11th International Workshop on Multiple Partonic Interactions at the LHC



Contribution ID: 26

Type: not specified

Production of identified light flavour hadrons as a function of underlying event activity in pp collisions with the ALICE detetector

Thursday 21 November 2019 10:00 (20 minutes)

Various recent measurements of high-multiplicity pp and p-A collisions at LHC energies have revealed, surprisingly, that these small collision systems exhibit some features of the quark-gluon-plasma, e.g. collective behaviour and strangeness enhancement, formerly thought to be achievable only in heavy-ion collisions. A promising method to narrow down the origin of this behaviour is to study the effect of Multi-Parton Interactions (MPIs). As proposed in: "Probing collective effects in hadronisation with the extremes of the underlying event" by T. Martin, P. Skands, and S. Farrington (Eur. Phys. J. C (2016) 76, 299), the mean number of MPIs can be accessed experimentally through the self-normalised charged particle density in the Transverse region where the Underlying Event (UE) dominates: $R_{\rm T} = N_{\rm Ch, Transverse} / \langle N_{\rm Ch, Transverse} \rangle$.

The study of particle production as a function of $R_{\rm T}$ would reveal whether, e.g., the properties of "low-UE" events $(R_{\rm T} \rightarrow 0)$ are compatible with equivalent measurements in e^+e^- collisions (jet universality) and whether the scaling behaviour towards "high-UE" $(R_{\rm T} \rightarrow 1)$ events exhibits properties of non-trivial soft-QCD dynamics.

In this contribution, the $p_{\rm T}$ spectra of π , K, p, ϕ and Ξ as function of $R_{\rm T}$ are presented in pp collisions at $\sqrt{s} = 13$ TeV. Moreover, the $p_{\rm T}$ -differential particle ratios as function of $R_{\rm T}$ in the Towards (jet region) and Transverse regions are contrasted. This discussion will be complemented with UE measurements at the same collision energy.

Author: VAZQUEZ RUEDA FOR THE ALICE COLLABORATION, Omar (Lund University (SE))
Presenter: VAZQUEZ RUEDA FOR THE ALICE COLLABORATION, Omar (Lund University (SE))
Session Classification: Monte Carlo, MB & UE

Track Classification: Monte Carlo, MB and UE