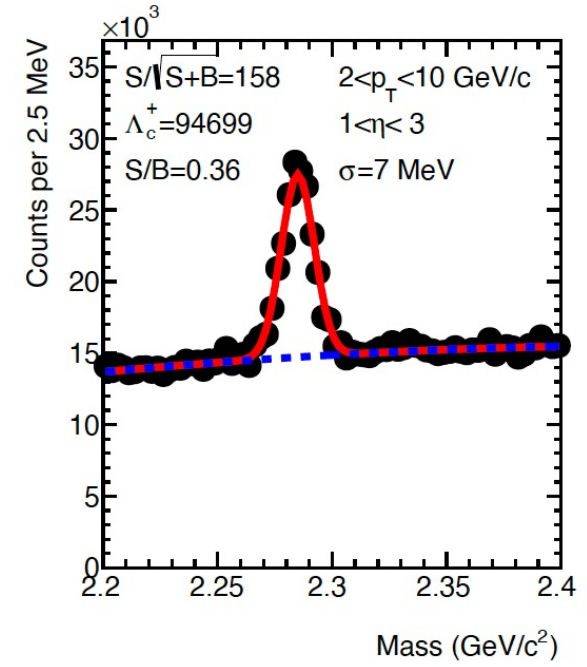
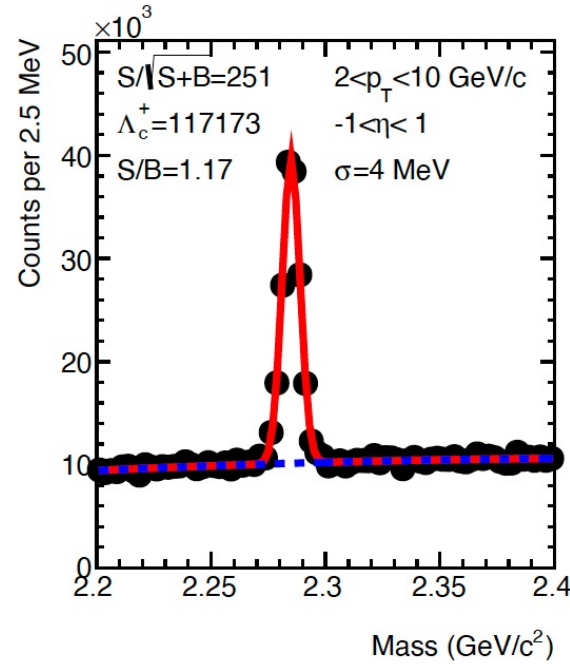
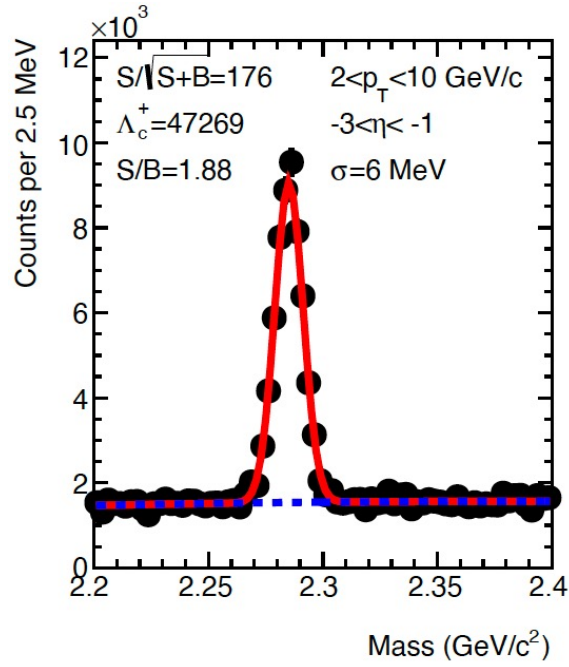
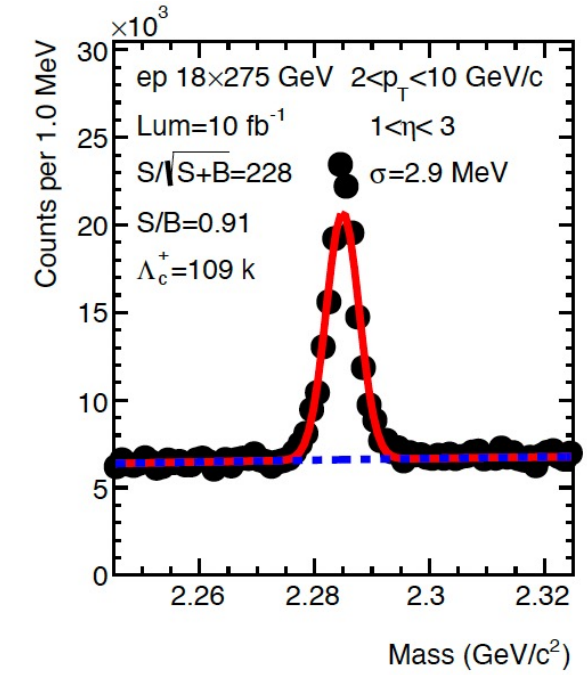
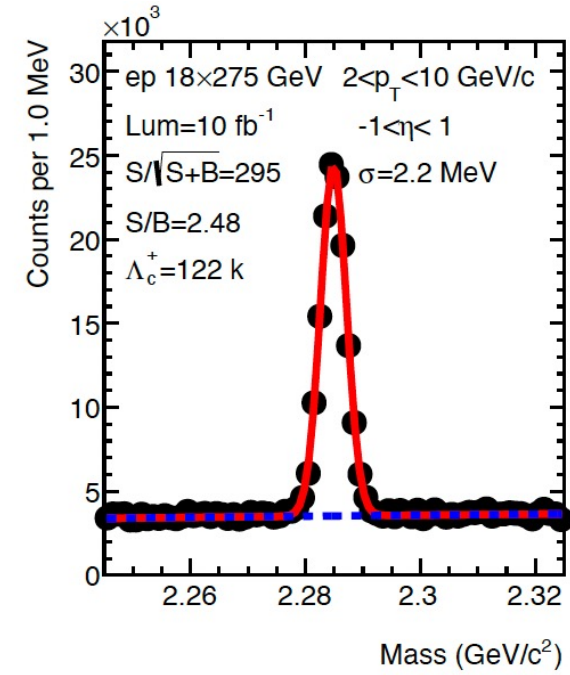
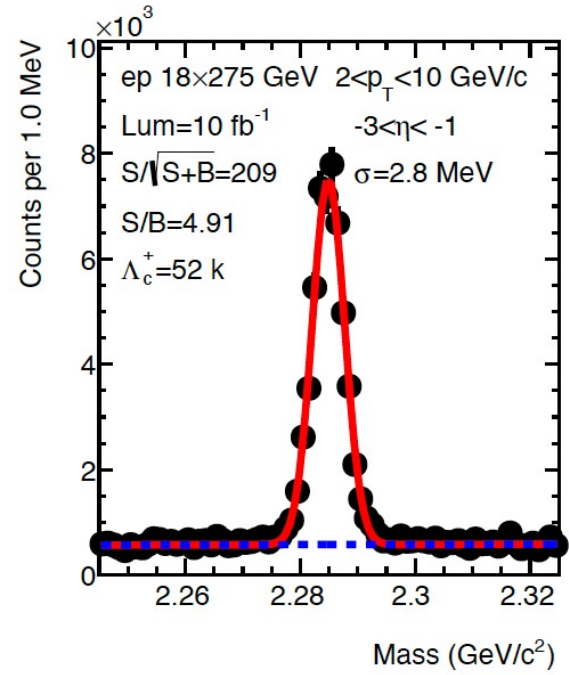


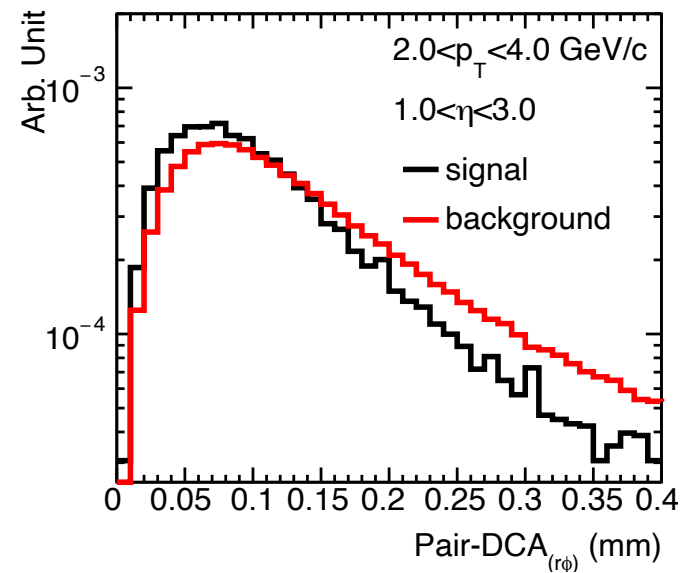
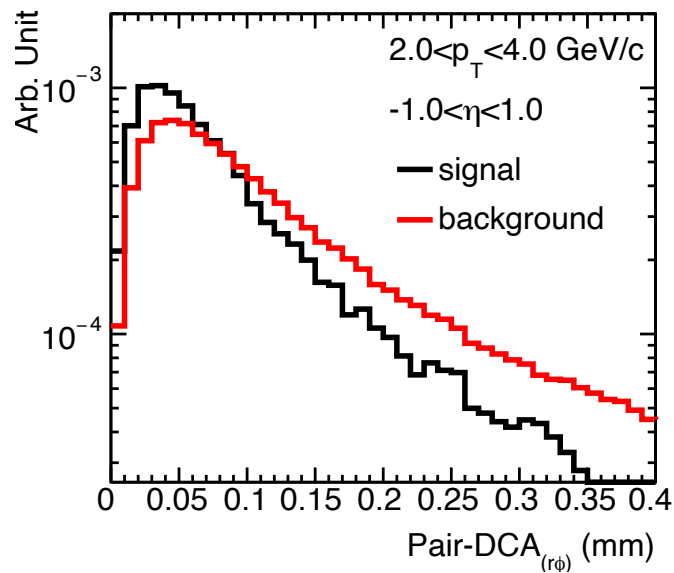
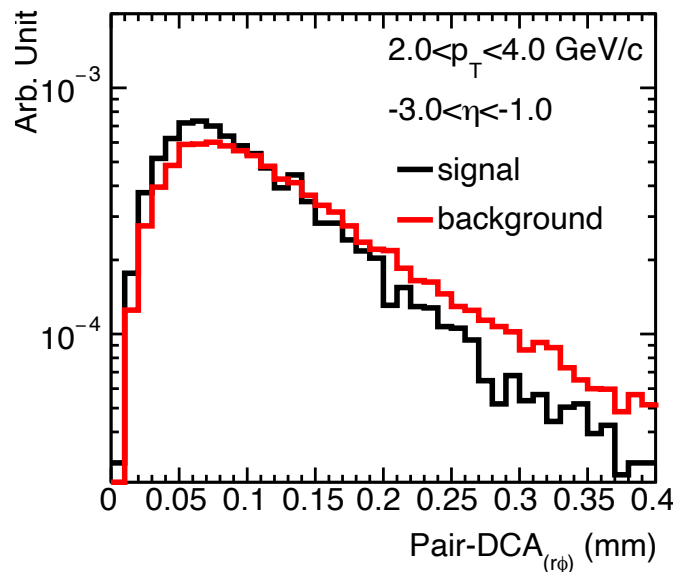
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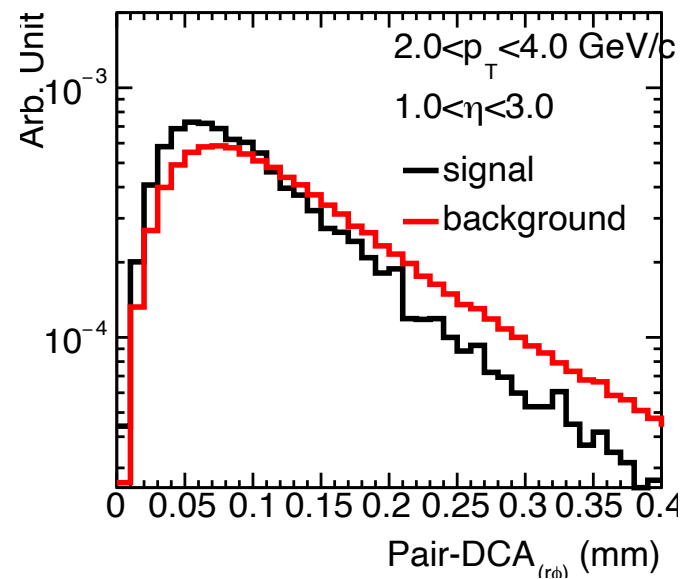
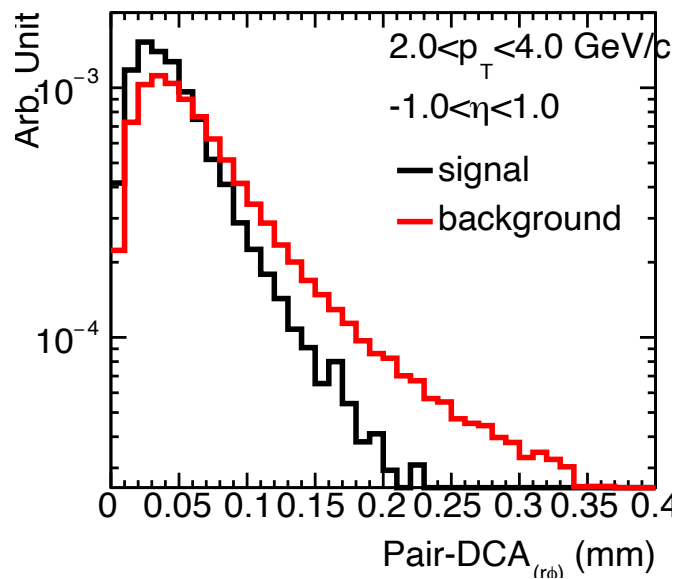
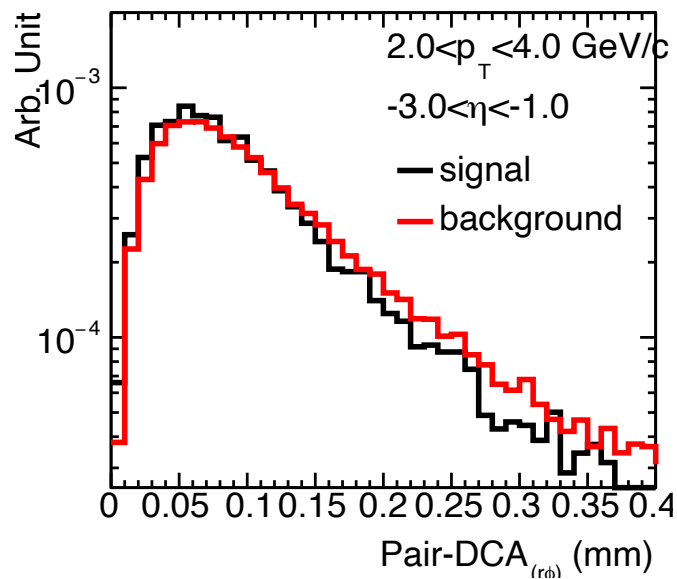
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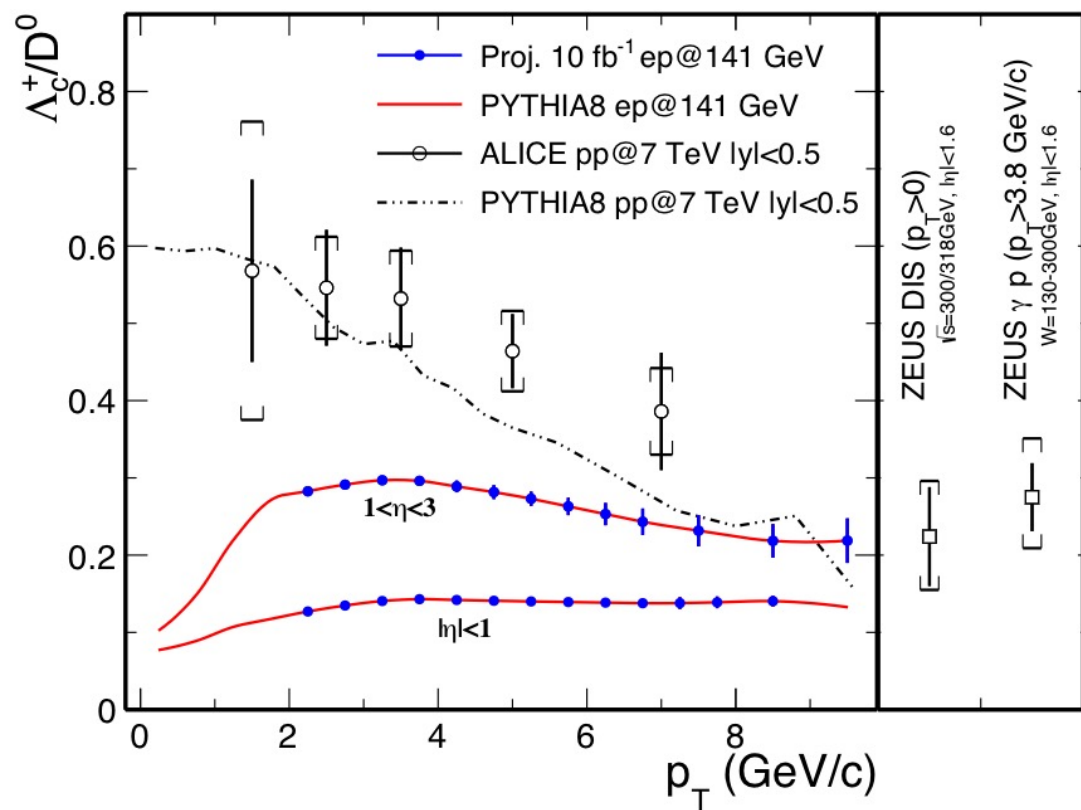


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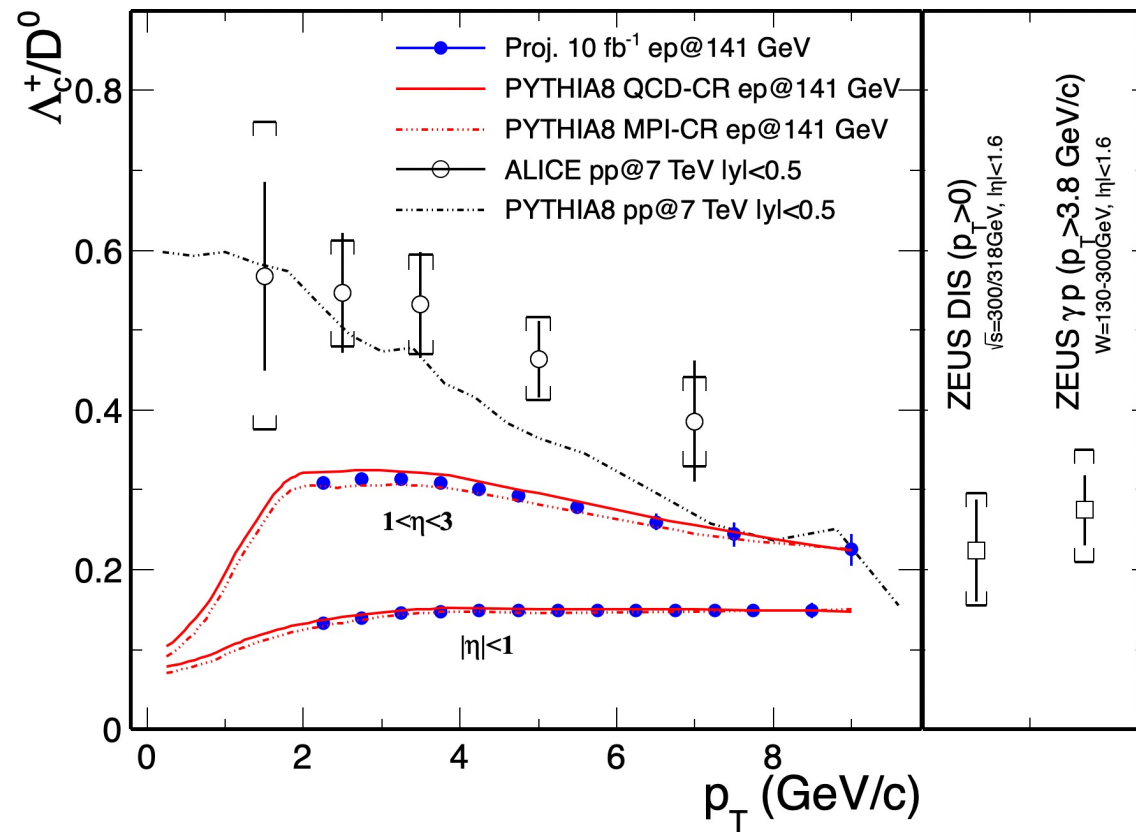


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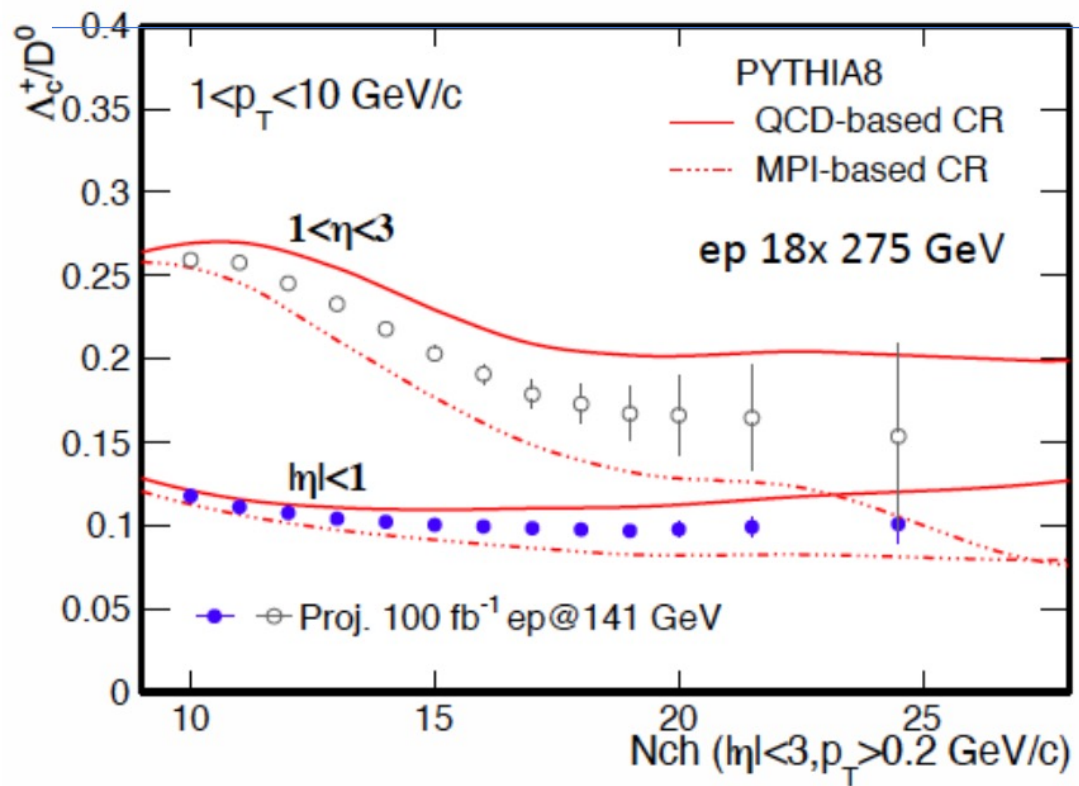




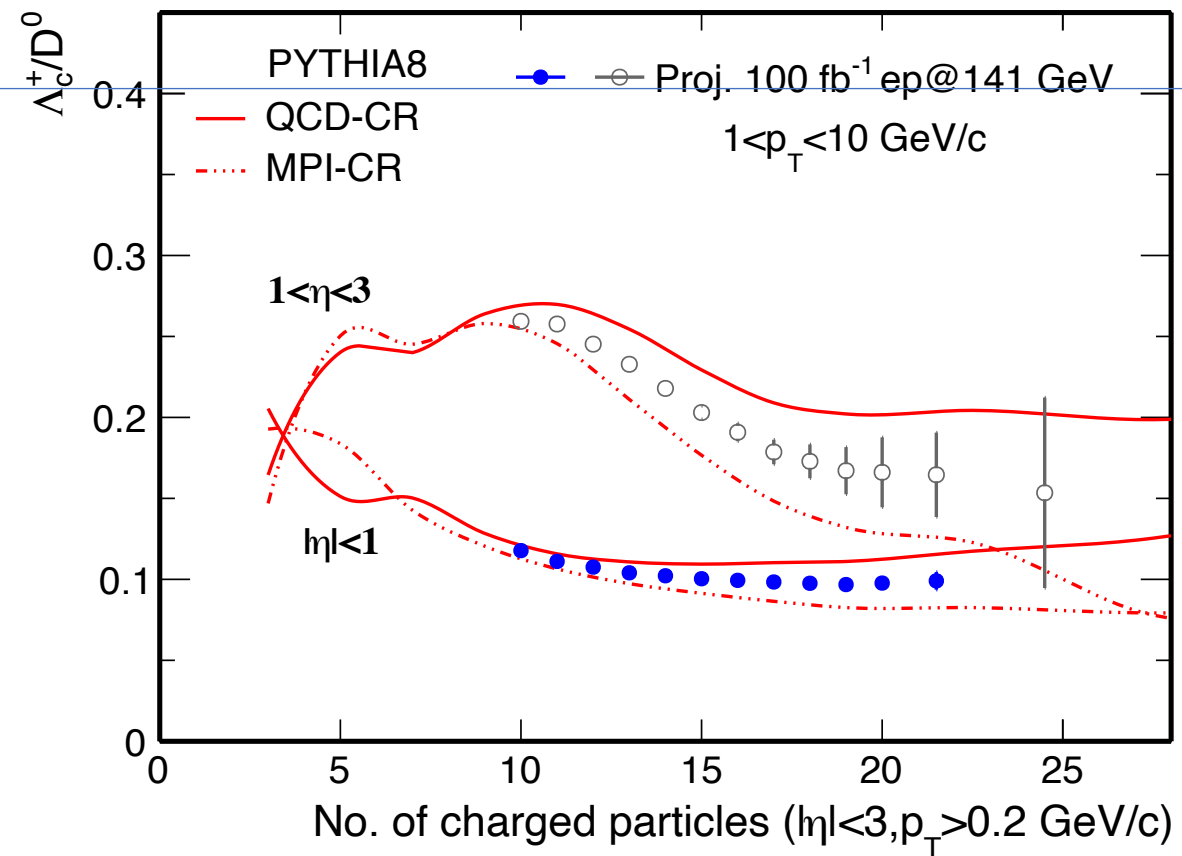
paper



new



paper parameter



new

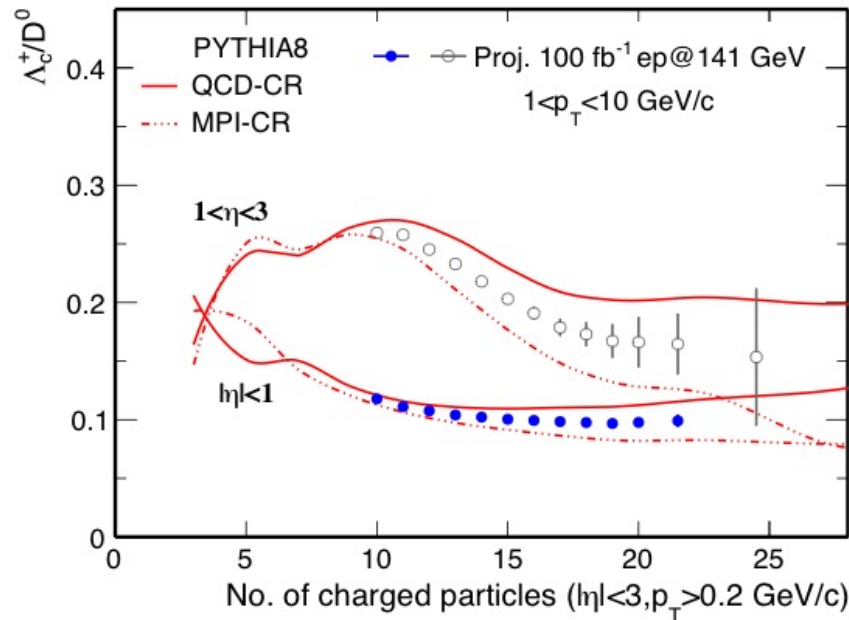


FIG. 1. Statistical uncertainty projection for Λ_c^+/D^0 in two different η bins as a function of charged track multiplicity within $|\eta| < 3$ at future EIC $e+p$ collisions at $\sqrt{s} = 141$ GeV. Predictions from PYTHIA8 calculation based on QCD-CR frame (solid line) and MPI-CR frame (dashed line) are also shown in the plot.

Recent measurements in open and closed charm hadron production in high multiplicity $p+p$ collisions at RHIC and LHC attracted lots of interests [1–5]. Various models including multi-parton interaction, color reconnection implemented in PYTHIA [6], and coherent production [7] have been exercised while the exact production mechanism is still under investigation. Measurements of various charm hadrons including D^0 and Λ_c^+ in $e+p/A$ collisions at the EIC will give us an opportunity to study these non-perturbative features in detail. Fig. 1 shows the projected statistical uncertainties of Λ_c^+/D^0 in $-1 < |\eta| < 1$ and $1 < |\eta| < 3$ as a function of charged track multiplicity within $|\eta| < 3$ at future EIC $e+p$ collisions at $\sqrt{s} = 141$ GeV. The predicted Λ_c^+/D^0 ratio from PYTHIA8 calculation in QCD based color reconnection frame (QCD-CR, solid line) and multiparton-interaction based color reconnection frame (MPI-CR, dashed line) are also shown in this figure. The projections indicate that the precision of Λ_c^+ measurements in the future EIC experiment are high enough to separate different color reconnection schemes. This will open a great opportunity to characterize the Λ_c^+ production mechanism and gain insights into hadronization, along with using Λ_c^+ as a tool to investigate the structure of nucleons and nuclei.