Contribution ID: **219** Type: **Talk**

Exploring strangeness enhancement in pp collisions through strange-hadron correlation studies

Sunday 5 September 2021 16:20 (20 minutes)

The relative production rate of (multi-)strange hadrons in high-multiplicity hadronic interactions is enhanced with respect to the one measured at lower multiplicities and reaches values observed in heavy-ion collisions. The microscopic origin of this striking phenomenon, originally interpreted as a signature of Quark-Gluon Plasma (QGP) formation, is still unknown: is it related to soft particle production or to hard scattering events, such as jets? Is it related to final particle multiplicity only or does it also depend on initial-state effects? The ALICE experiment has addressed these questions by performing dedicated measurements in pp collisions at $\sqrt{s} = 13$ TeV.

To separate strange hadrons produced in jets from those produced in soft processes, the angular correlation between high-p_{T} charged particles and strange hadrons has been exploited. The near-side jet yield and the out-of-jet yield of $\mathrm{K}^0_{\mathrm{S}}$ and Ξ have been studied as a function of the multiplicity of charged particles produced in pp collisions.

Moreover, a multi-differential analysis has been exploited to disentangle the contribution of final-state multiplicity from the one of effective energy available for strange particle production. The effective energy has been estimated by subtracting the energy measured in the Zero Degree Calorimeters (ZDC) from the centre-of-mass collision energy.

The results suggest that soft (i.e. out-of-jet) processes are the dominant contribution to strange particle production and that initial-state properties do not play a significant role in strangeness production, which is mainly driven by final particle multiplicity.

Primary author: DE MARTIN, Chiara

Presenter: DE MARTIN, Chiara

Session Classification: Hadrons in medium - hyperons and mesons in nuclear matter

Track Classification: Hadrons in medium - hyperons and mesons in nuclear matter