

Two-Particle Correlation Updates

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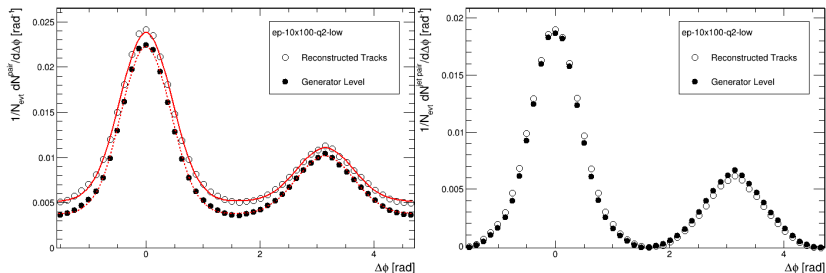
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Dihadron Correlations from prop.2

- ▶ Analyzed PYTHIA6 low- Q^2 SIDIS events
 - ▶ ep-5x41-q2-low, ep-10x100-q2-low, ep-18x100lowq2, ep-18x275-q2-low
 - ▶ Approximately 20M events in each
- ▶ Analyzing the EventEvaluator ntuples
- ▶ Considering events with $Q^2 > 1 \text{ GeV}^2$, and particles with $p_T > 1 \text{ GeV}$, $|\eta| < 3$
- ▶ Pair all generated π^\pm , K^\pm , and p/\bar{p}
- ▶ Pair all tracks that match to truth particle
- ▶ In all cases $p_T^{\text{trig}} > p_T^{\text{assoc}}$
- ▶ The scattered electron is excluded from the analysis.
- ▶ I boost to the head-to-head frame and report $\Delta\phi$ distributions in that frame.

Comparison of Generated and Reconstructed Correlations

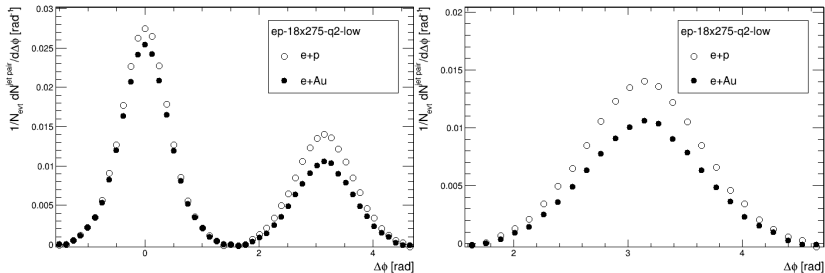


- ▶ Left: Invariant yield of pairs, fitted with two Gaussians centered at $\Delta\phi = 0, \pi$.
- ▶ Right: Invariant yield of pairs due to jets: subtracted pair yield by constant background from the fit.
- ▶ Open circles: generator-level, Filled circles: reconstructed tracks

Comparison of $e+A$ to $e + p$ Correlations

- ▶ Each beam energy dataset consists of 10 “runs.”
- ▶ Consider first 5 “runs” as $e + p$, last 5 “runs” as $e+Au$.
- ▶ Use EPS09Wrapper to calculate the nPDF weight for Au for each event.
 - ▶ x_{Bj} is saved in the EventEvaluator ntuples.
 - ▶ Identified the scattered electron to calculate Q^2 .
 - ▶ Identified the struck parton as the first parton in the PYTHIA event record.
- ▶ Apply the event weight at fill-time to $e+Au$ histograms.

Comparison of $e+A$ to $e+p$ Correlations



- ▶ Left: Invariant yield due to jets for the whole $\Delta\phi$.
- ▶ Right: Invariant yield due to jets for $\Delta\phi > \pi/2$.
- ▶ Open circles: $e+p$ events, Filled circles: $e+Au$ events
- ▶ Away-side $e+Au$ yield is suppressed compared to $e+p$

Next Steps

- ▶ Produce the same set of plots for prop.4
- ▶ Document the details in an analysis note.
 - ▶ I have contacted Peter but no confirmation, yet
 - ▶ I can write TeX independent and copy to the appropriate place.
- ▶ Does ECCE have a style guide? or style macro?