

D0-jet kinematics checks

Xuan Li (xuanli@lanl.gov)

Los Alamos National Laboratory

sPHENIX heavy flavor and quarkonia WG meeting

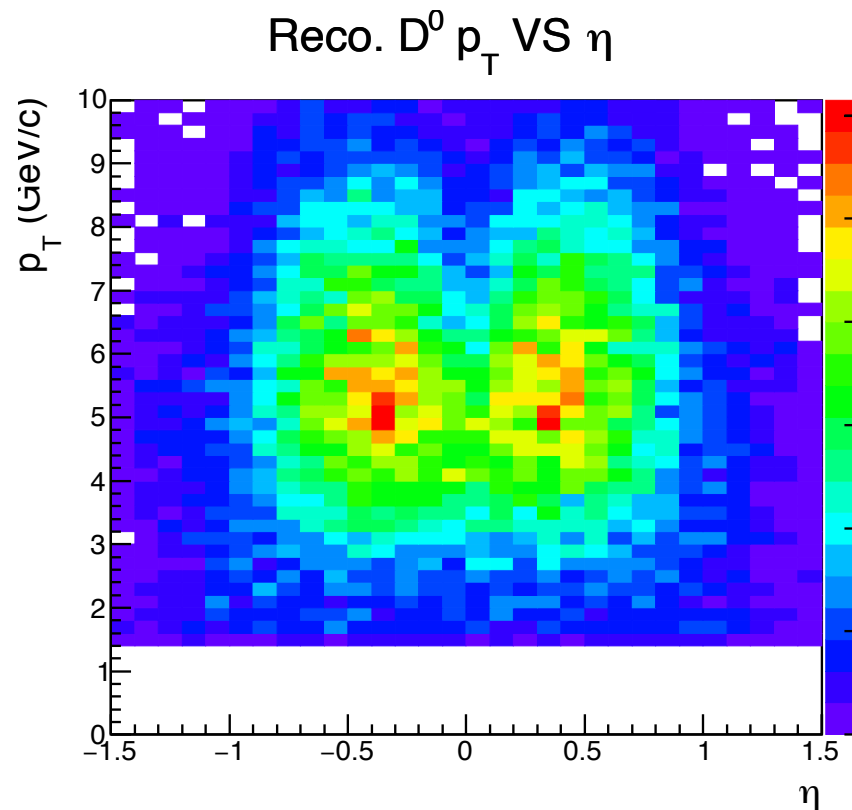
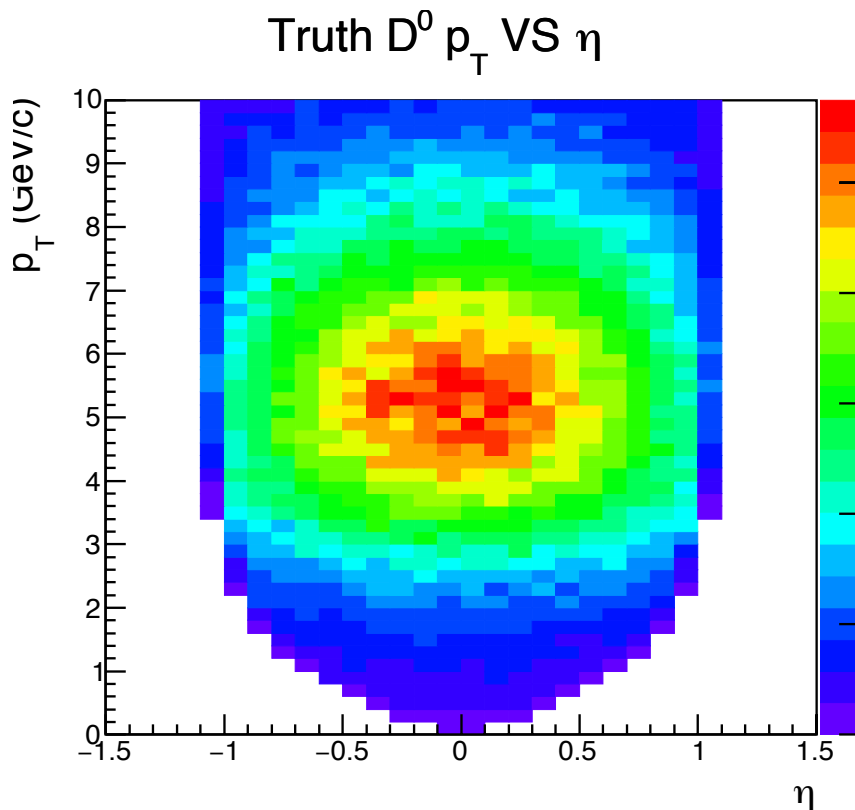
Feb. 24, 2023

Cut selection

- Jet reconstruction based on the ParticleFlow scheme with the anti- k_T algorithm and default cone radius at 0.4. Also studied for $R=0.3$ and 0.5.
 - Require the jet to contain a D^0 and at least another particle,
 - Jet mass $> 2 \text{ GeV}/c^2$
 - Default calorimeter noise setting and energy threshold cuts following the ParticleFlow algorithm.
- D^0 selection cuts:
 - Track $p_T > 0.7 \text{ GeV}/c$;
 - Track $\chi^2/\text{NDF} < 5$;
 - Track IP $\chi^2 > 0$;
 - Vertex $\chi^2/\text{NDF} < 5$;
 - Track-Track DCA $< 0.008 \text{ cm}$;
 - Recon D^0 $p_T > 1.5 \text{ GeV}/c$.

Truth and reconstructed D^0 kinematics

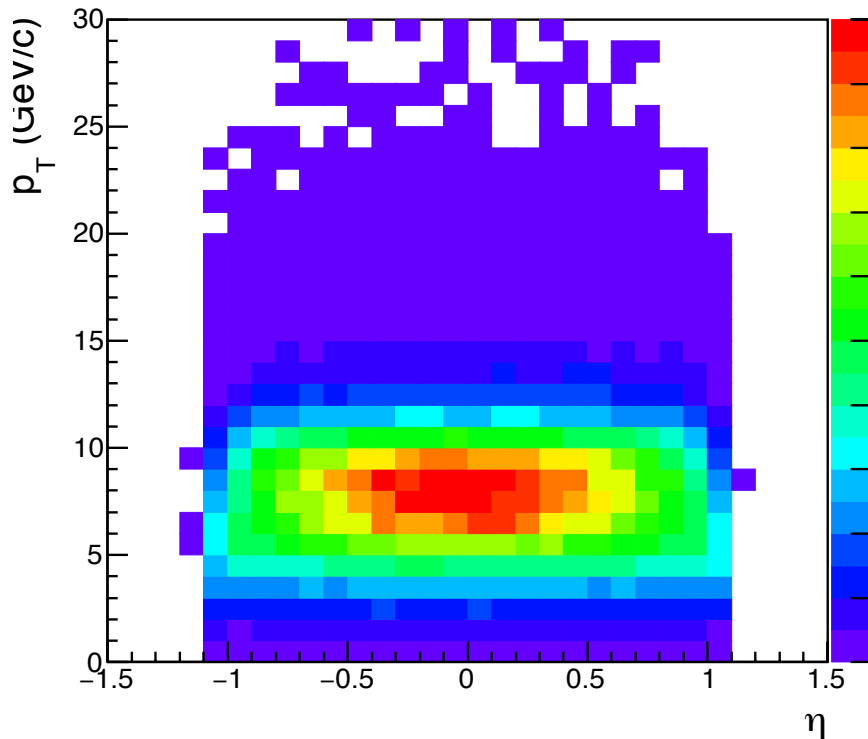
- No acceptance biases in the truth information (left) and see the efficiency drops in the reconstruction level at $\eta=0$ (right).



Truth and reconstructed Jet kinematics

- No acceptance biases in the truth information (left) and see the efficiency drops in the reconstruction level at $\eta=0$ (right).

Truth jet p_T VS η



Reco. jet p_T VS η

