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Measuring the bulk of particle production with ALICE

Monday 21 August 2023 16:30 (15 minutes)

Light-flavour hadrons represent the bulk of particles produced in high-energy hadronic collisions at the LHC. Measuring their pseudorapidity dependence provides information on the partonic structure of the colliding hadrons. It is, in particular at LHC energies sensitive to non-linear QCD evolution in the initial state.

In addition, measurements of light-flavour hadron production in small collision systems at the LHC energies have shown the onset of phenomena (e.g. radial flow and long-range correlations) that resemble what is typically observed in nucleus-nucleus collisions and attributed to the formation of a deconfined system of quarks and gluons.

The improved detector commissioned during LS2 makes ALICE the perfect setup for these measurements.

In this talk, particle production mechanisms are explored by addressing the charged-particle pseudorapidity densities measured in pp and Pb–Pb collisions, presenting the results from Run 3 for the first time.

In addition, new results on identified light-flavour particle production measured in high-multiplicity triggered events will be shown. These will be interpreted in light of the first results from Run 3 on the identified particle production in pp collisions as a function of multiplicity, spanning 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.

Collaboration / Activity

ALICE

Primary author: COLLABORATION, ALICE**Presenter:** Dr PATRA, Rajendra Nath (University of Jammu)**Session Classification:** T05 Ultra-Relativistic Nuclear Collisions**Track Classification:** Ultra-Relativistic Nuclear Collisions