Contribution ID: **84** Type: **not specified**

Production of light-flavoured particles in ALICE RUN 3 data for pp collisions

Wednesday 15 January 2025 09:00 (13 minutes)

Multiplicity-dependent yield ratios of light-flavour particles, such as p and strange hadrons relative to π, provide key insights into hadron production mechanisms and strangeness enhancement across collision systems. Observable like (multi-)strange to non-strange ratios show a smooth transition from small to large systems, shedding light on collective behaviour and production dynamics. Leveraging the high-luminosity data from LHC Run 3 and the advanced O^2 (online-offline) framework, the ALICE experiment enables precise measurements of these phenomena in pp collisions at $\sqrt{s} = 13.6$ TeV. This work presents the results on particle yield ratios as functions of charged-particle multiplicity ($\mathrm{d}N_{\mathrm{ch}}/\mathrm{d}\eta$) are compared to state-of-the-art QCD-inspired models to understand further the microscopic origins of observed phenomena such as strangeness enhancement and collective behaviour in hadronic collisions.

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Session Classification: Parallel D

Track Classification: 6. Collectivity in small systems