

signal reconstruction(${}^3_{\Lambda}H$) in Run2020 FXT Au-Au 5.2GeV

yulou

PID for he3&he4 (5.2GeV)

Event selection:

$198 < V_z < 202 \text{ cm}$

$$\sqrt{(V_x + 0.3) * (V_x + 0.3) + (V_y + 2) * (V_y + 2)} < 2$$

Trigger: 750000

Badrun: 21034002, 21034007

Track quality:

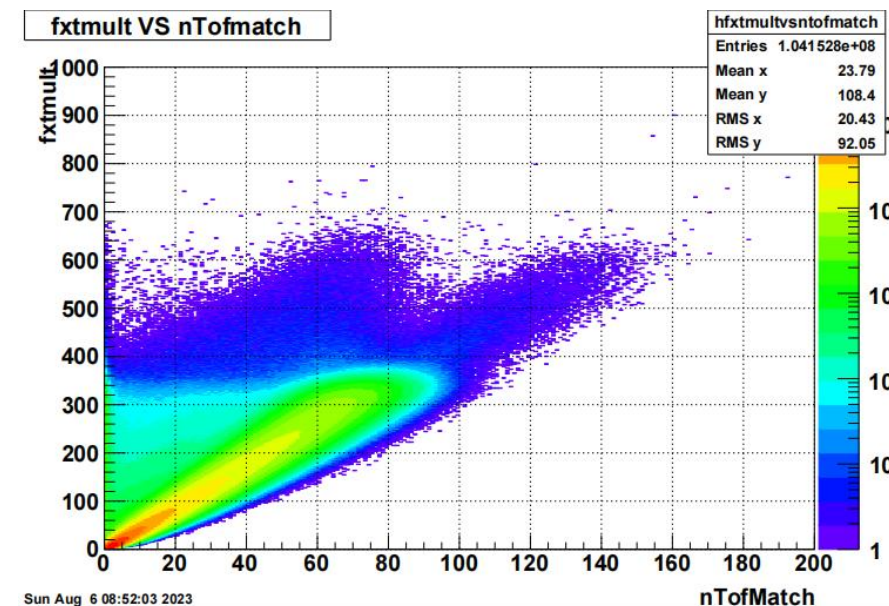
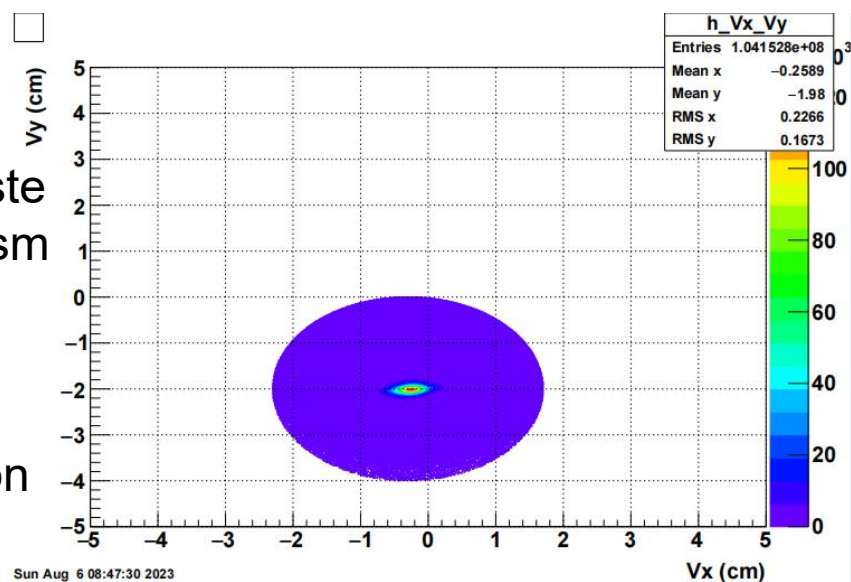
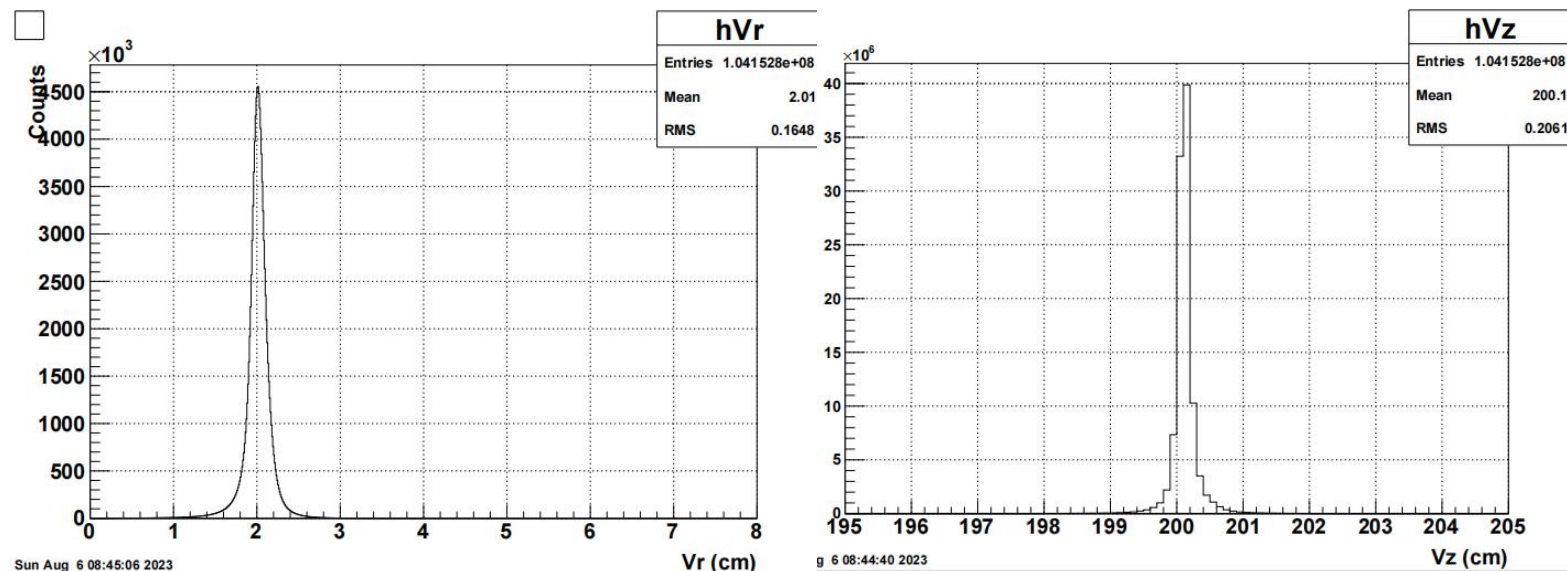
$n\text{HitsFit} > 15$ $N\text{HitsFit2Poss} > 0.52$

Centrality definition:

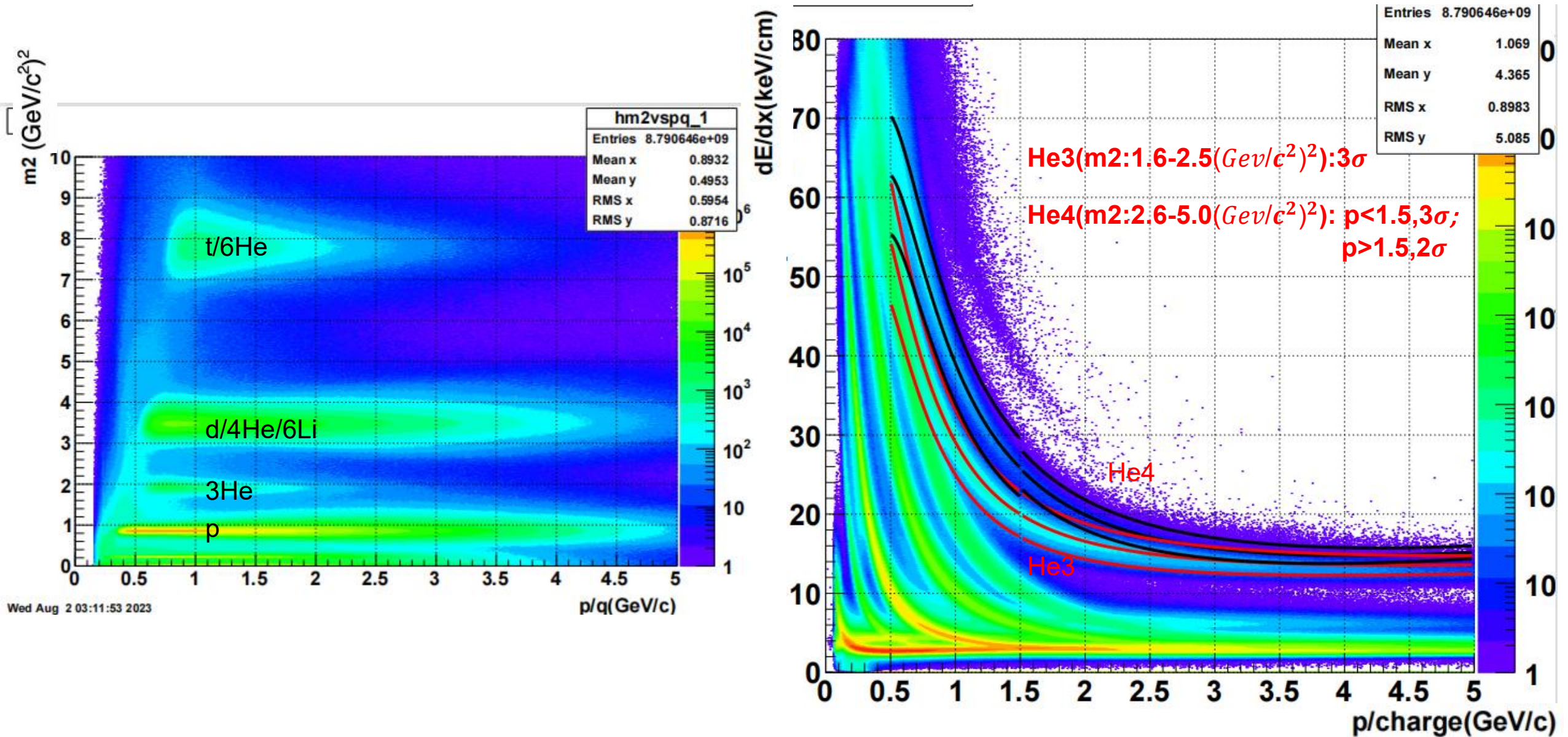
https://drupal.star.bnl.gov/STAR/system/files/20220620xli_lfsupc_analysismeeting.pdf

Total events: ~51M no rotation

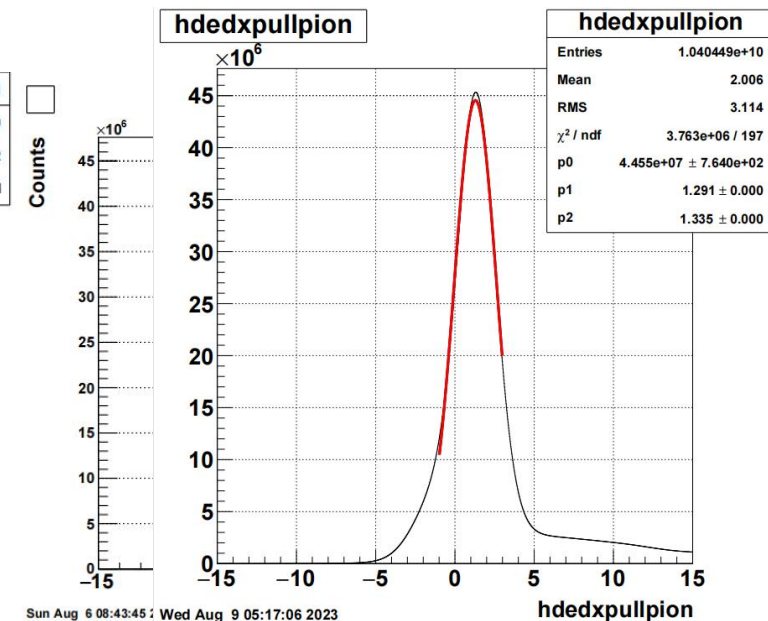
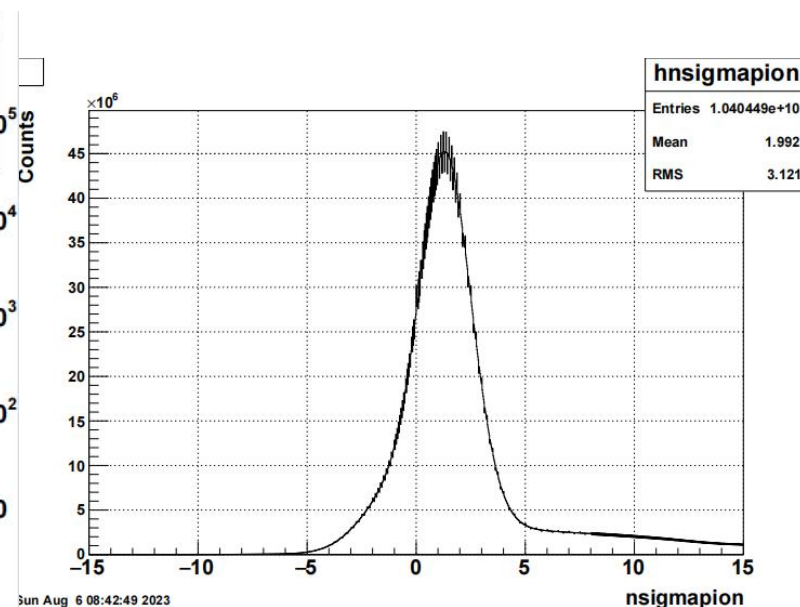
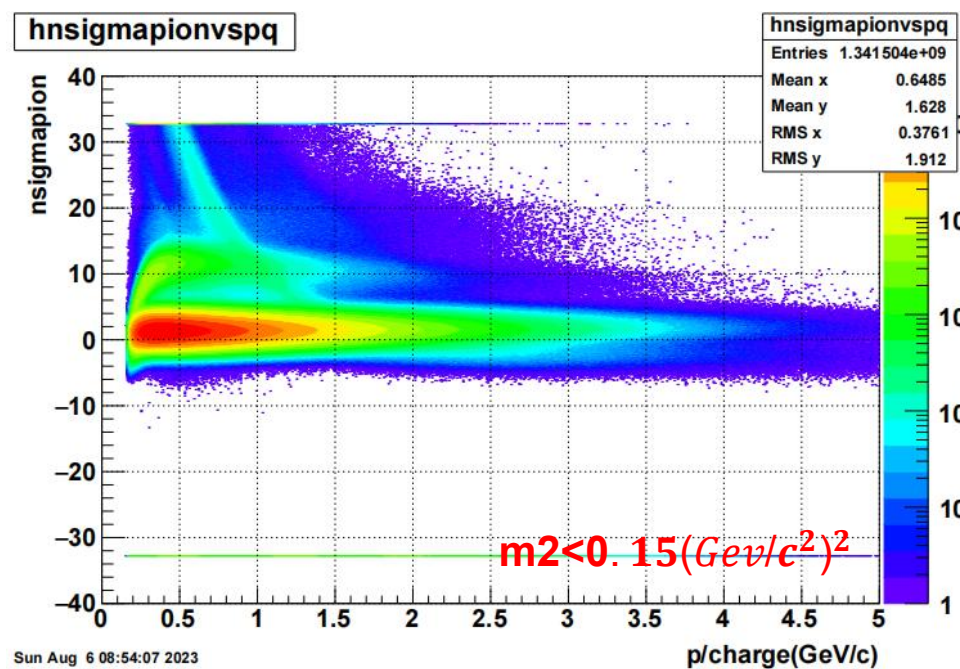
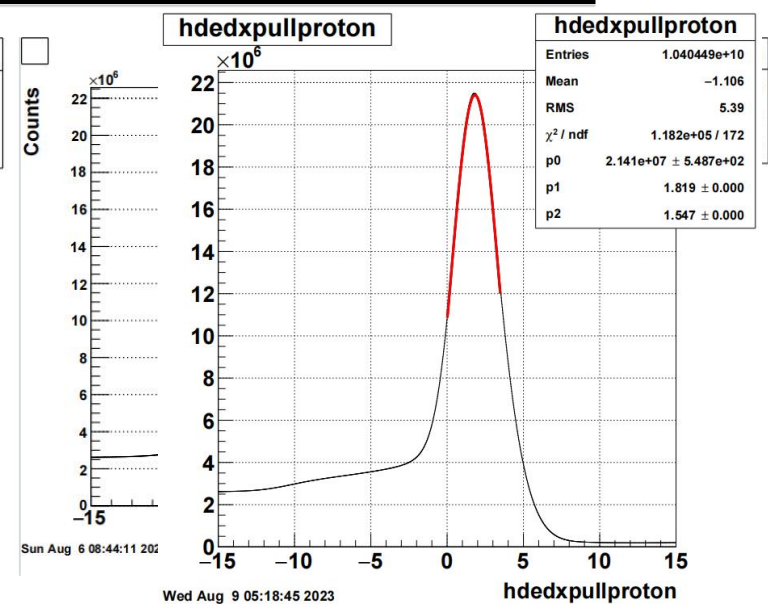
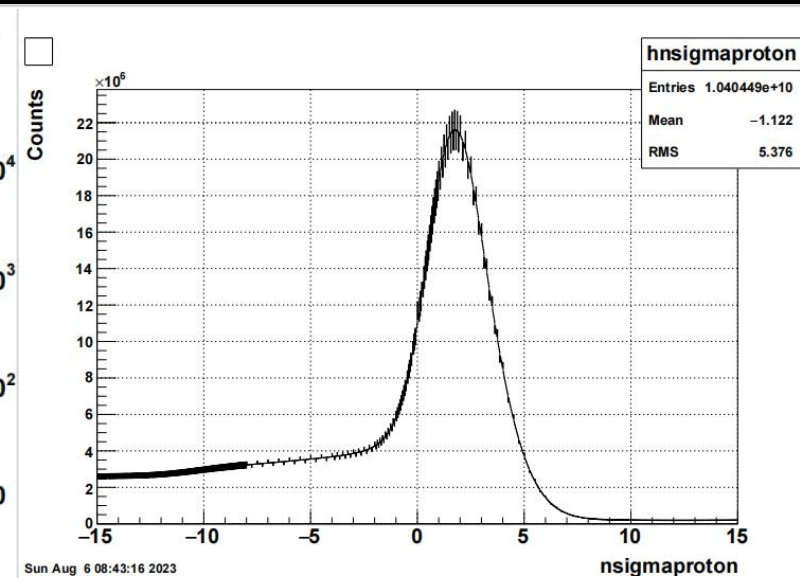
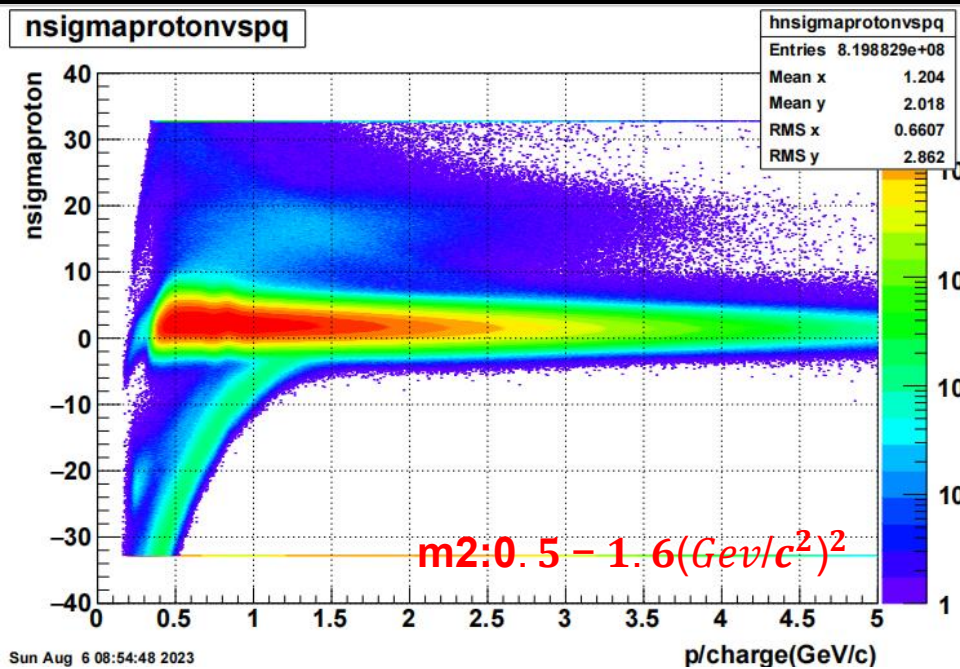
Total events: ~94M with he3 rotation



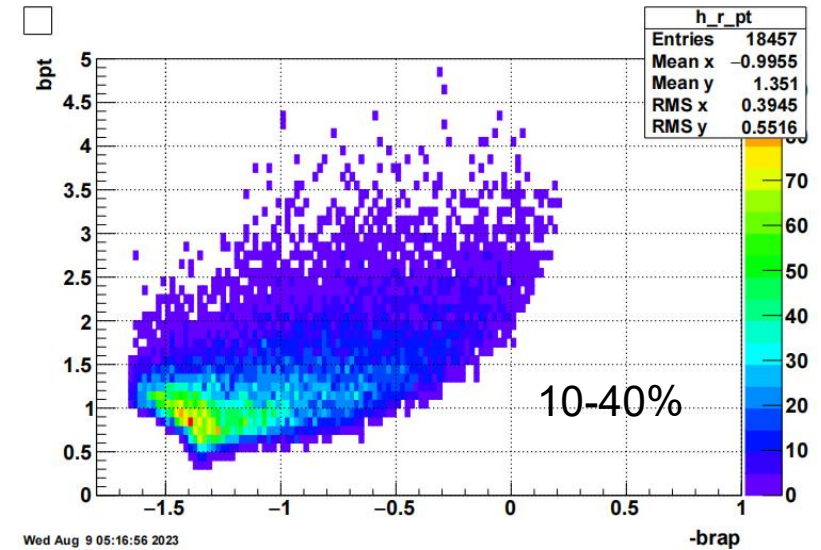
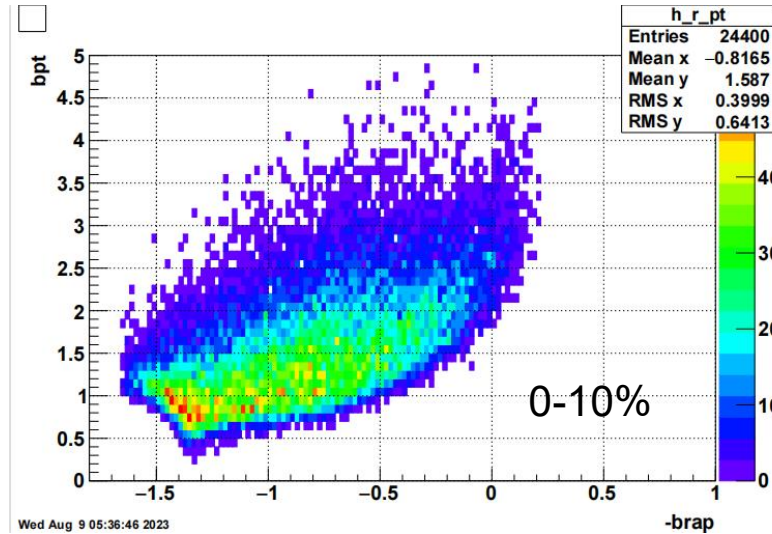
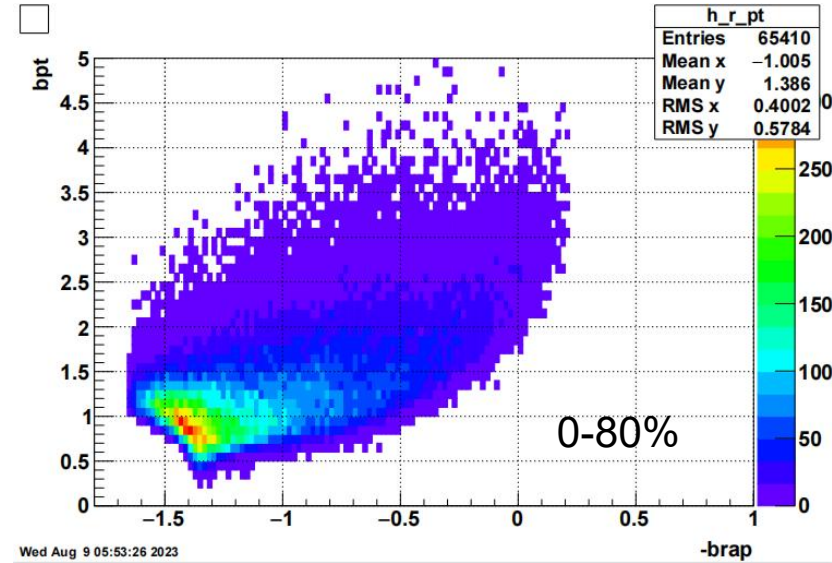
PID of he3&he4 (5.2GeV)



nsigma shift of proton&pion (5.2GeV)



H3L acceptance (5.2GeV)



H3L signal reconstruction (5.2GeV)

Analysis cuts(no tuning):

0-80%&0-10%

$l > 1, |l| > 3$

$\chi^2_{\text{topo}} < 5.5,$

$\chi^2_{\text{ndf}} < 4$

$\chi^2_{\text{primary_pi}} > 3$

$\chi^2_{\text{prim_he}} > 1$

10-40%

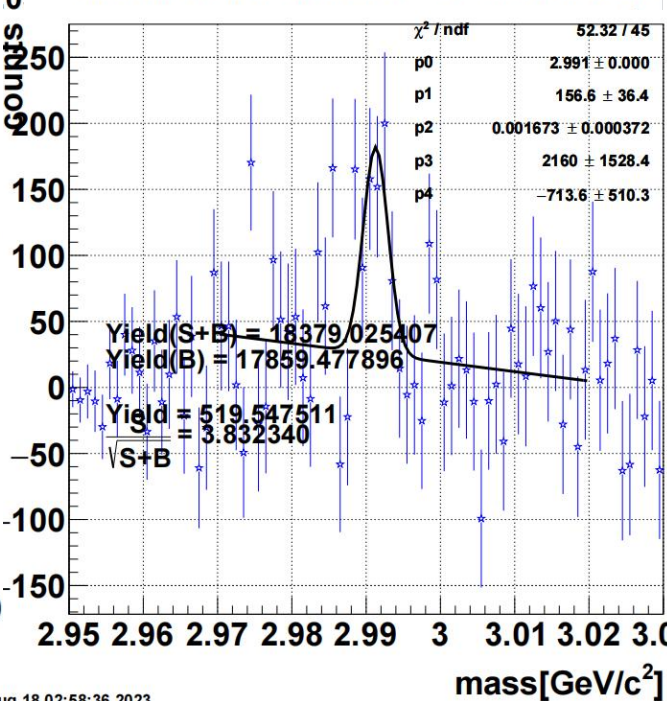
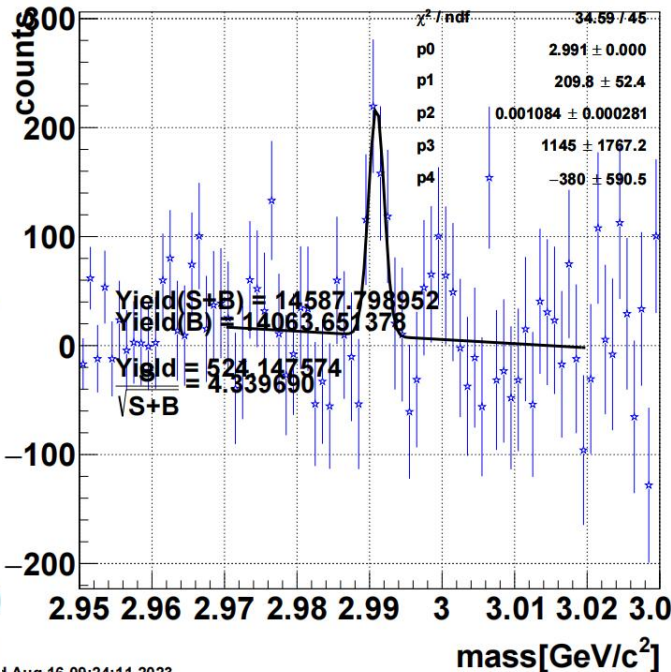
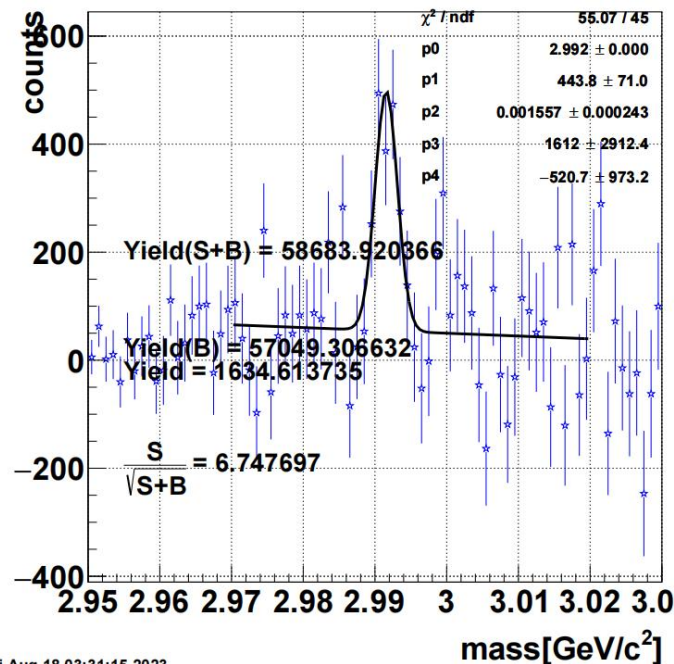
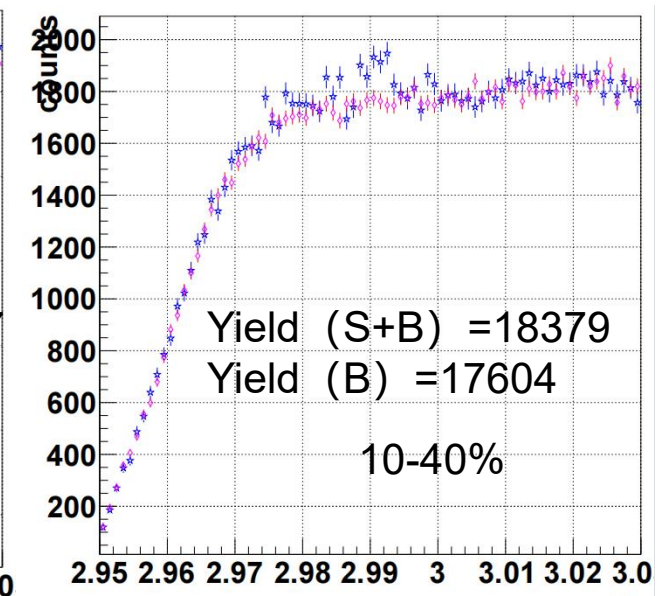
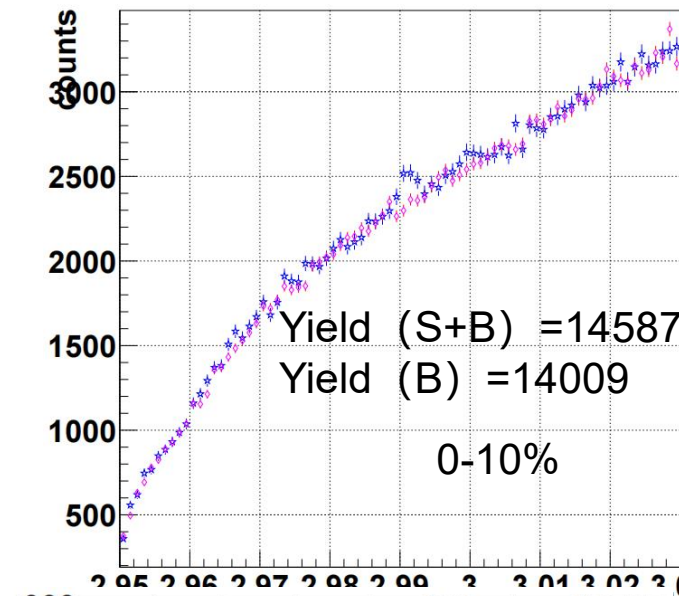
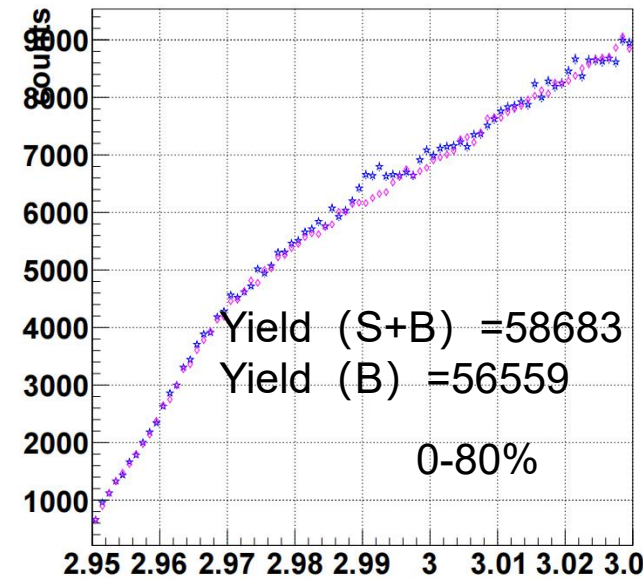
$|l| > 3, |l| > 5,$

$\chi^2_{\text{topo}} < 3.5,$

$\chi^2_{\text{ndf}} < 3.5,$

$\chi^2_{\text{prim_pi}} > 12,$

$\chi^2_{\text{prim_he}} > 1$

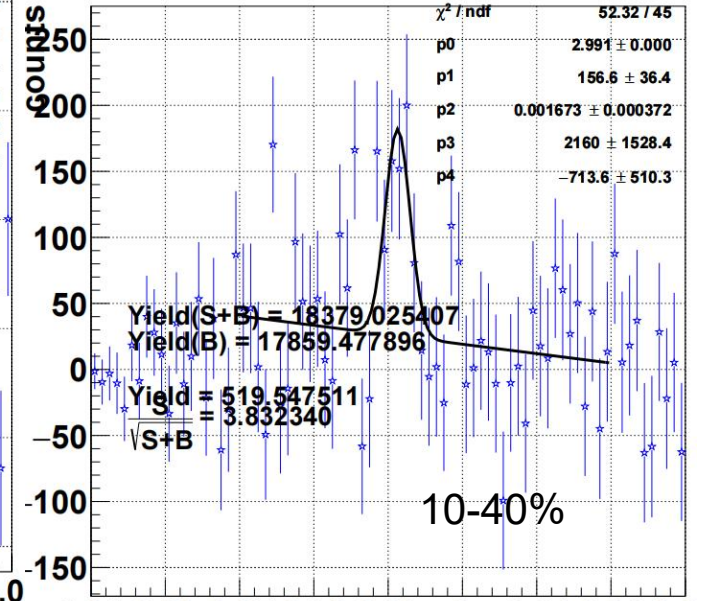
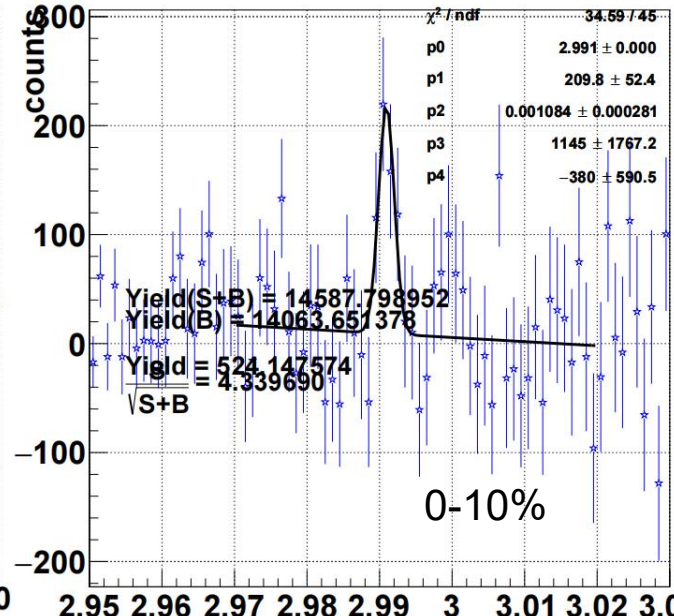
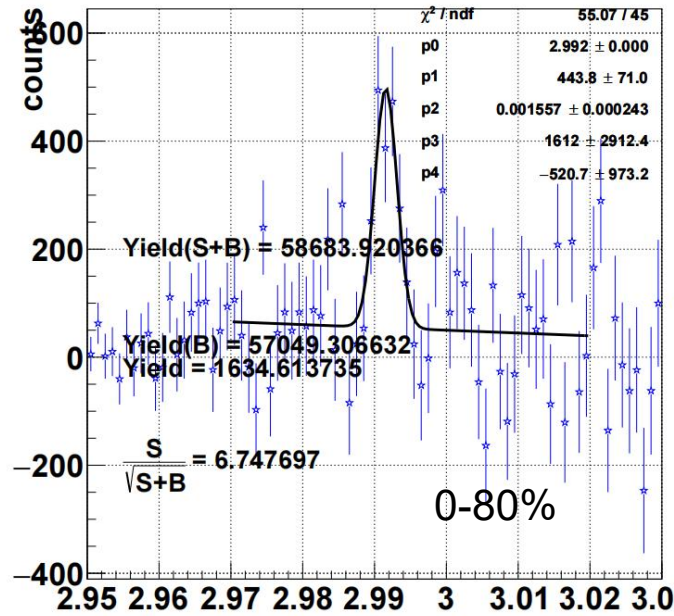


3 σ 区间

H3L signal reconstruction (5.2GeV)

3 σ 区间

once rotation



multiple rotation

