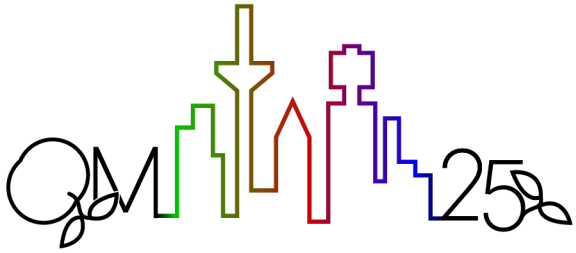

Contribution ID: **177** Type: **Poster**

Modeling charged-particle spectra in high-energy pp collisions with deep neural networks

During the data-taking campaigns Run 1 and Run 2 of the Large Hadron Collider (LHC), the ALICE collaboration recorded a large amount of proton-proton (pp) collisions across a variety of center-of-mass energies ($\sqrt{s}$). This extensive dataset is well suited to study the energy dependence of particle production. Deep neural networks (DNNs) provide a powerful regression tool to capture underlying multidimensional correlations inherent in the data. DNNs are used to parametrize recent ALICE measurements of multiplicity (N_{ch})- and transverse momentum (p_{T})-dependent charged-particle spectra. This new approach allows extrapolating the measurements towards higher N_{ch} and p_{T} values as well as to unmeasured $\sqrt{s}$, providing data-driven references for future heavy-ion measurements.
In this poster, we present the current status of the analysis and discuss the potential and limitations of using DNNs to model complex multidimensional data, comparing the results to those from event generators.

Category

Experiment

Collaboration (if applicable)

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Track Classification: Light and strange flavor physics & nuclei