Contribution ID: **96** Type: **Contributed Talk**

Identified particle production in pp collisions at 7 and 13 TeV measured with ALICE

Tuesday, 28 June 2016 17:00 (20 minutes)

Proton-proton (pp) collisions have been used extensively as a reference for the study of interactions of larger colliding systems at the LHC.

Recent measurements performed in high-multiplicity pp and proton-lead (p-Pb) collisions have shown features that are reminiscent of those observed in lead-lead (Pb-Pb) collisions.

In this context, the study of identified particle spectra and yields as a function of multiplicity is a key tool for the understanding of similarities and differences between small and large systems.

We report on the production of pions, kaons, protons, K^0_S, Λ, Ξ, Ω, K^{*0} and ϕ as a function of multiplicity in pp collisions at $\sqrt{s} = 7TeV$ measured with the ALICE experiment.

The work presented here represents the most comprehensive set of results on identified particle production in pp collisions at the LHC.

Spectral shapes, studied both for individual particles and via particle ratios as a function of p_{T}, exhibit an evolution with charged particle multiplicity that is similar to the one observed in larger systems.

The production rates of strange hadrons are observed to increase more than those of non-strange particles, showing an enhancement pattern with multiplicity which is remarkably similar to the one measured in p-Pb collisions.

This enhancement seems to be driven by the number of strange quarks inside the hadron and cannot be satisfactorily reproduced by any Monte Carlo generator currently in use at the LHC.

In addition, results on the production of light flavour hadrons in pp collisions at $\sqrt{s} = 13TeV$, the highest centre-of-mass energy ever reached in the laboratory, are also presented and the changes observed as a function of $\sqrt{s}$ are discussed.

The key question of whether or not the observed evolution of bulk particle production with increasing $\sqrt{s}$ is mostly driven by an increase in charged particle density is also addressed.

On behalf of collaboration:

ALICE

Primary author: DERRADI DE SOUZA, Rafael (Universidade Estadual de Campinas (BR))

Presenter: DERRADI DE SOUZA, Rafael (Universidade Estadual de Campinas (BR))

Session Classification: QCD Phase Diagram