# Selecting xF ranges

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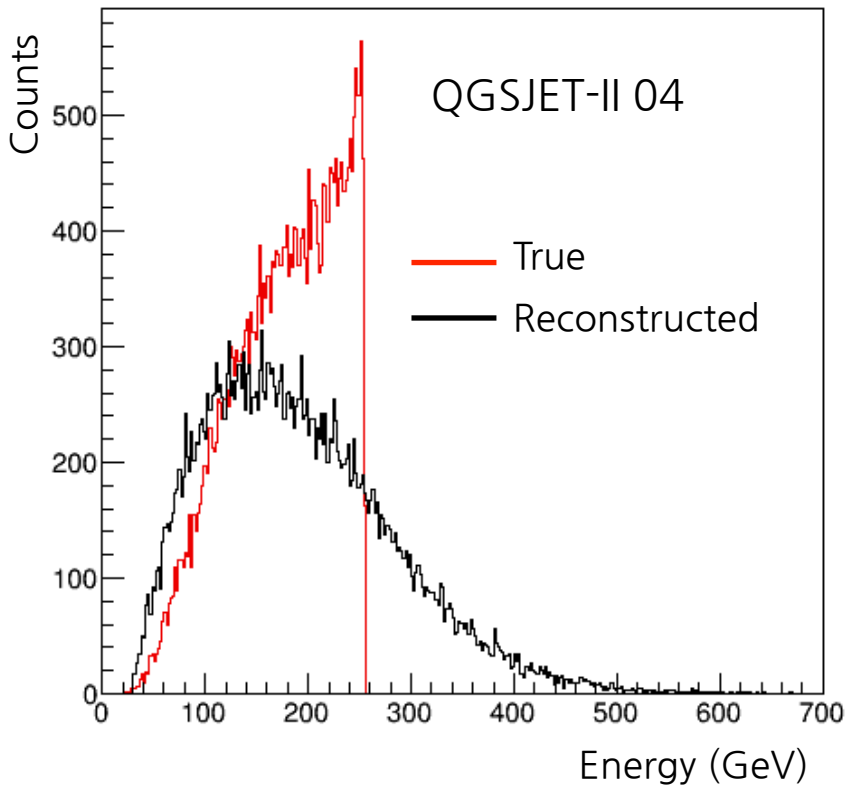
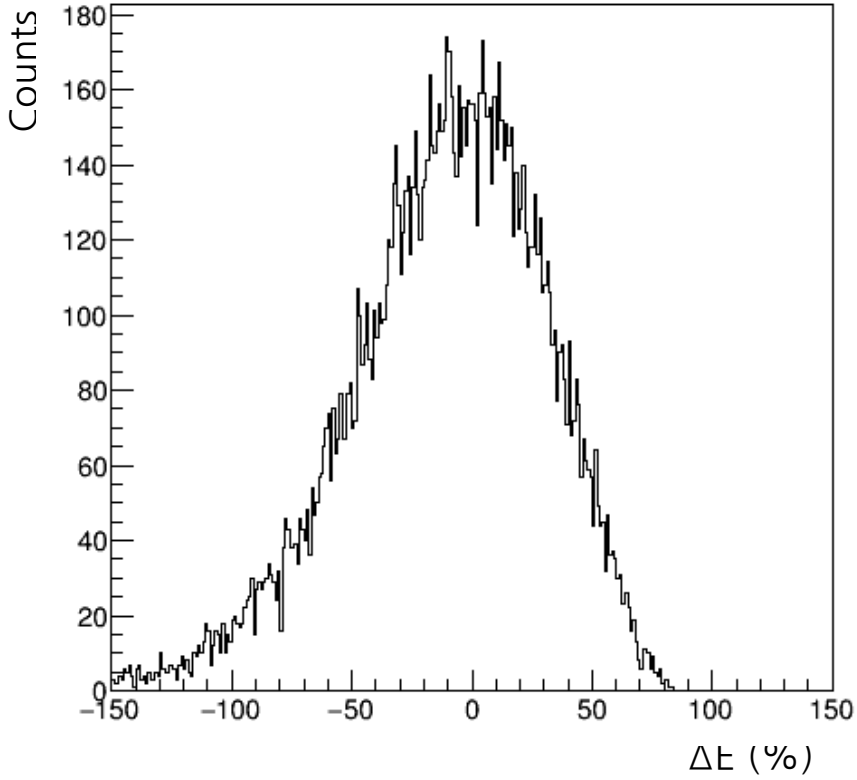
Minho Kim

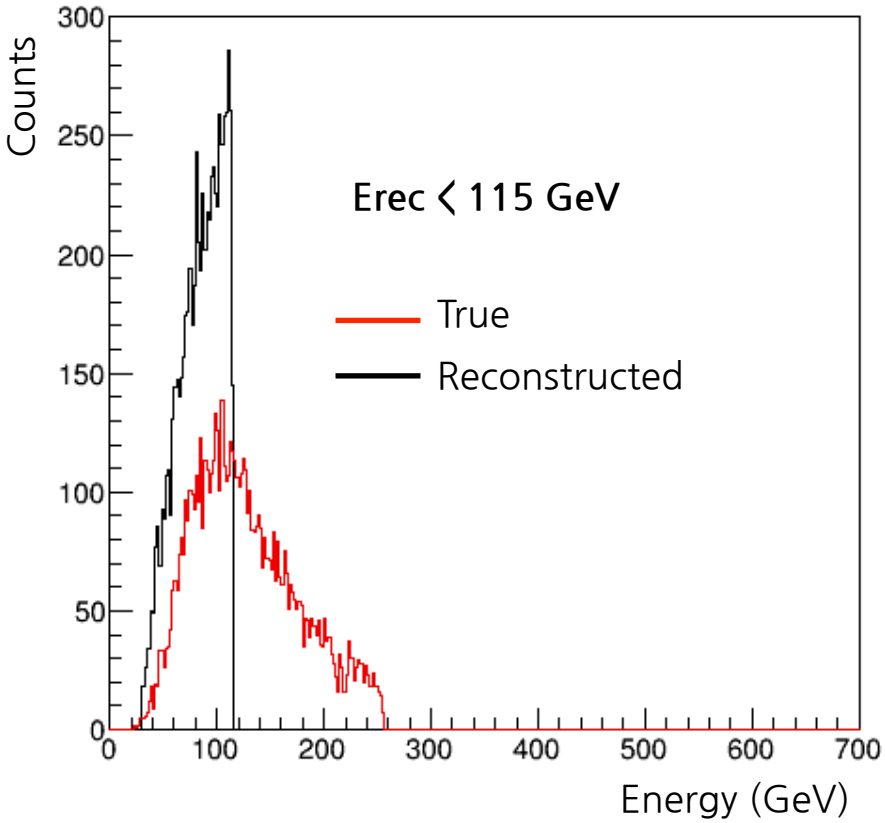
# $E_{true}$ Vs. $E_{rec}$

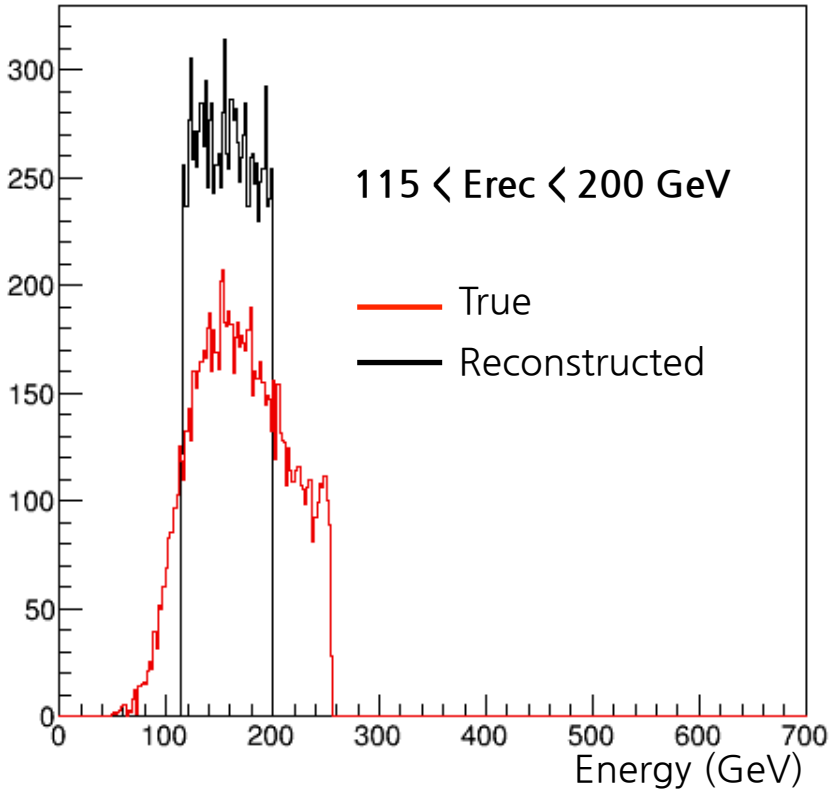



- ΔE peak around 0 means the energy was correctly reconstructed.
- Higher energy looks overestimated.

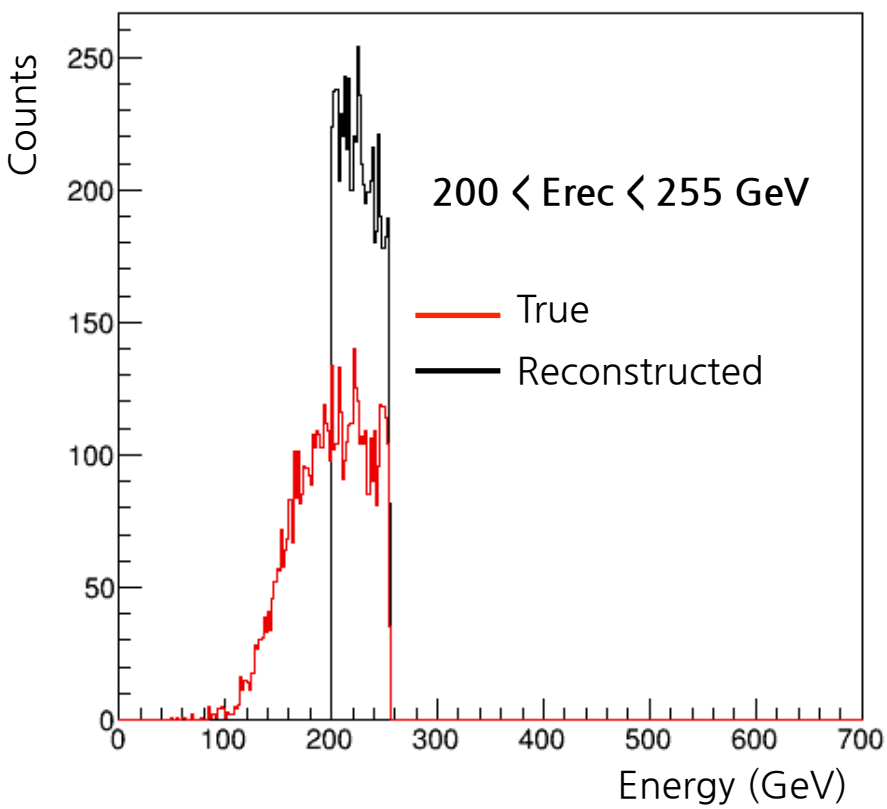
# $E_{true}$ Vs. $E_{rec}$ (lower $E_{rec}$)

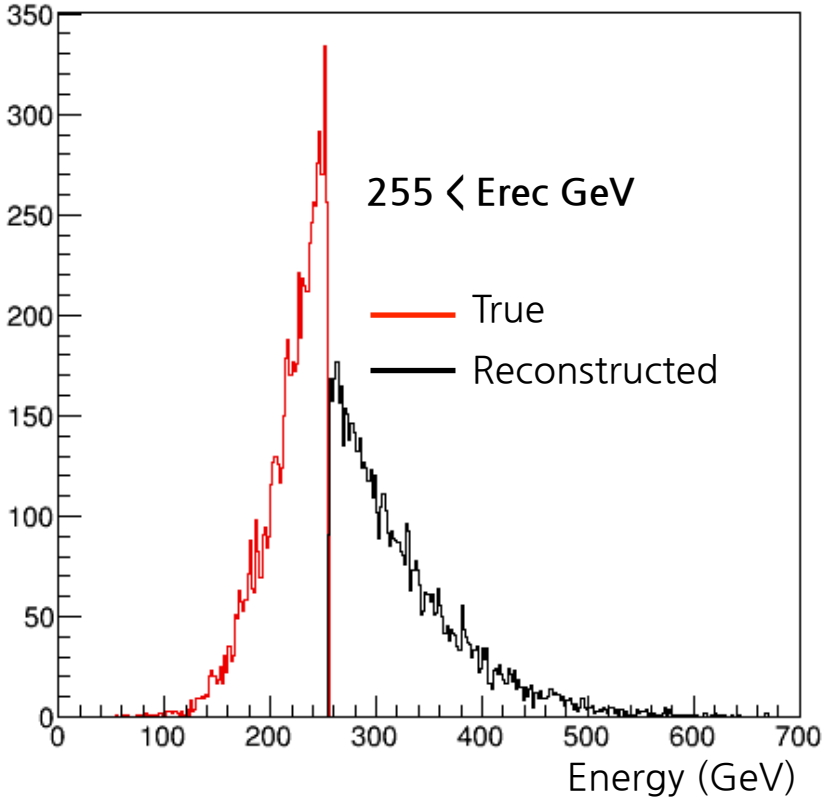



- In lower $E_{rec}$ ranges, the true energy is usually underestimated.

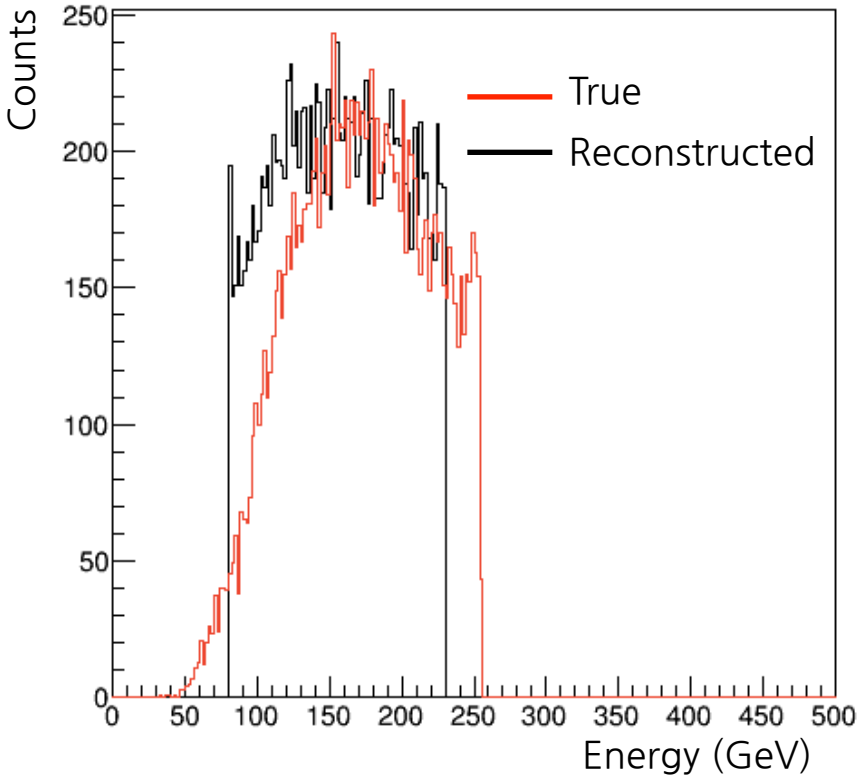
# $E_{true}$ Vs. $E_{rec}$ (higher $E_{rec}$)

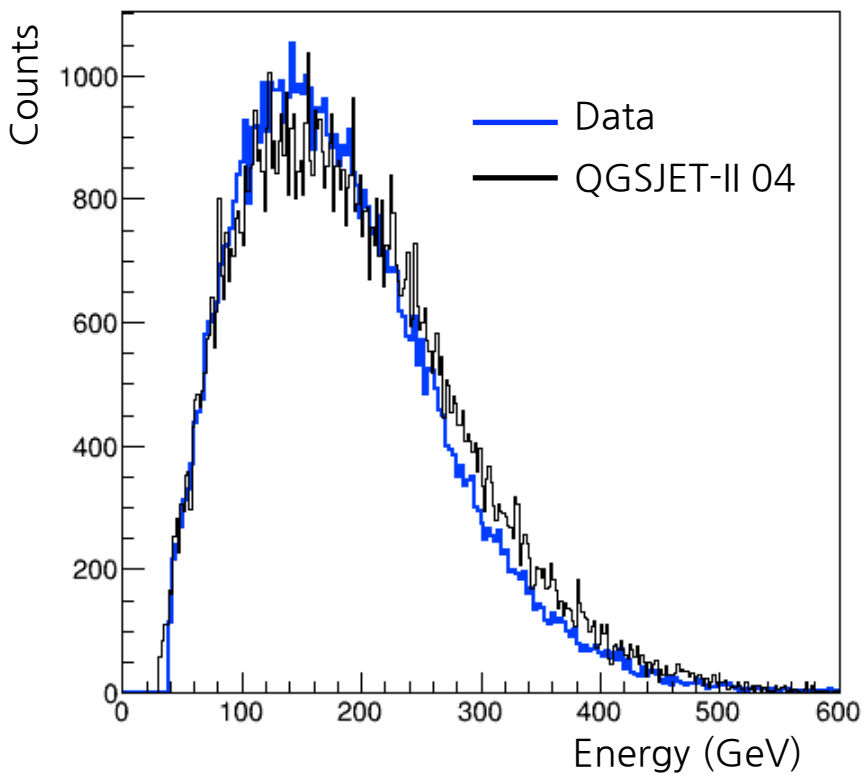



- In higher $E_{rec}$ ranges, the true energy is usually overestimated.

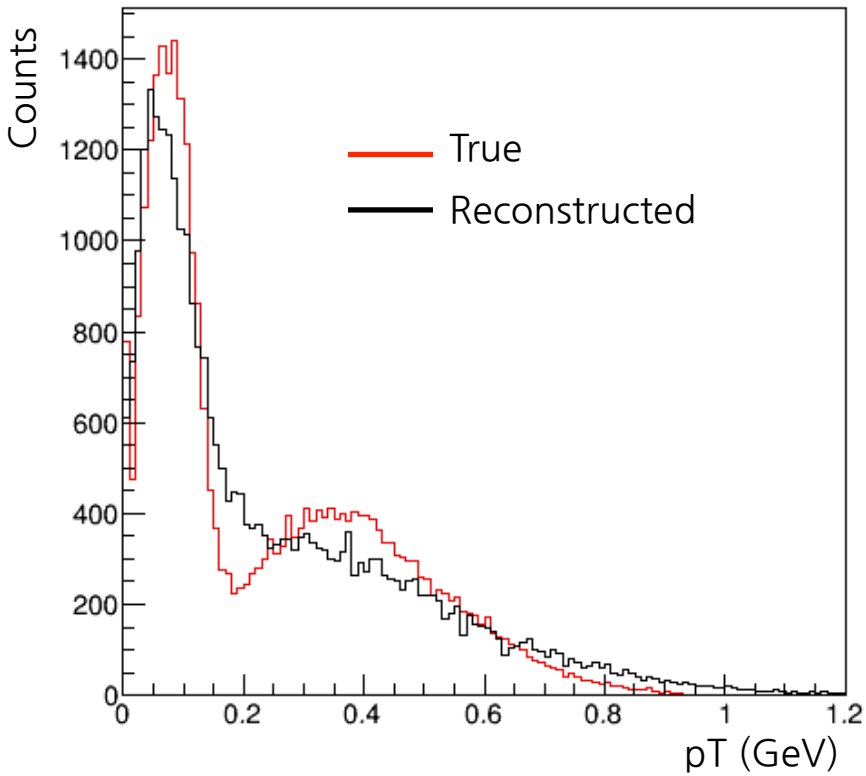
# An intermediate $E_{rec}$ range

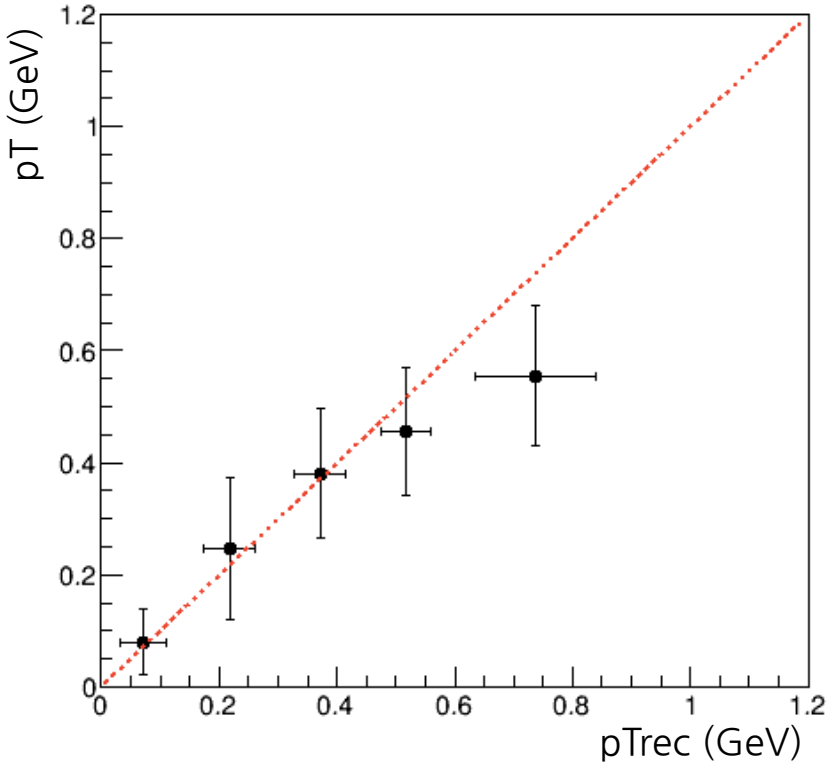



- The under or overestimated energy will make the corresponding under or overestimated (biased) pT as well.
- Lower energy underestimated and higher energy overestimated → If an Intermediate energy range is selected, this will cut part of biased events.

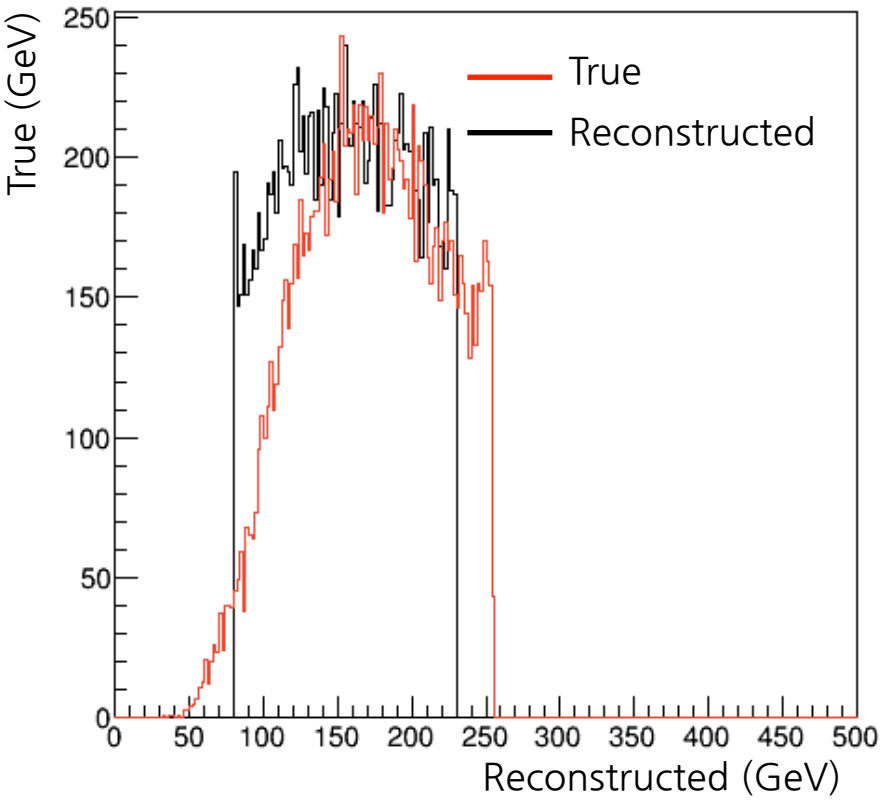
# $pT_{true}$ Vs. $pT_{rec}$ for entire energy range

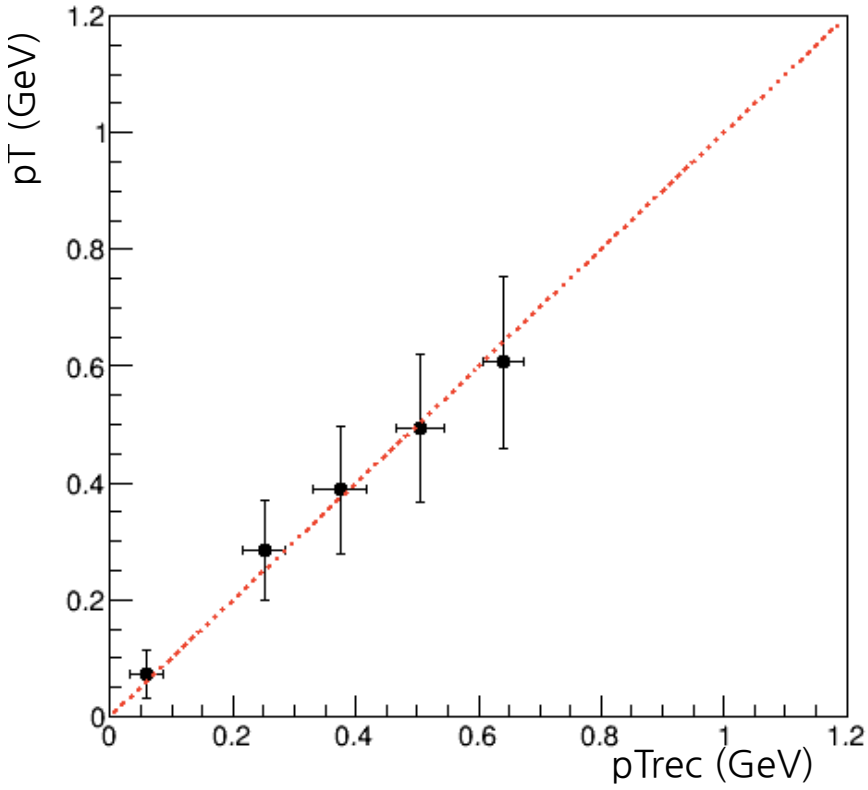



- Energy fluctuation makes the peak of true pT distribution smeared in its reconstructed one.
- Overestimated energy reconstruction makes the overestimated pT.

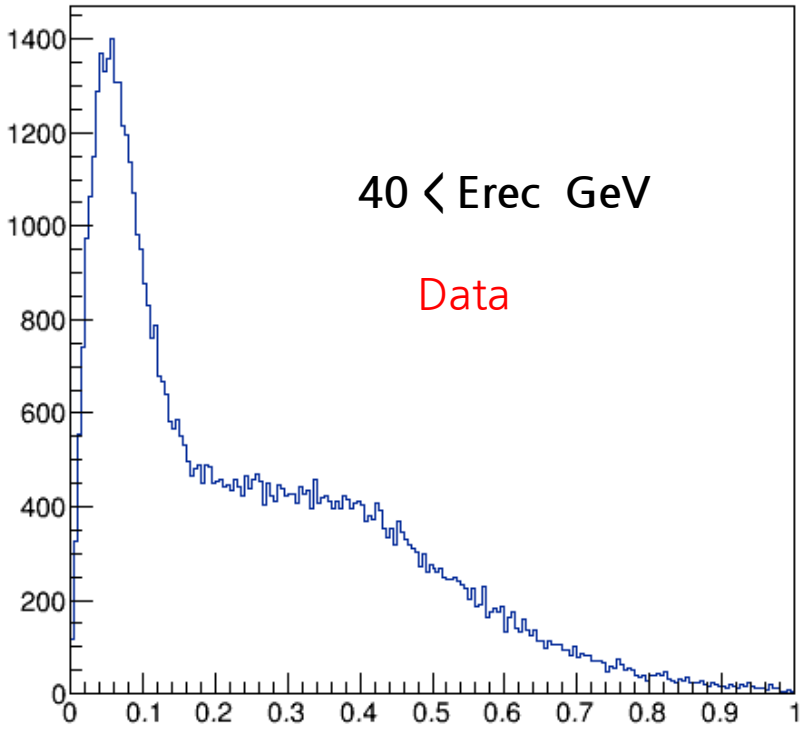
# $pT_{true}$ Vs. $pT_{rec}$ (higher $pT_{rec}$)

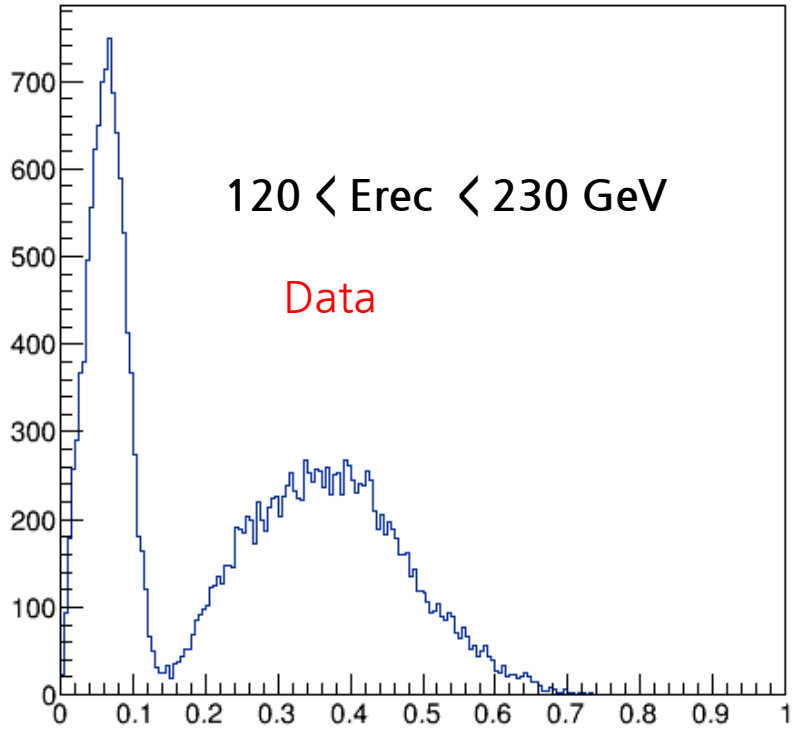



- If the energy is selected intermediately, part of the overestimated pT events can be effectively rejected.

# pT distribution of data




- Better pT reconstruction by an intermediate energy range cut can be confirmed by data as well.
- Neutron AN preliminary as a function of xF may be a hard job with RHICf-standalone analysis but as a function of pT can be possible with an intermediate energy range.