## PANIC2021 Conference



Contribution ID: 74

Type: Talk

## Measurement of charged particle multiplicity distributions in DIS at HERA and its implication to entanglement entropy of partons

Wednesday 8 September 2021 14:43 (15 minutes)

Charged particle multiplicity distributions in positron-proton deep inelastic scattering at a centre-of-mass energy  $\sqrt{s} = 319$  GeV are measured. The data are collected with the H1 detector at HERA corresponding to an integrated luminosity of 136 pb<sup>-1</sup>. Charged particle multiplicities are measured as a function of photon virtuality  $Q^2$ , inelasticity y and pseudorapidity  $\eta$  in the laboratory and the hadronic centre-of-mass frames. Predictions from different Monte Carlo models are compared to the data. The first and second moments of the multiplicity distributions are determined and the KNO scaling behaviour is investigated. The multiplicity distributions as a function of  $Q^2$  and the Bjorken variable  $x_{\rm Bj}$  are converted to the hadron entropy  $S_{\rm hadron}$ , and predictions from a quantum entanglement model are tested.

Eur.Phys.J.C 81 (2021), 212

Primary authors: SCHMITT, Stefan (DESY); H1, Collaboration (DESY)Presenter: SCHMITT, Stefan (DESY)Session Classification: QCD, spin physics and chiral dynamics

Track Classification: QCD, spin physics and chiral dynamics