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Shedding light on light flavour particle production in small systems at the LHC 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. radial flow) that resemble what is typically observed in nucleus-nucleus collisions and attributed to the formation of a strongly interacting medium.

By performing more differential studies and analysing smaller fractions of the visible cross section the processes behind these unexpected phenomena can be more effectively studied and potentially understood.

In this talk, new results on light flavour particle production measured in high-multiplicity triggered events will be shown and compared with the particle production measured as a function of the underlying event activity.

In addition, thanks to its detector upgrade during LS2, from the beginning of the LHC Run 3 campaign ALICE has collected unprecedented high statistics of pp collisions from the lowest collision energy of $\sqrt{s} = 900$ GeV to the highest collision energy ever achieved in the laboratory of $\sqrt{s} = 13.6$ TeV. This mole of data, newly presented in this contribution, is used to complete the scan in multiplicity and collision energy of the light flavour particle production studies extending these measurements to the lowest collision energy available at the LHC.

Category

Experiment

Collaboration (if applicable)

ALICE

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