

Updates on DV π^0 P Analysis

Exclusive π^0 production in ep collisions

Li XU (BNL)

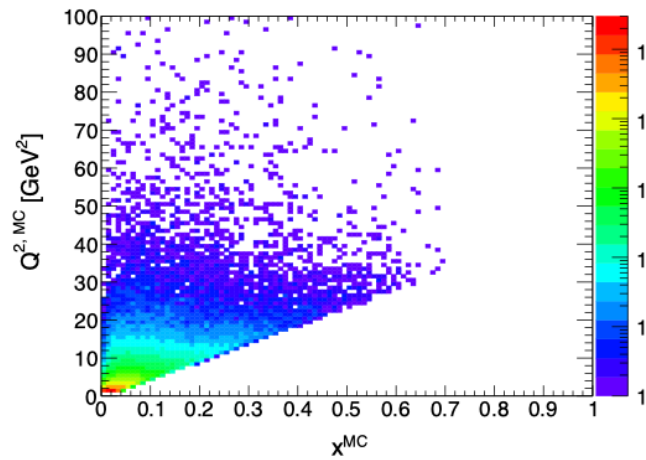
Sep 21, 2026

Updates

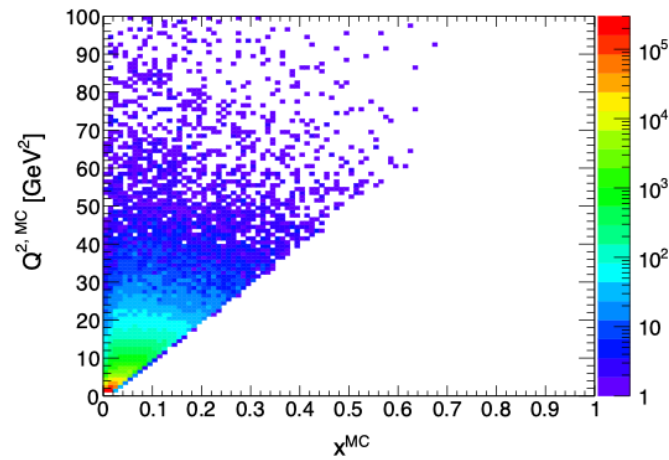
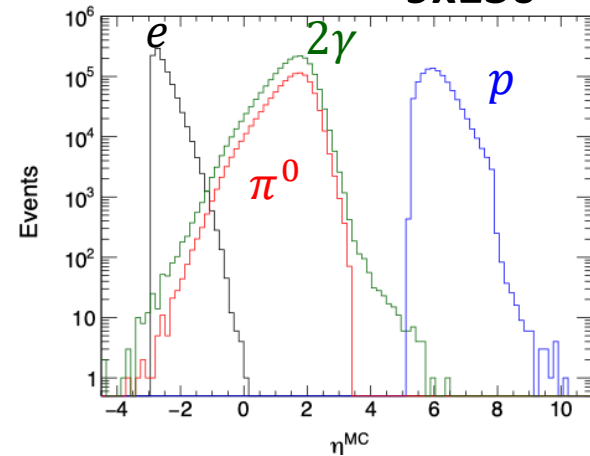
- Update the analysis results using the 26.07.1 samples
 - 9×130 GeV
 - 9×275 GeV
 - Same generator-level events with two different afterburner configs
 - High acceptance
 - High divergence

DV π^0 P Kinematics

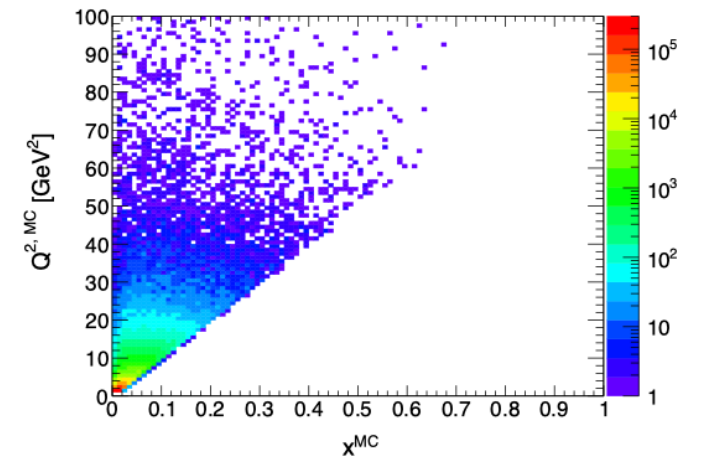
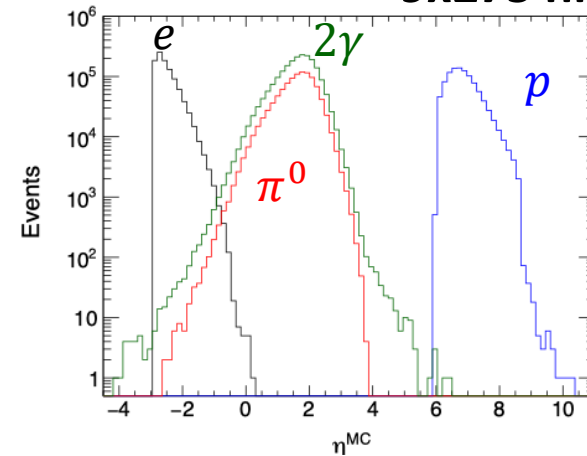
- Generator-level distributions



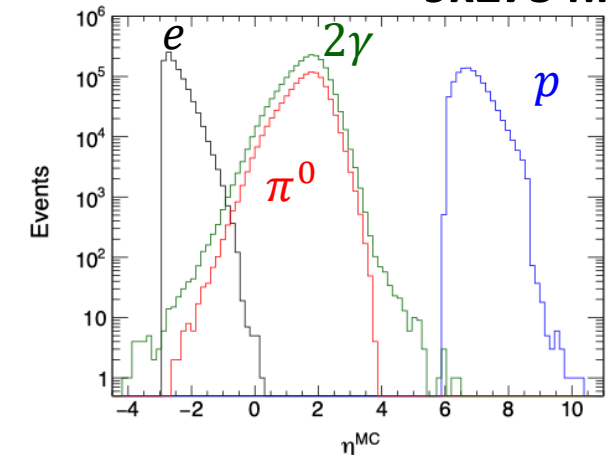
9x130



9x275 hiAcc

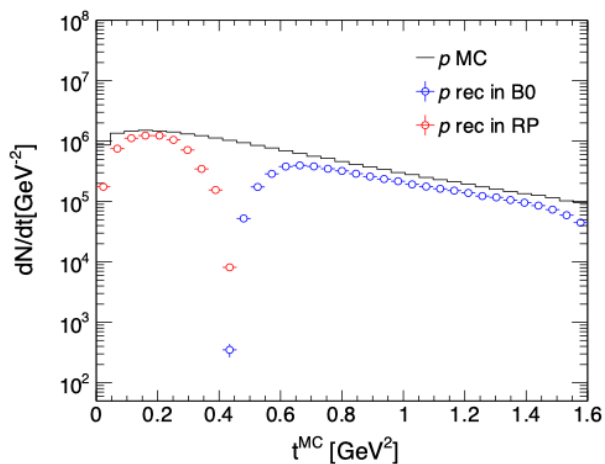


9x275 hiDiv

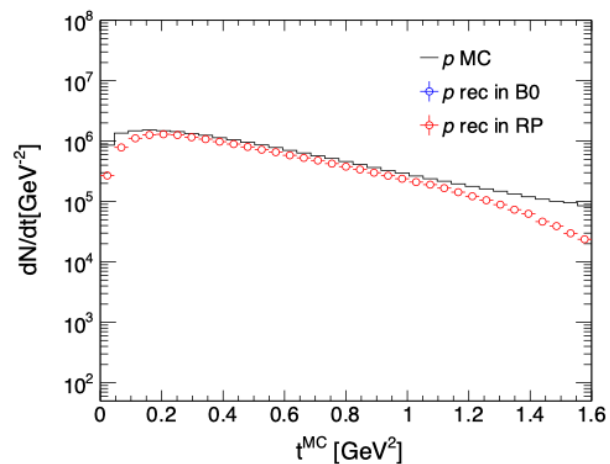
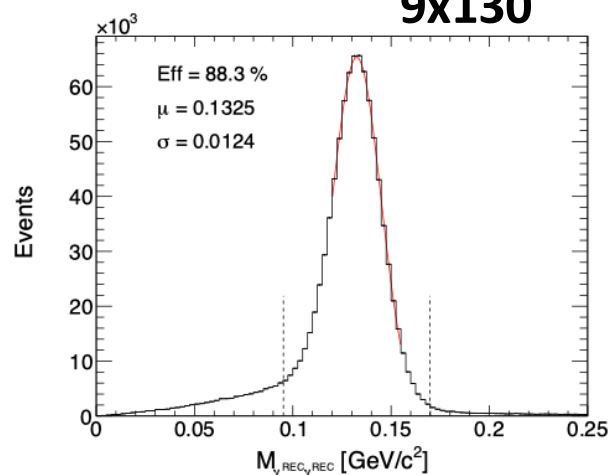


Proton and Pion Reconstruction

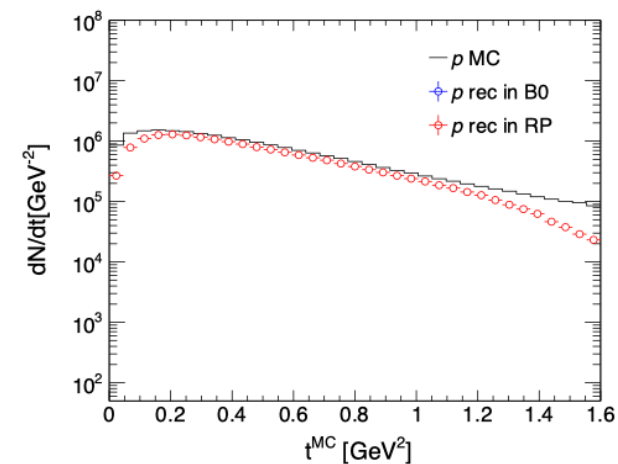
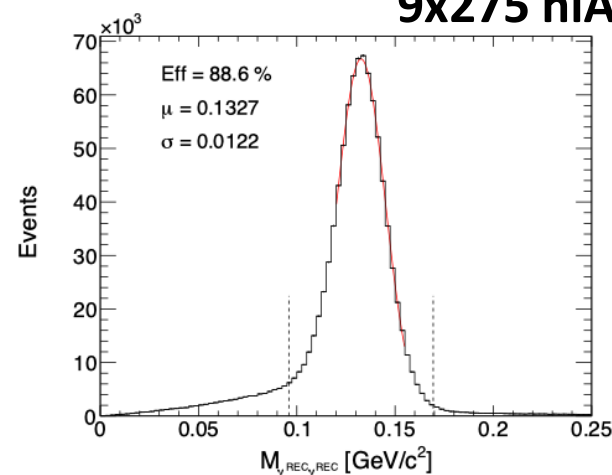
- The acceptance difference between hiAcc and hiDiv is negligible ($\sim 0.1\%$)



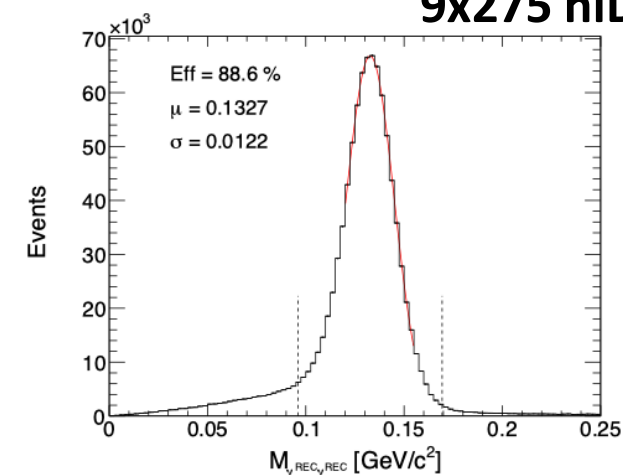
9x130



9x275 hiAcc

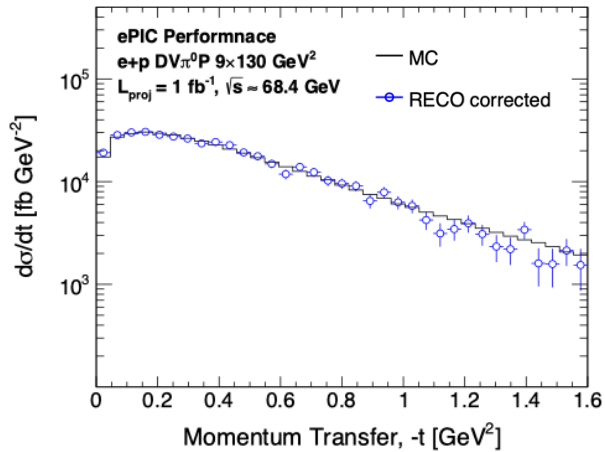


9x275 hiDiv

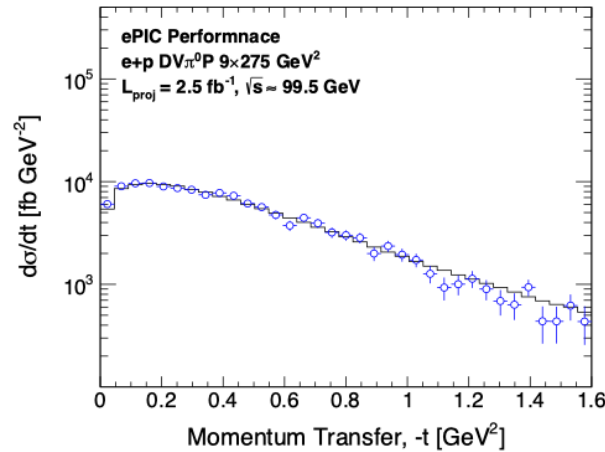


$d\sigma/dt$ distribution

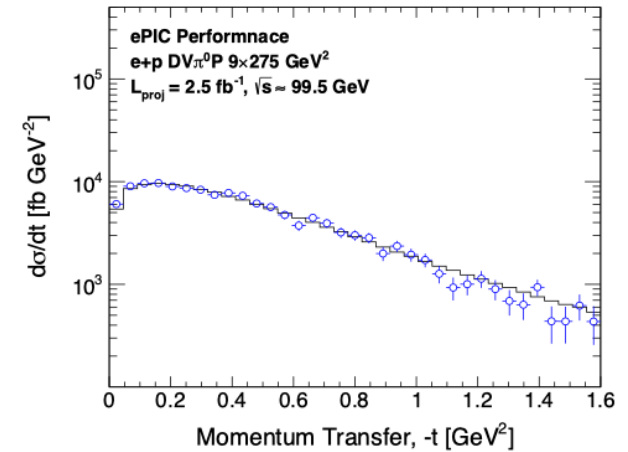
- $d\sigma/dt$ distribution with 1 fb^{-1} projection for 9x130 and 2.5 fb^{-1} projection for 9x275
- Extract quark spatial distribution by Fourier transform



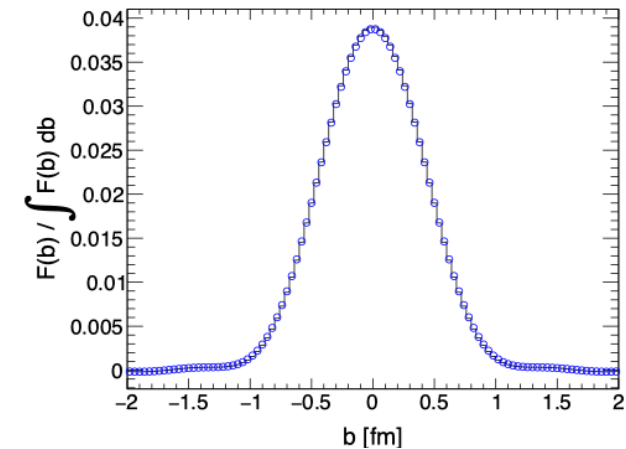
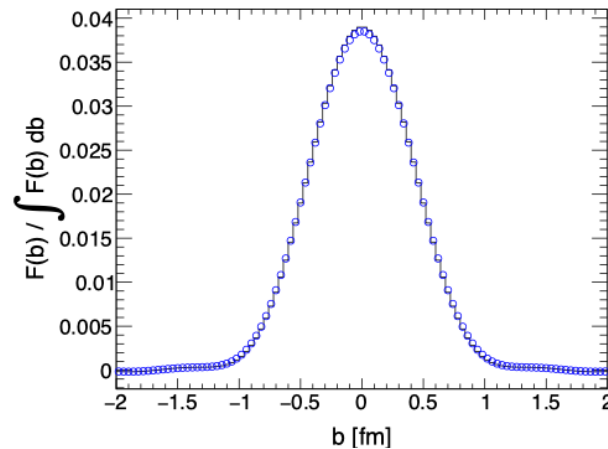
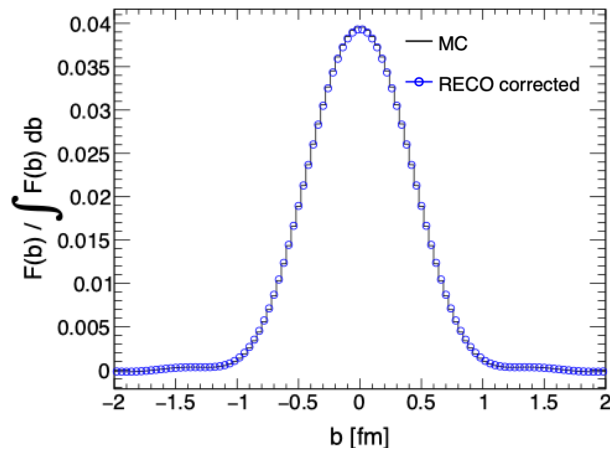
9x130



9x275 hiAcc



9x275 hiDiv



Next to do

- Update the analysis note for the 26.07.1 samples results
- Update the DVpi0P results in the NIM A paper
 - What are the nominal results (three plots) in the paper?
 - 9x130, 9x275 hiAcc or 9x275 hiDiv?