Contribution ID: **48** Type: **not specified**

Energy and multiplicity dependence of the strangeness enhancement in pp collisions

Tuesday 12 December 2017 17:00 (15 minutes)

Energy and multiplicity dependence of the strangeness enhancement in pp collisions

The ratio of the p_{T}-integrated yield of strange and multi-strange particles relative to non-strange hadrons has been measured as a function of the event activity in pp collisions at the LHC, revealing that from low to high multiplicity events, strange hadron production increases smoothly and continuously until it reaches the values measured in Pb–Pb collisions. The trend, more pronounced for multi-strange baryons, is remarkably similar to the one observed in p–Pb collisions, indicating that the phenomenon is related to the final system created in the reaction. The results obtained by ALICE in pp collisions at $\sqrt{s}$ = 7 and 13 TeV are presented. The multiplicity-differential measurements at different collision energies allow one to disentangle the energy and multiplicity dependence of the effect. The results are compared to predictions from QCD-inspired Monte Carlo generators commonly employed in high energy physics (PYTHIA, DIPSY, EPOS-LHC) and also discussed within the strangeness-canonical suppression picture. Perspectives for measurements of strangeness production in high multiplicity pp collisions using a large triggered sample of LHC Run II data will be presented.

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Session Classification: WG5: High Multiplicities