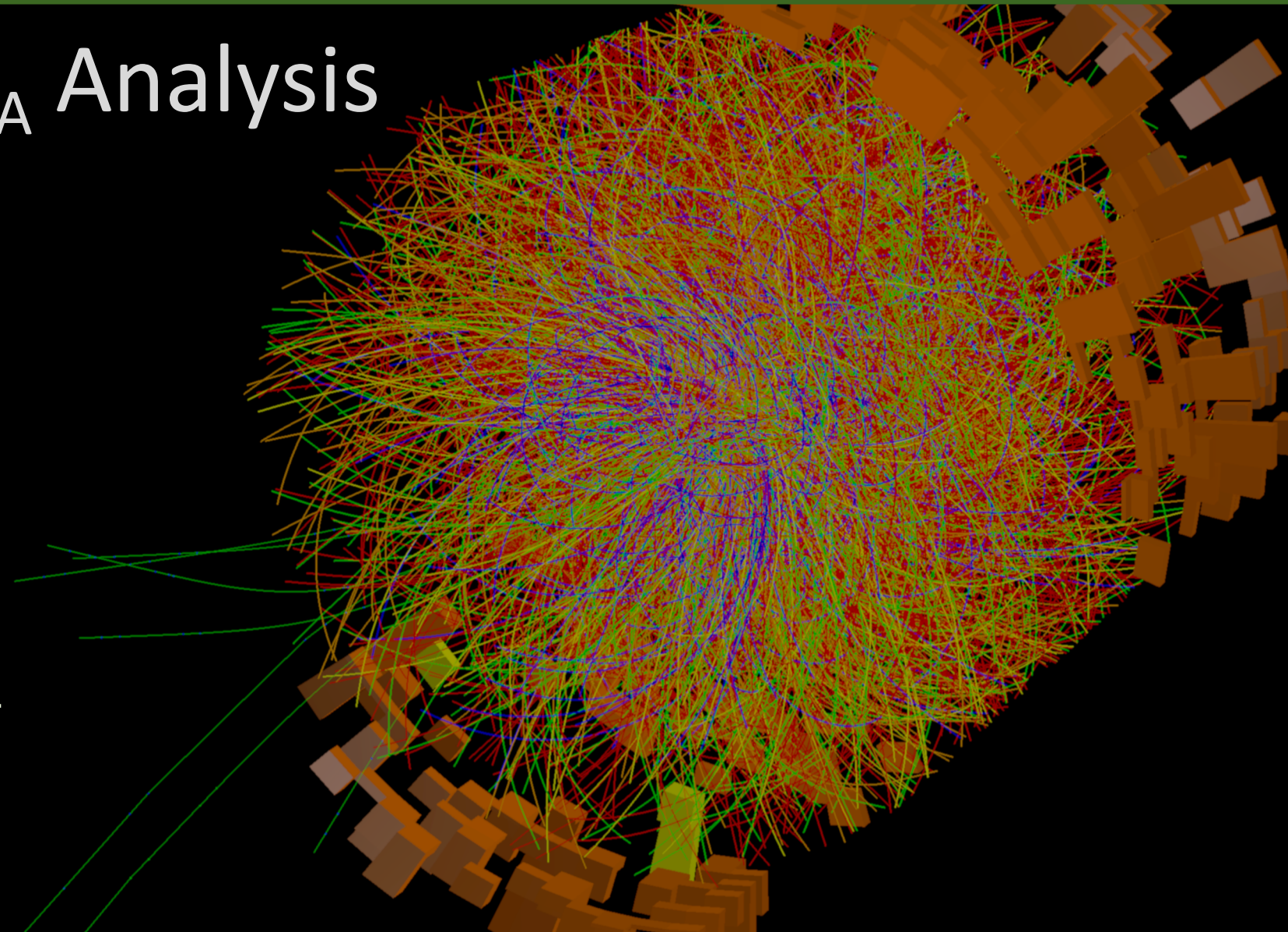


Inclusive Jet R_{AA} Analysis



RIKEN (JRA)
Takuya Kumaoka



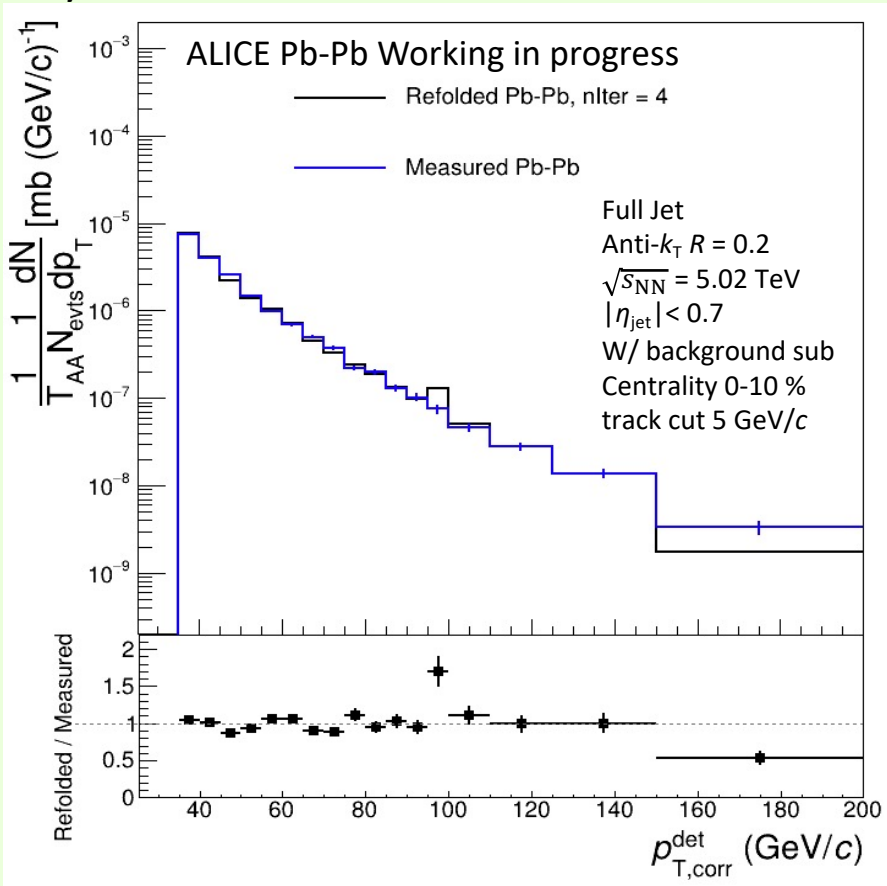
Recent progress

- QA (done)
- Raw jet property check (done)
- Make Embedding code (done)
- Unfolding (now)
 - a. make the unfolded result stable
 - find appropriate p_T range, read unfolding method paper, modify embedding train code
 - b. compare with two unfolding methods (Bays and SVD)
 - c. compare with each centrality results
 - d. compare with each resolution parameter R results
 - e. compare with the charged and full jet results.
- Estimate Systematic Uncertainty

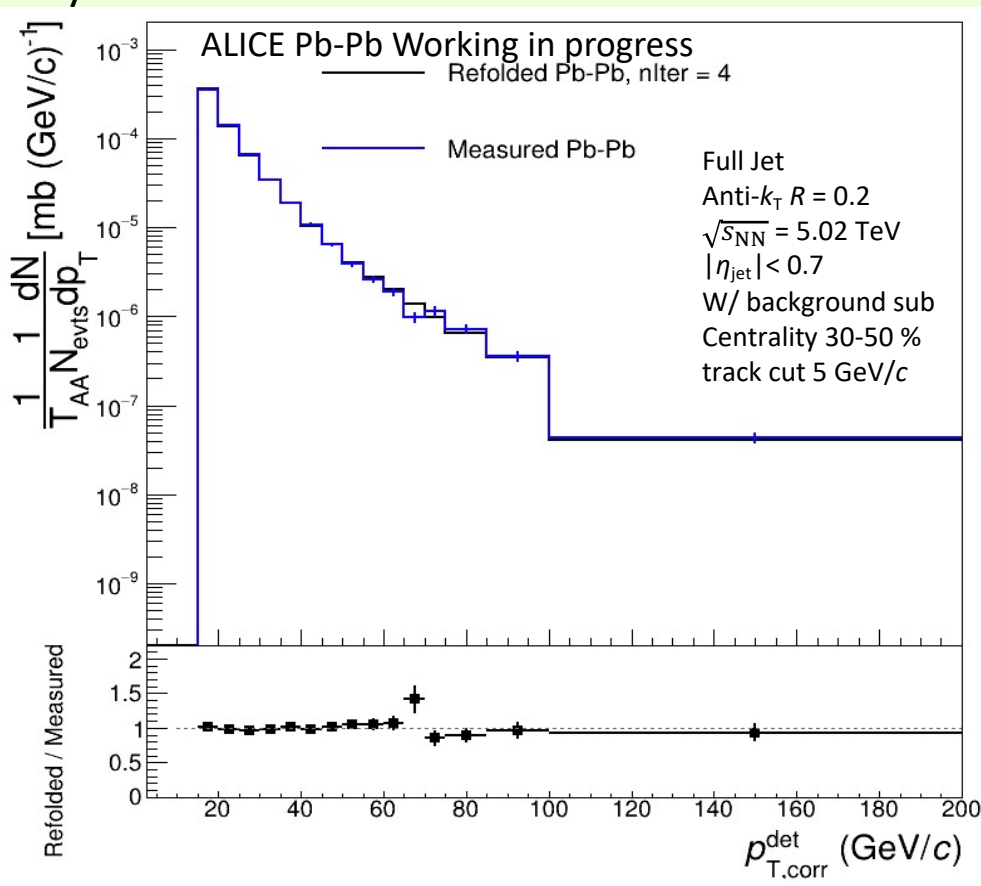
Refold result



Bayse 0-10 %



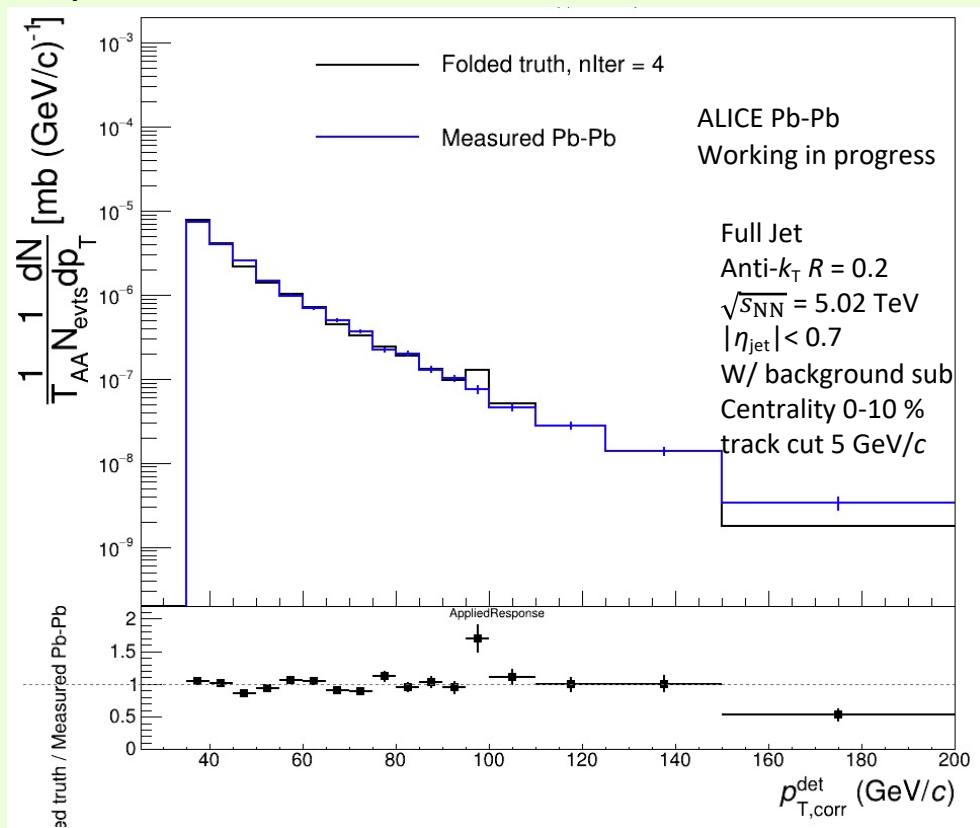
Bayse 30-50 %



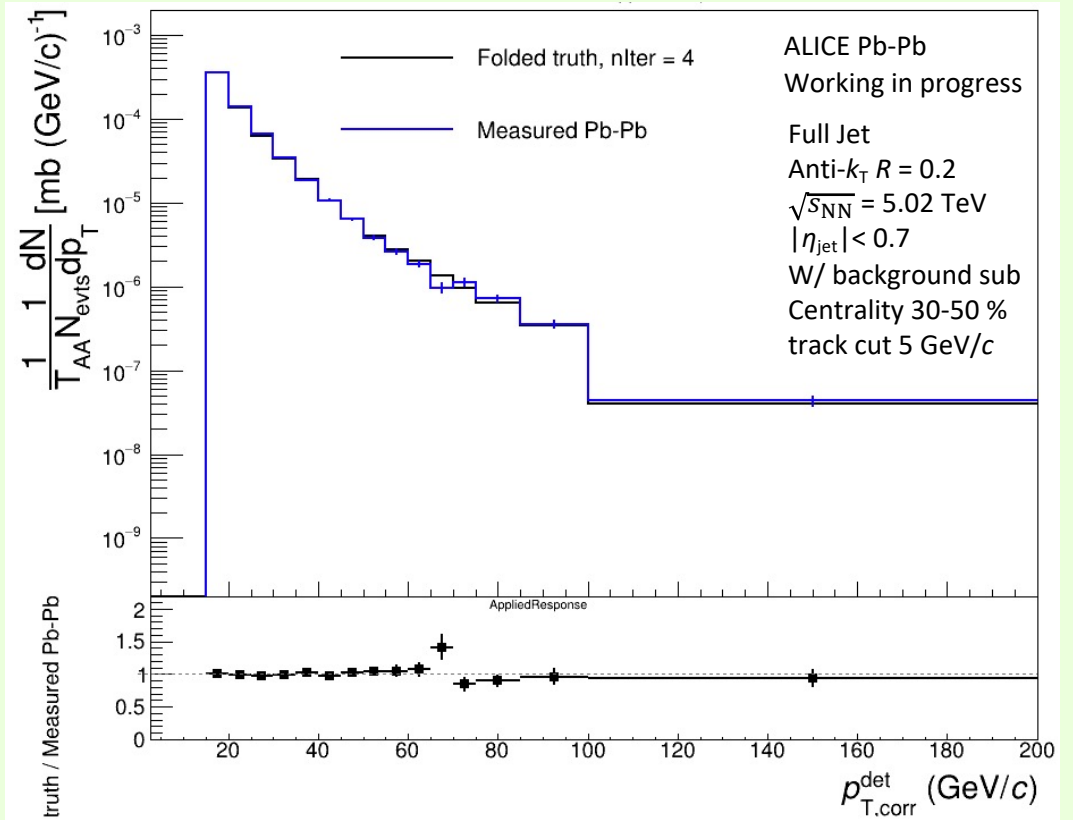
Fold result

Refold: $\text{jet}^{\text{MC}}_{\text{Gen}}$ $\xrightarrow{\text{Fold}}$ $\text{jet}^{\text{MC}}_{\text{Det}}$

Bayse 0-10 %



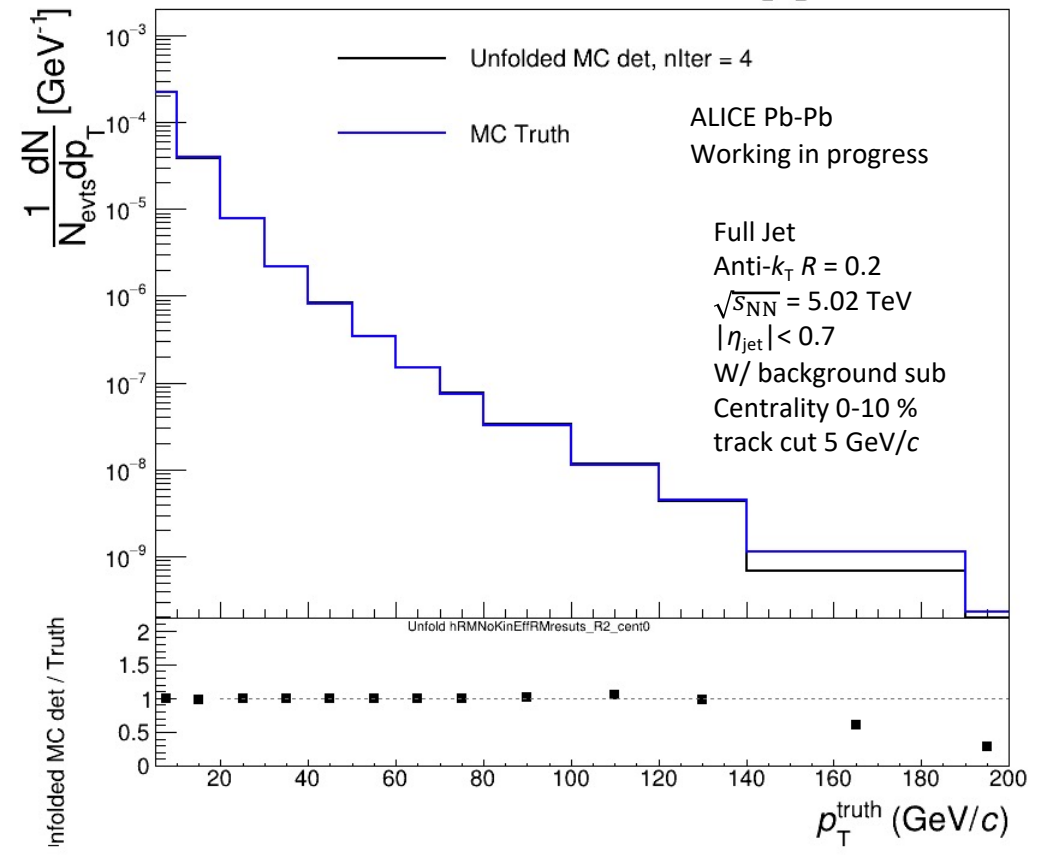
Bayse 30-50 %



Closure Test

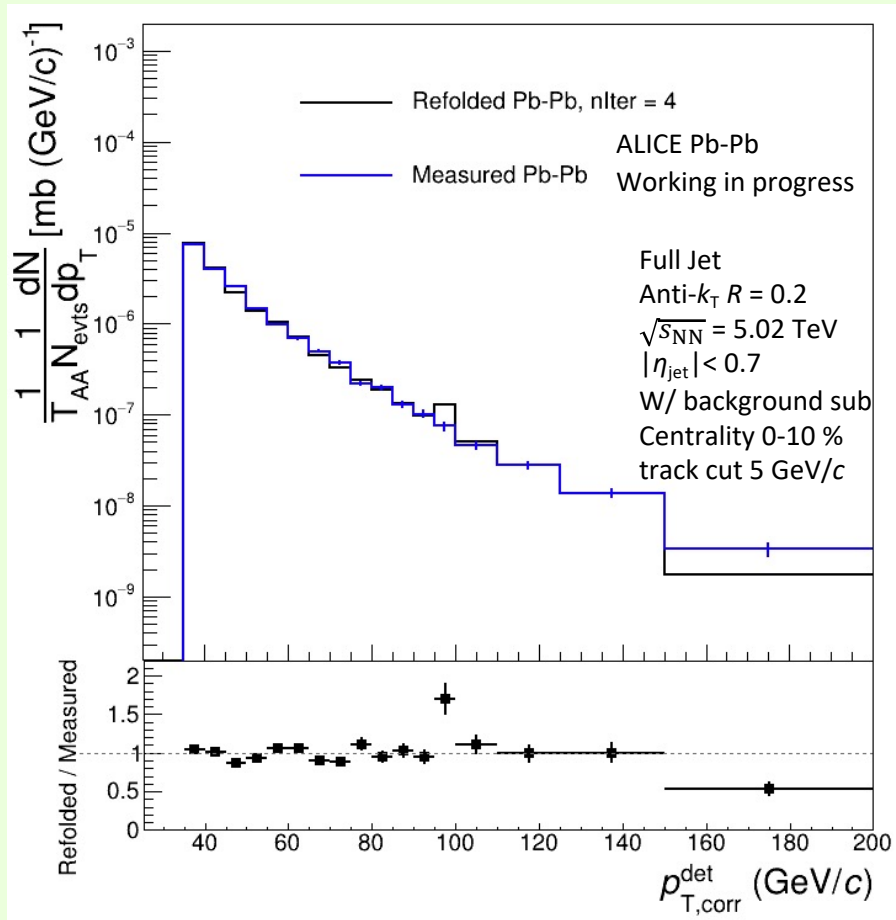


Bayse 0-10 %

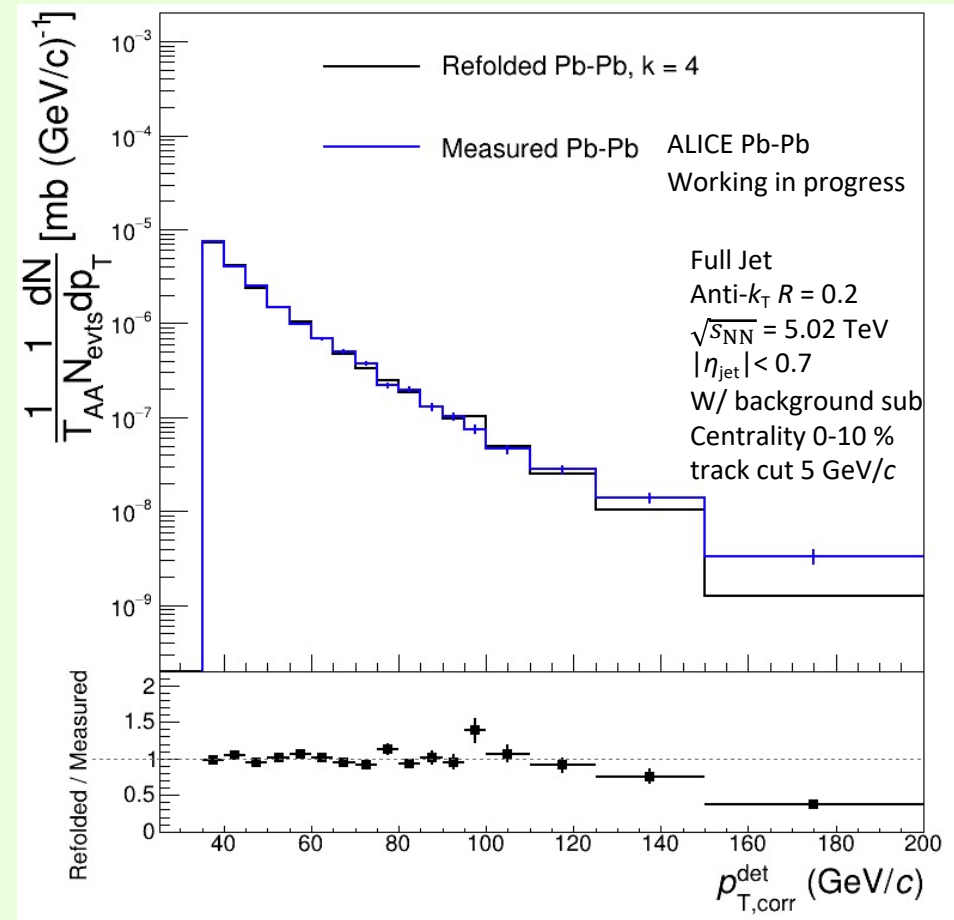


Two kinds Unfolding Comparison

Bayse



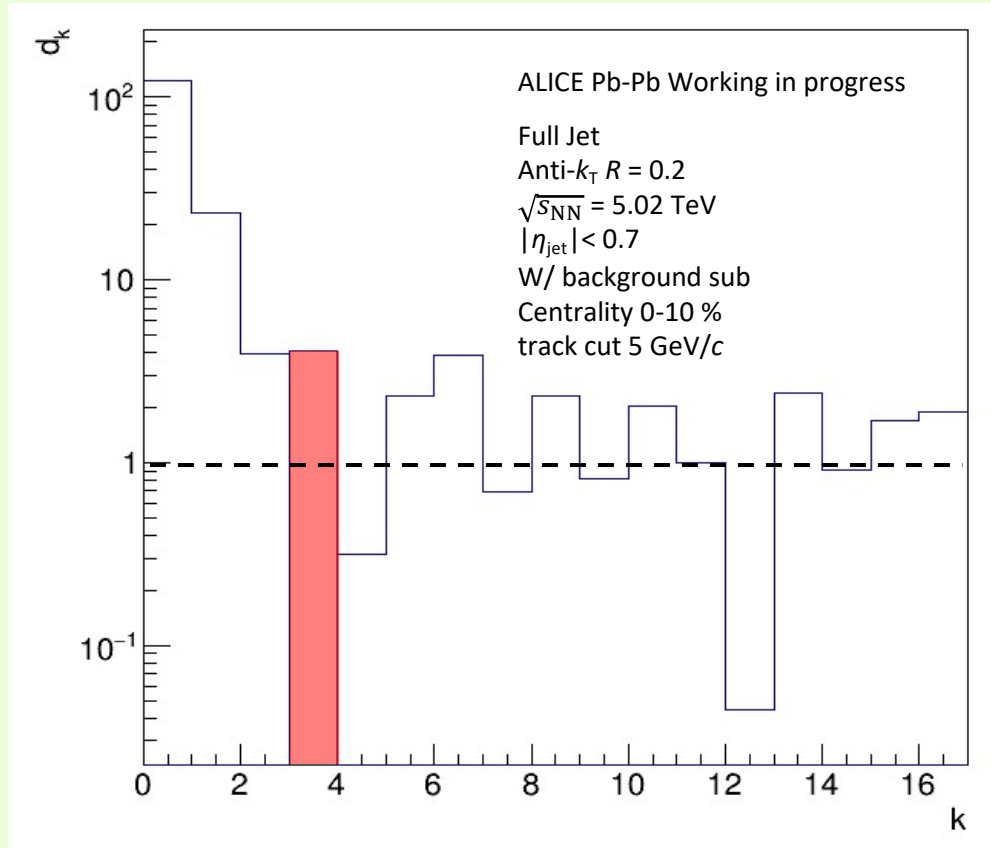
SVD



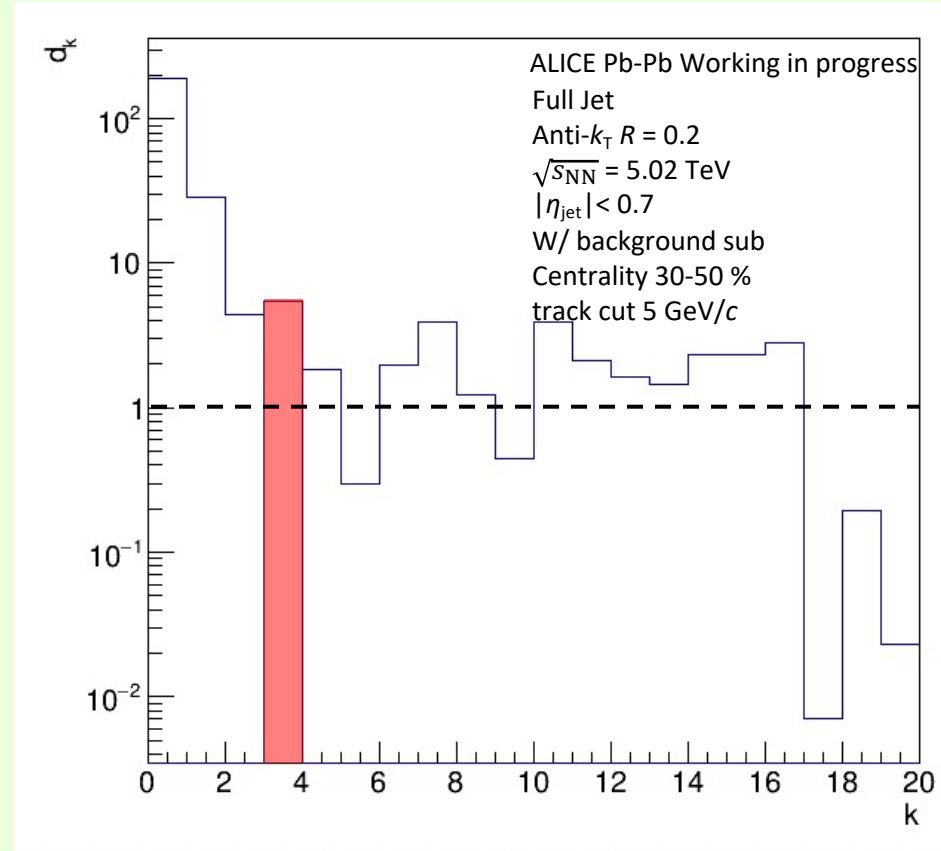
The results of the two kinds of the unfoldings methods should be matched.
 Mostly these results show the same results.

D-Vector of SVD unfolding

Cent 0-10 %



Cent 30-50 %

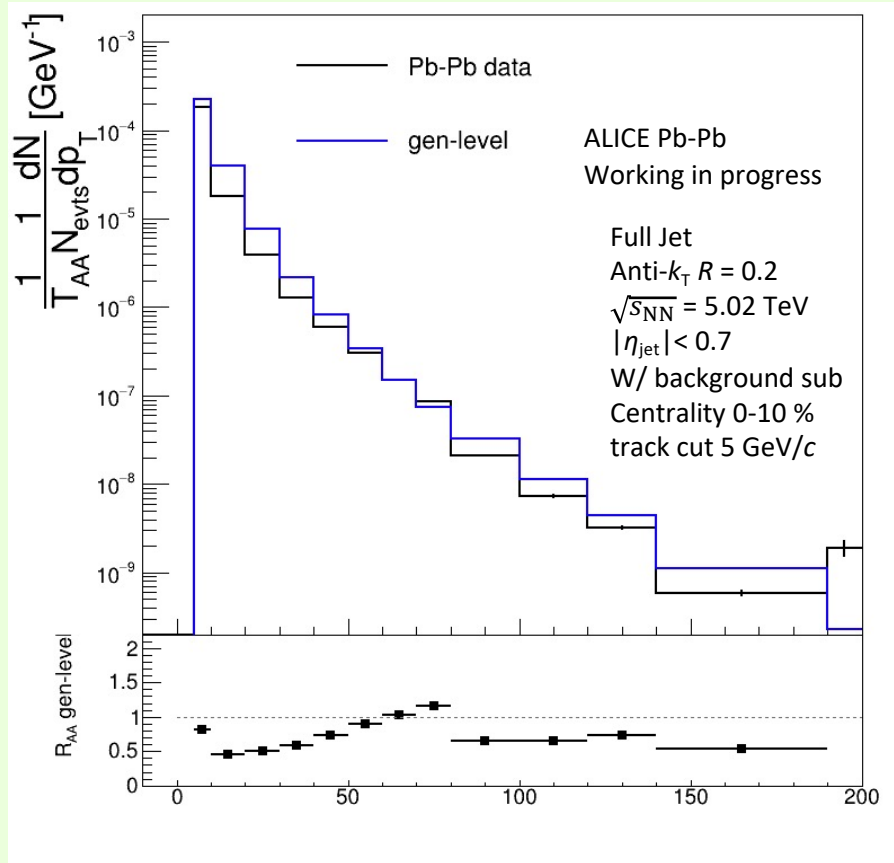


In SVD unfolding, we should select the regularization parameter k so that the d smaller than 1. And it is preferred that k is small.

Both results satisfy these requirements.

Test of R_{AA}

Comparison between the unfolded measured jet of Pb-Pb col and PHYIA generation level jet



Not multiply efficiency for the measured jet.

Between 50-80 GeV region, the R_{AA} is too large.

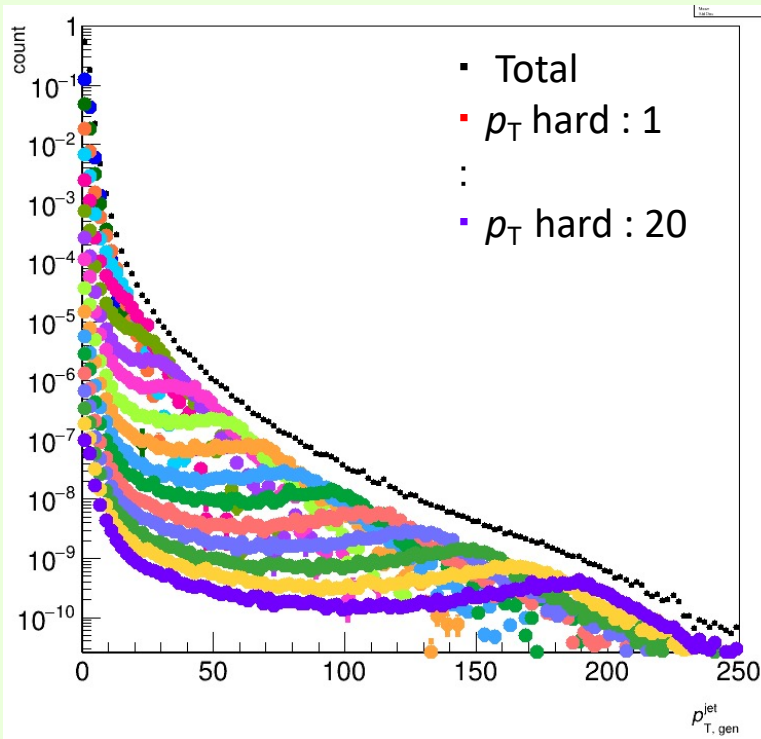
-> it is strange.

In this region, the efficiency near 1

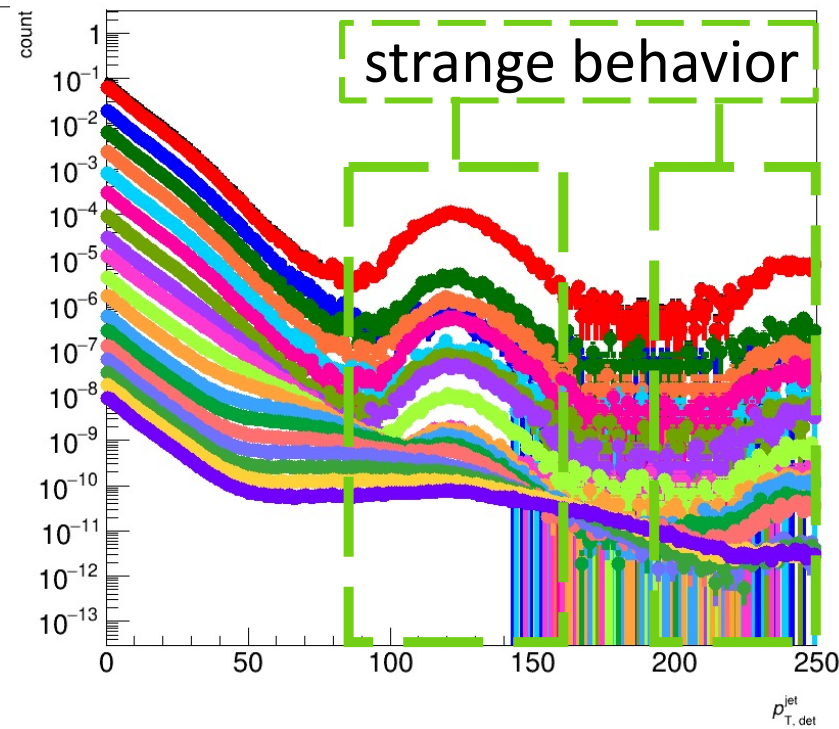
-> It feels not effective

Each p_T hard bin jet distribution

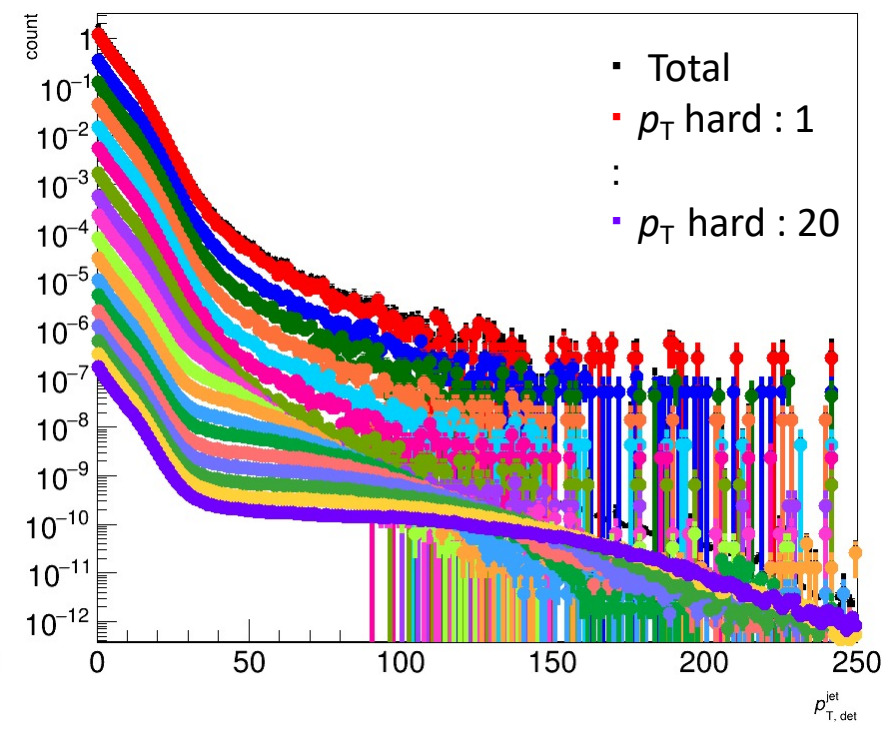
Generation



Hybrid(MC+Measured track)
charged jet



Hybrid(MC+Measured track)
Full jet



Next plan

- Write the analysis note
- Modify train code to reduce its memory (until the end of August)
- Run trains for each resolution parameters, leading track p_T cuts and charged jet (until the end of August)
- Estimate systematic uncertainty (until the end of September)

Backup Slides

