

Zvertex distribution for run25

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20250613 INTT MT**

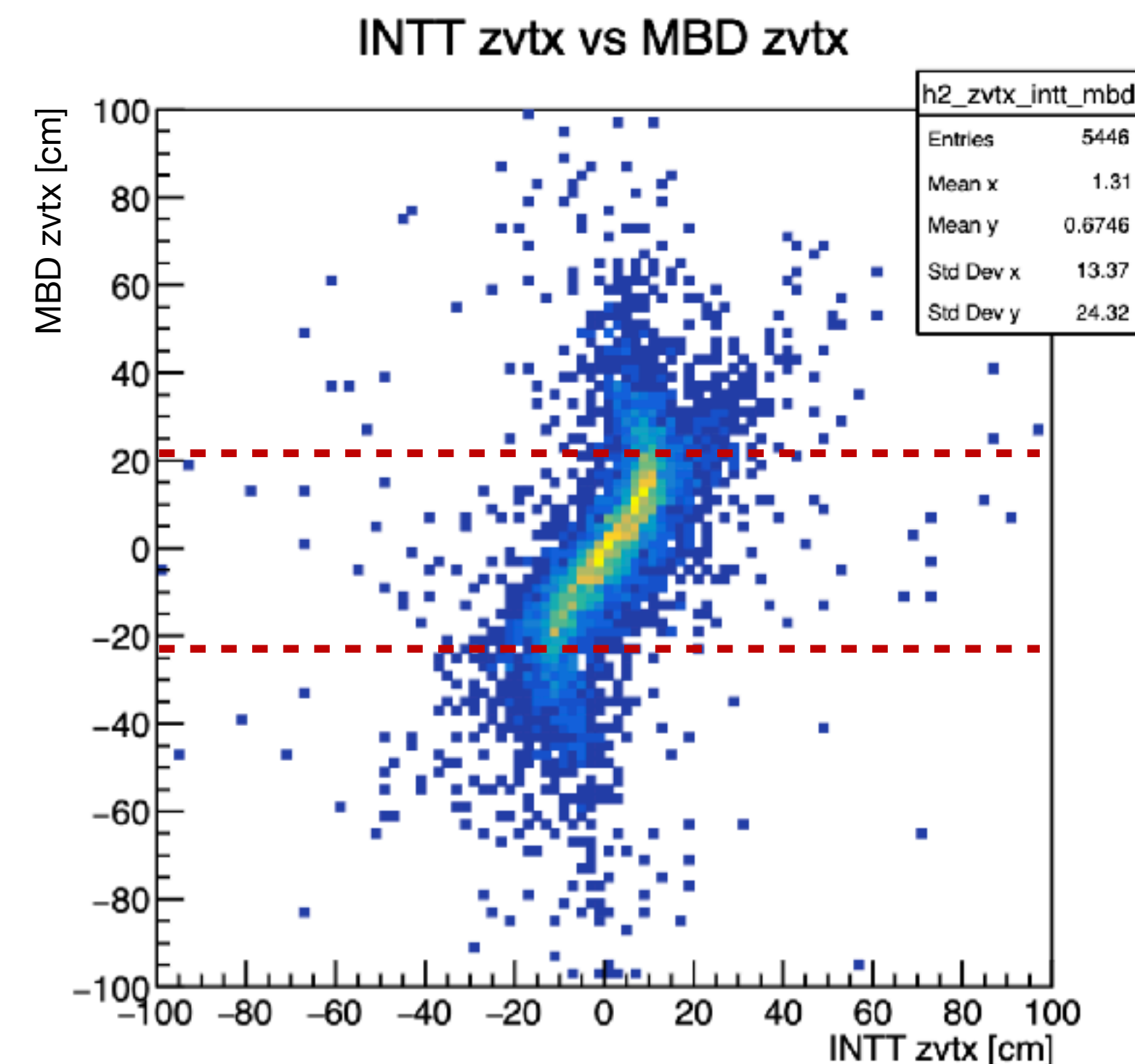
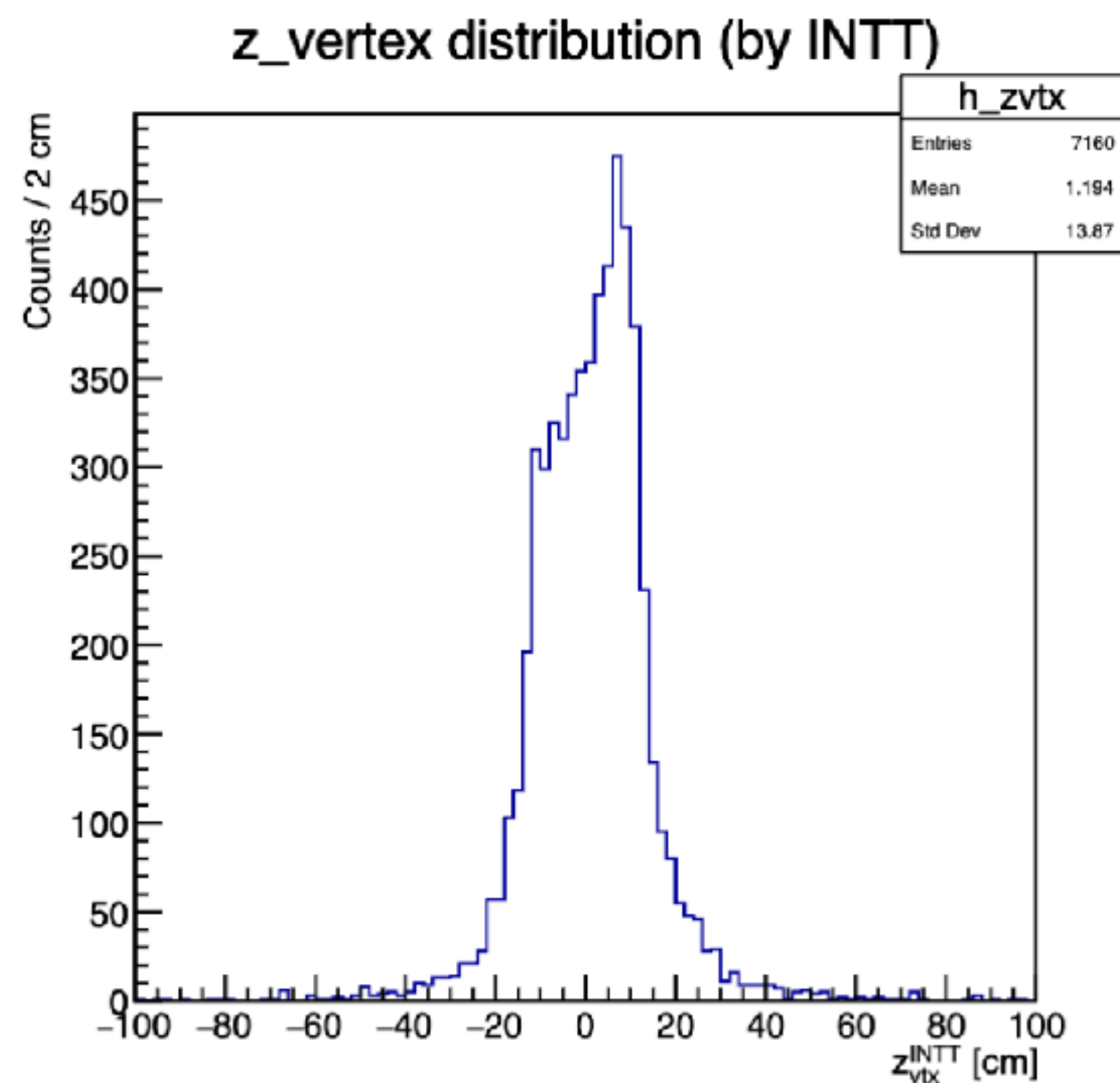
Overview

- This report summarizes the Zvertex distribution in run 25 data (run 66522).
 - Reconstructing Zvertex by INTT
 - Comparing with MBD Zvertex per event

Zvertex reconstruction

- The shape of the distribution (left plot) looks weird 🤔
- A correlation between INTT and MBD can be seen (right) within the INTT cover range.
- X, Y vertex is from INTTXYvertexfinder by Genki.

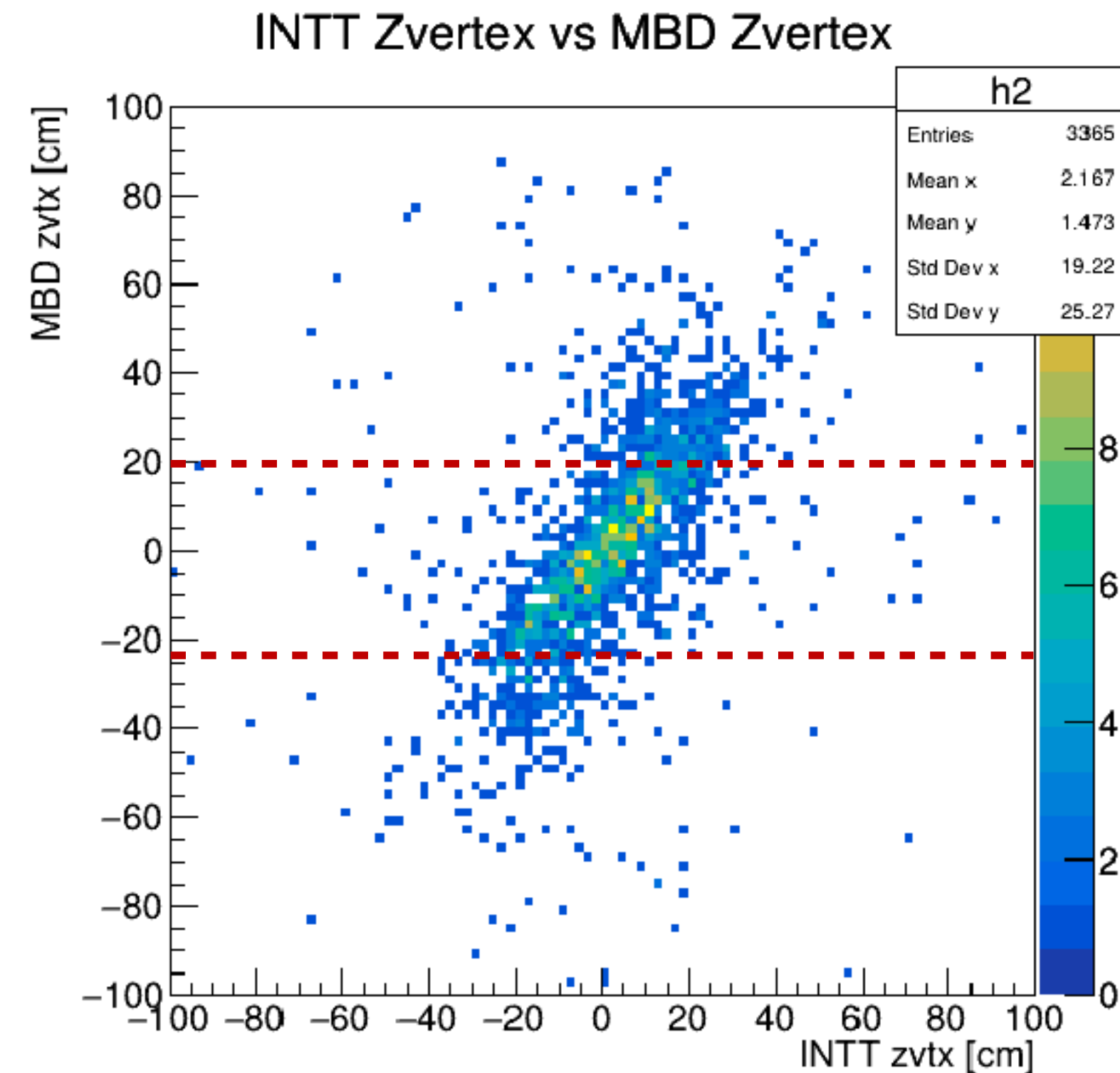
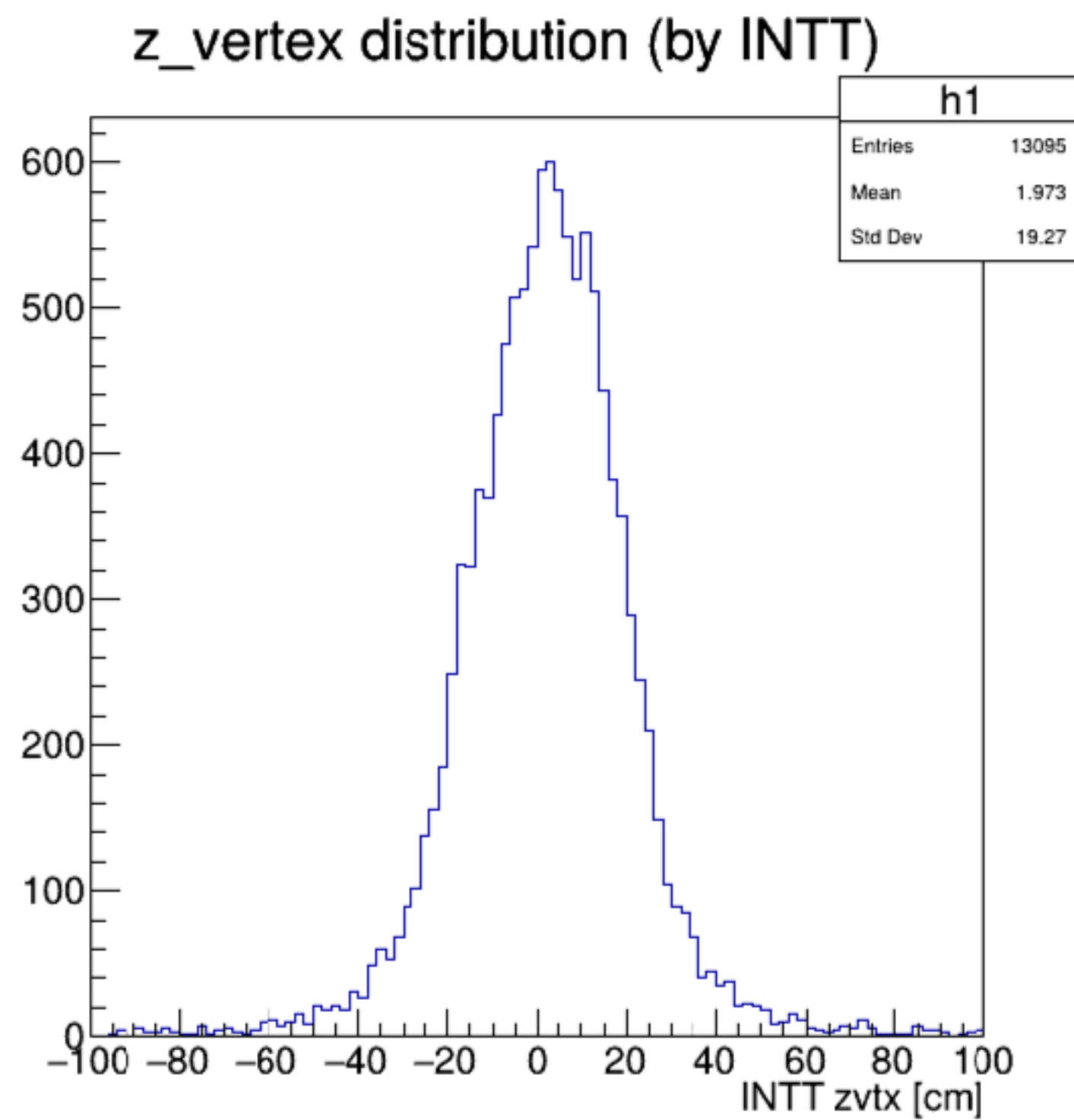
Run 66522, Au+Au, B-on,
10k evts, Ncluster > 5
(V_x,V_y) = (0.08, 0.28) (INTT vertex finder)



Zvertex reconstruction in low multiplicity

- The shape of the distribution (left plot) looks reasonable 🙄
- A liner correlation between INTT and MBD is observed.

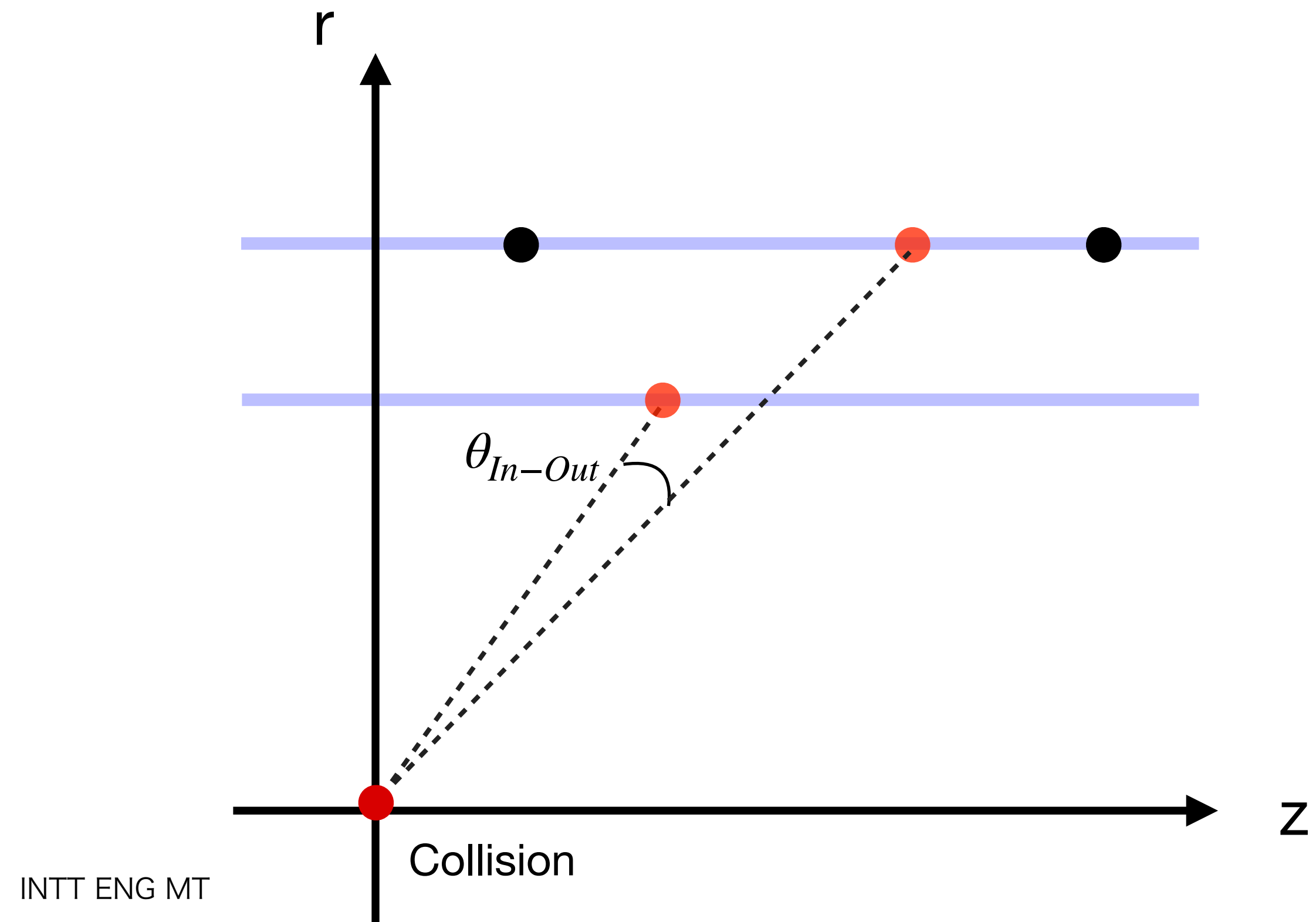
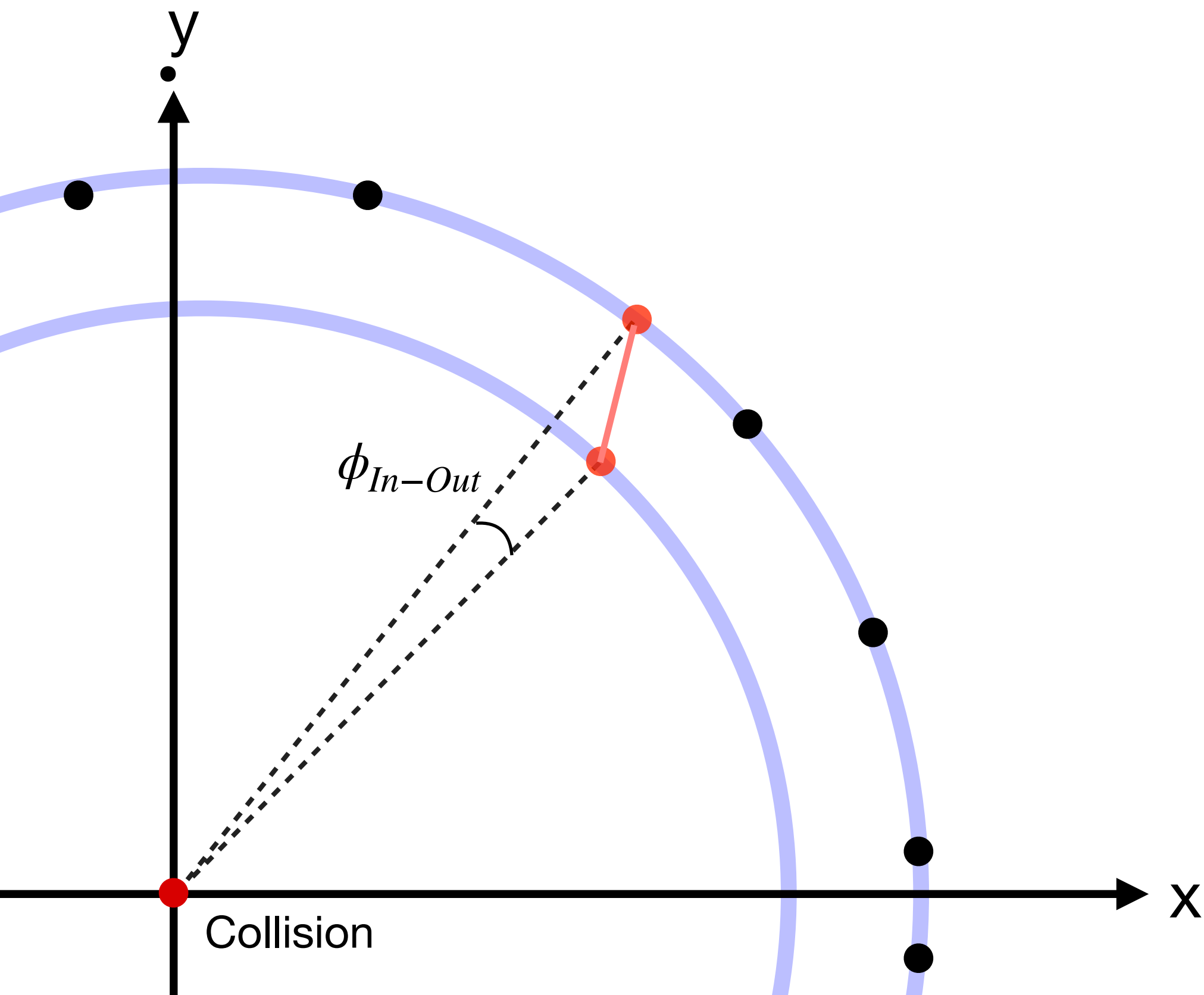
Run 66522, Au+Au, B-on,
10k evts, $5 < N_{cluster} < 500$
 $(V_x, V_y) = (0.08, 0.28)$ (INTT vertex finder)



- The method works well in low multiplicity events.

Zvertex reconstruction with $d\theta$ cut

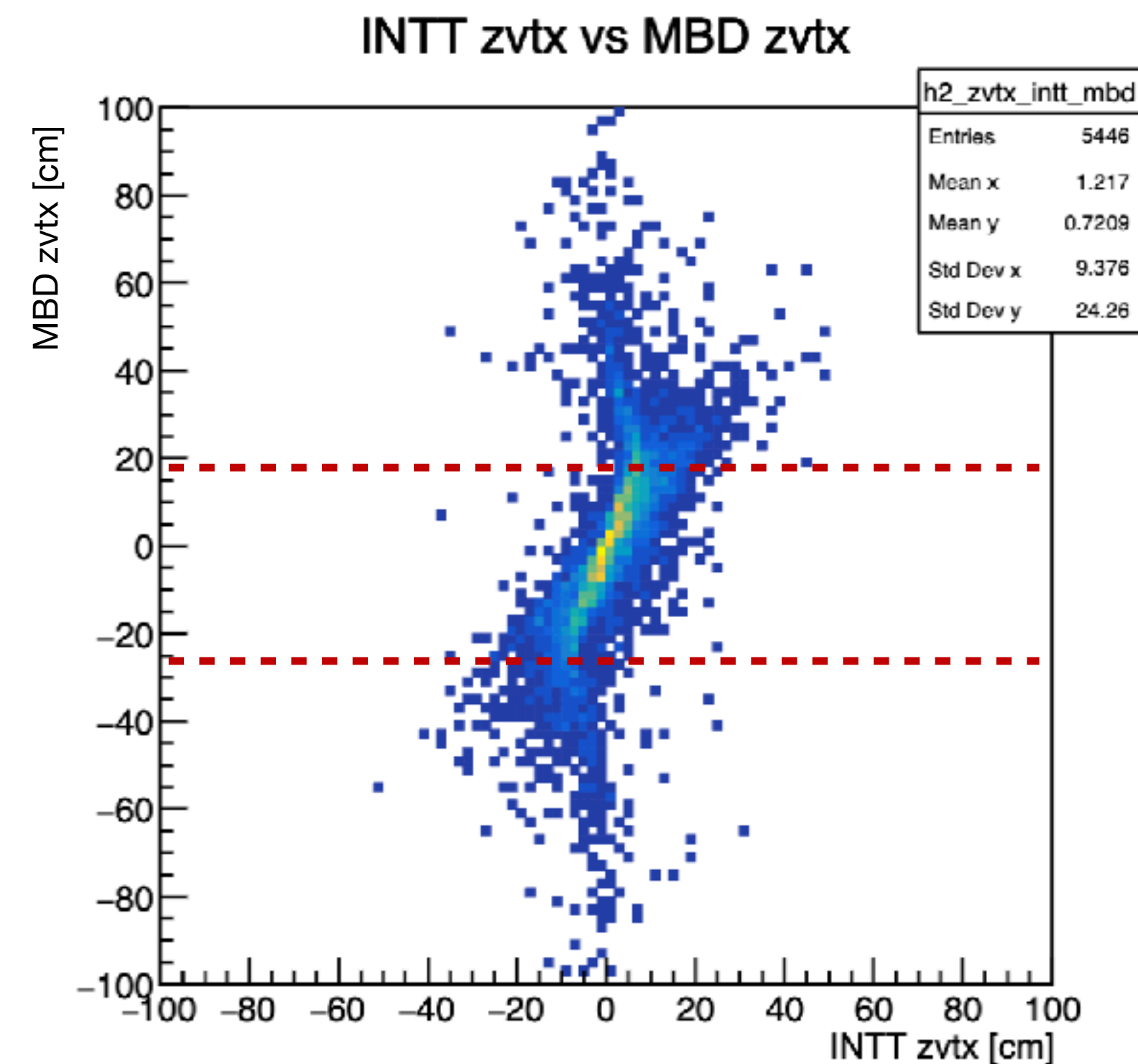
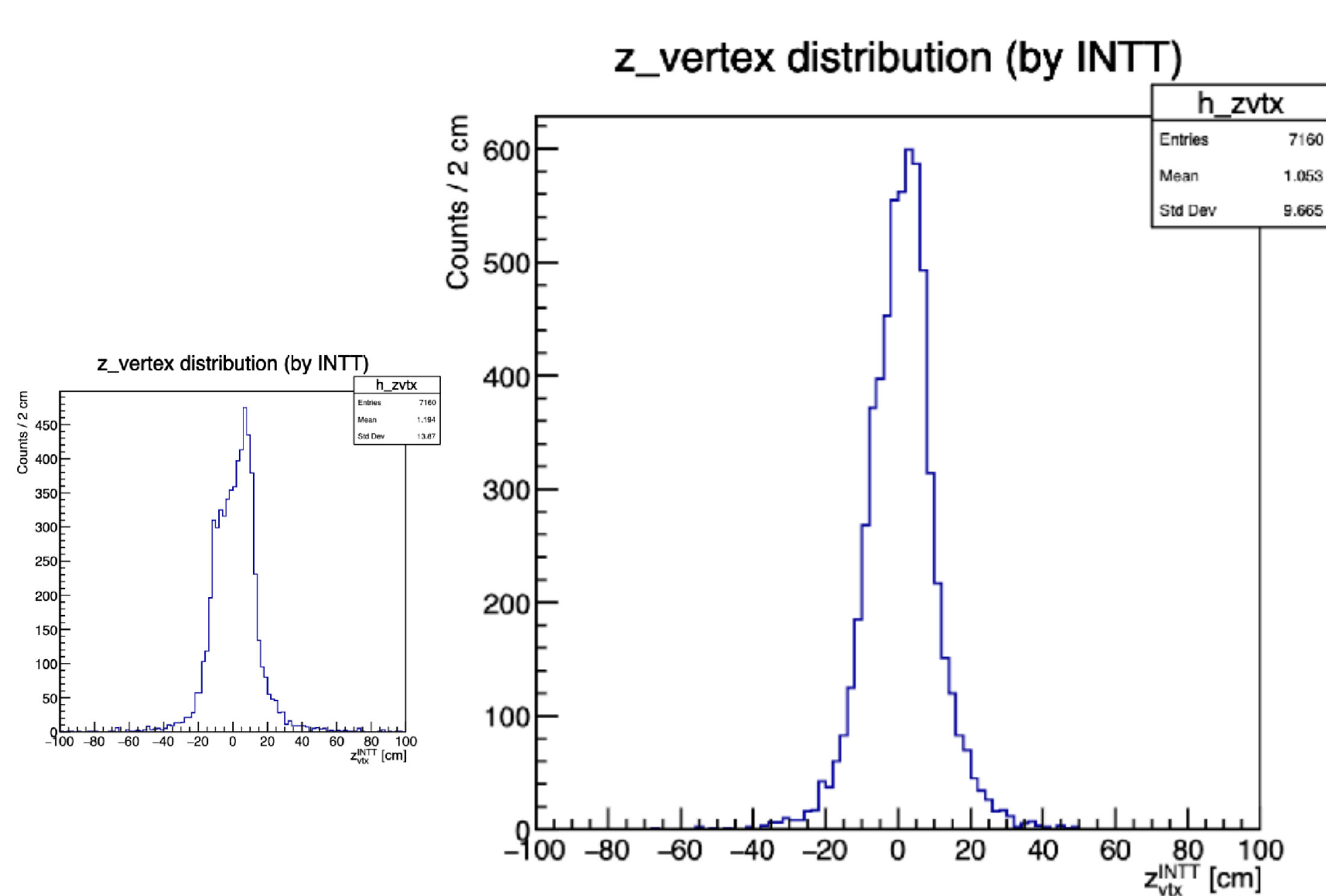
- Added a $d\theta$ cut when selecting cluster pairs... I used only $d\phi$ cut before.
 $d\phi < 0.02$, $d\theta < 0.4$,
- GOOD : It helps reduce the selection of wrong cluster pairs.



Zvertex reconstruction

- The distribution shape looks improved than before 🙄.
- However, the correlation of INTT and MBD still looks weird...
- X, Y vertex is from Silicon seeding by Jaein.

Run 66522, Au+Au, B-on,
10k evts, Ncluster > 5
(Vx,Vy) = (-0.0857, 0.1349) (Silicon seeding)



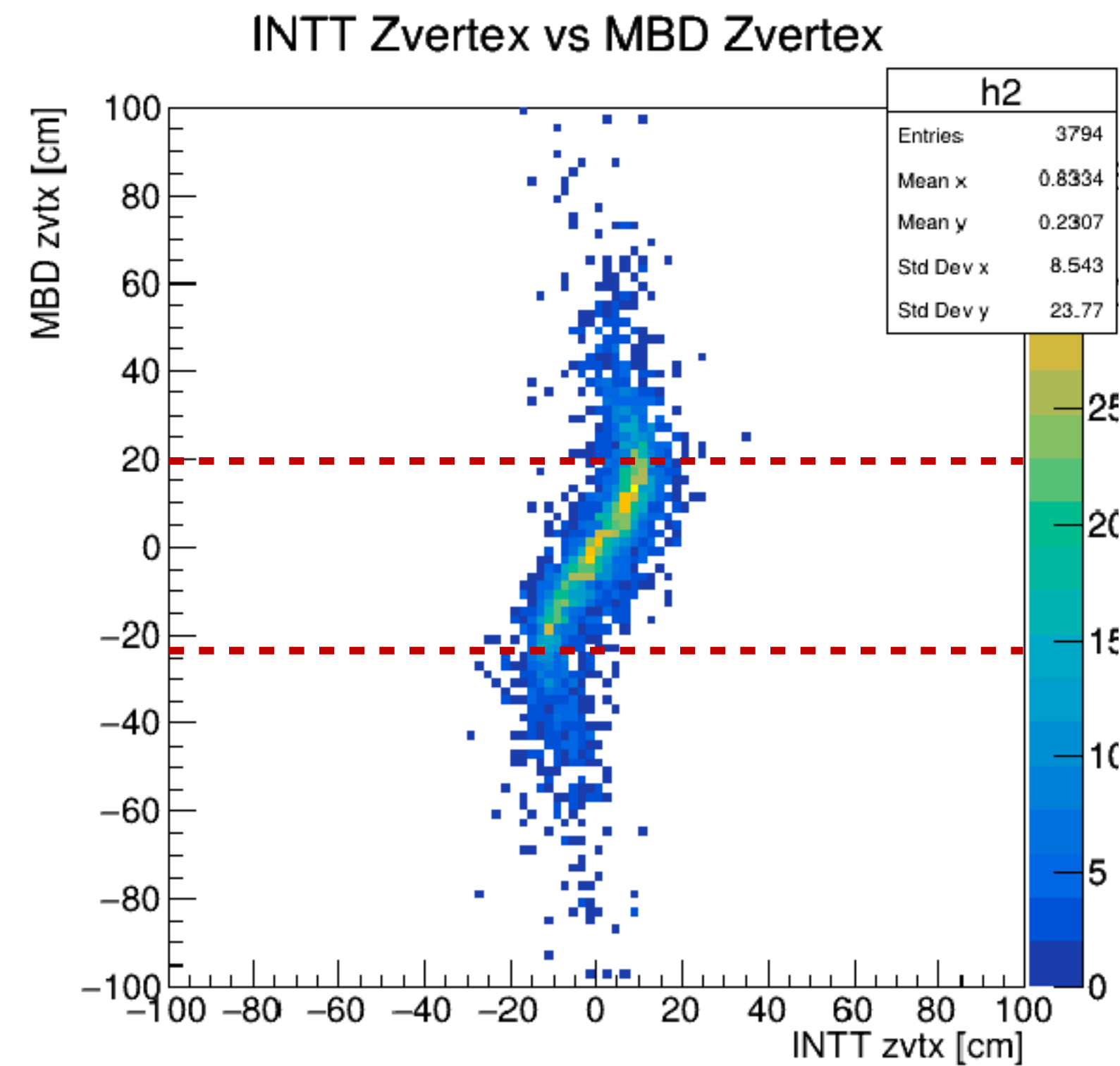
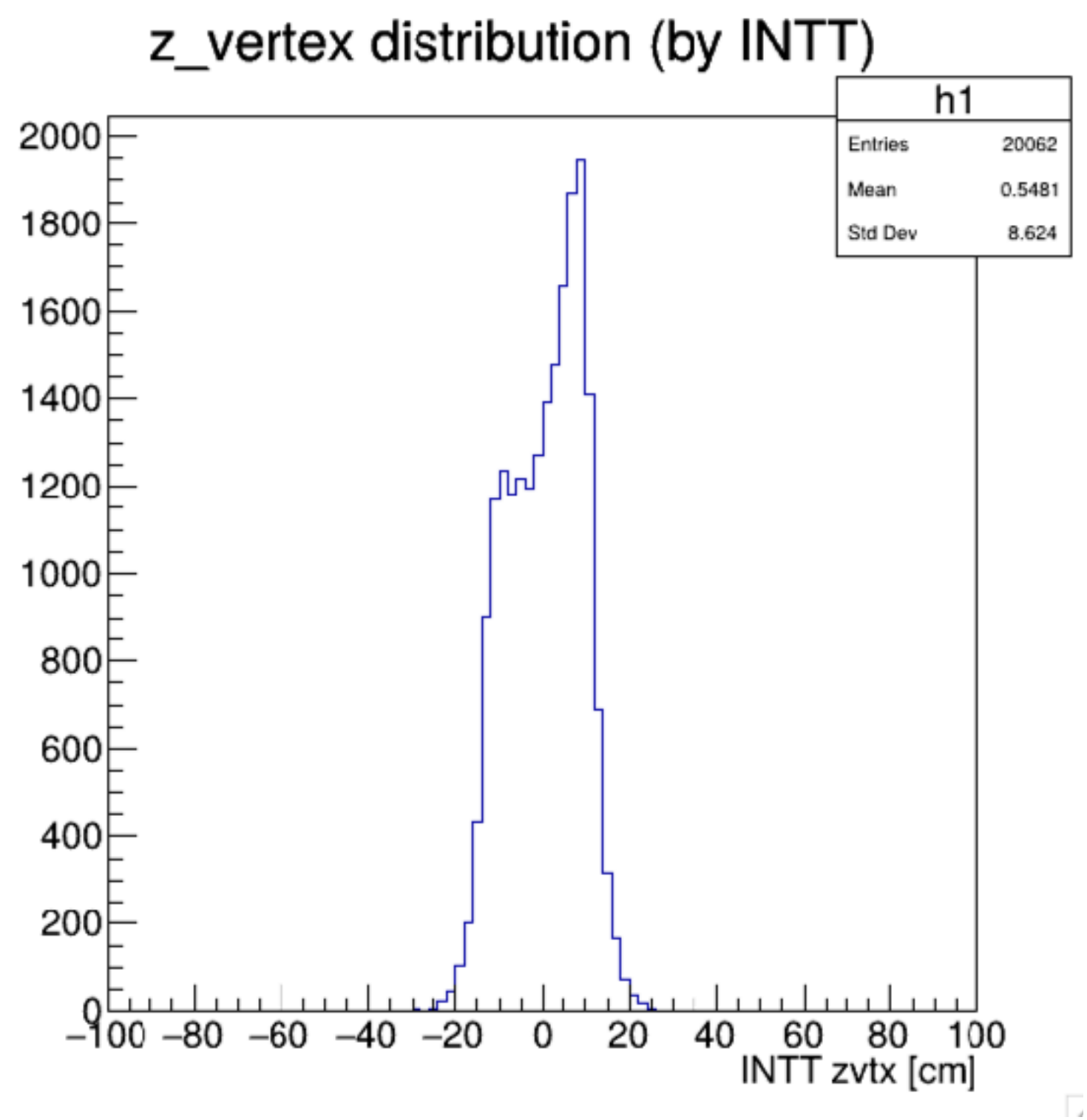
Summary

- We reconstructed the Zvertex by INTT for run25.
- It works well in low multiplicity events. In high multiplicity events, the shape of the Zvertex distribution and the INTT-MBD correlation in the outside of INTT cover range looks weird...
- I will check how this method performs in Au+Au simulation data...(on going)
- Thank you for your help, especially Genki and Jaein!
Any comments and ideas are welcome!

Back Up

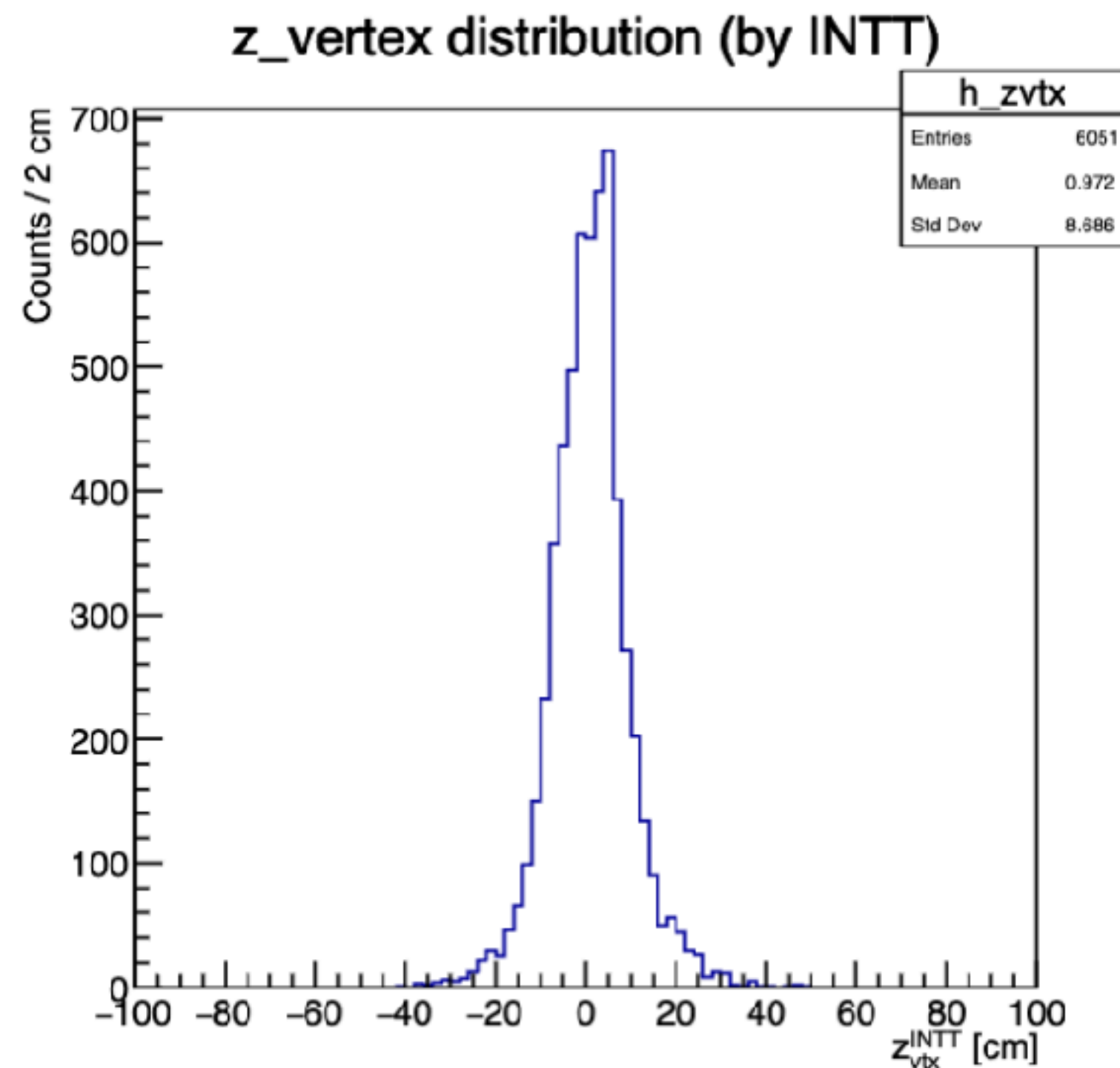
Zvertex reconstruction in hi multiplicity

Run 66522, Au+Au, B-on,
10k evts, Ncluster > 500
(Vx,Vy) = (0.08, 0.28) (INTT vertex finder)



Zvertex reconstruction with trigger cut

- Used only the events from MBD trigger (MBD N&S ≥ 2 , vtx < 150 cm)
- Shape of the distribution is not changed...



**Run 66522, Au+Au, B-on,
10k evts, Ncluster > 5
(Vx,Vy) = (-0.0857, 0.1349) (Silicon seeding)**

dPhi, theta

- aaa

