University)

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