

# HMS Cer Update 2023/05/25

Ran calibration on more runs around the regions with strange behaviour.

Came up with 4 regions with different calibrations I've updated the standard.database and pushed changes to github.

I'll also show some examples of before and after, comparing with online.

# New Parameters

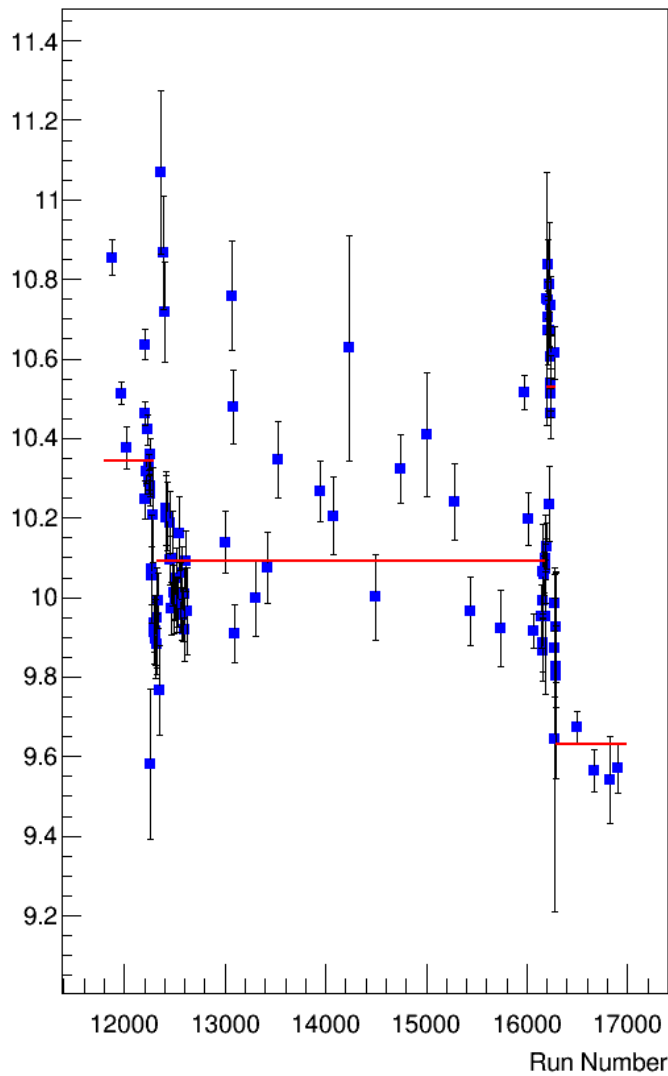
There are 4 regions.

Notice the very small one at the significant deviation around 16000

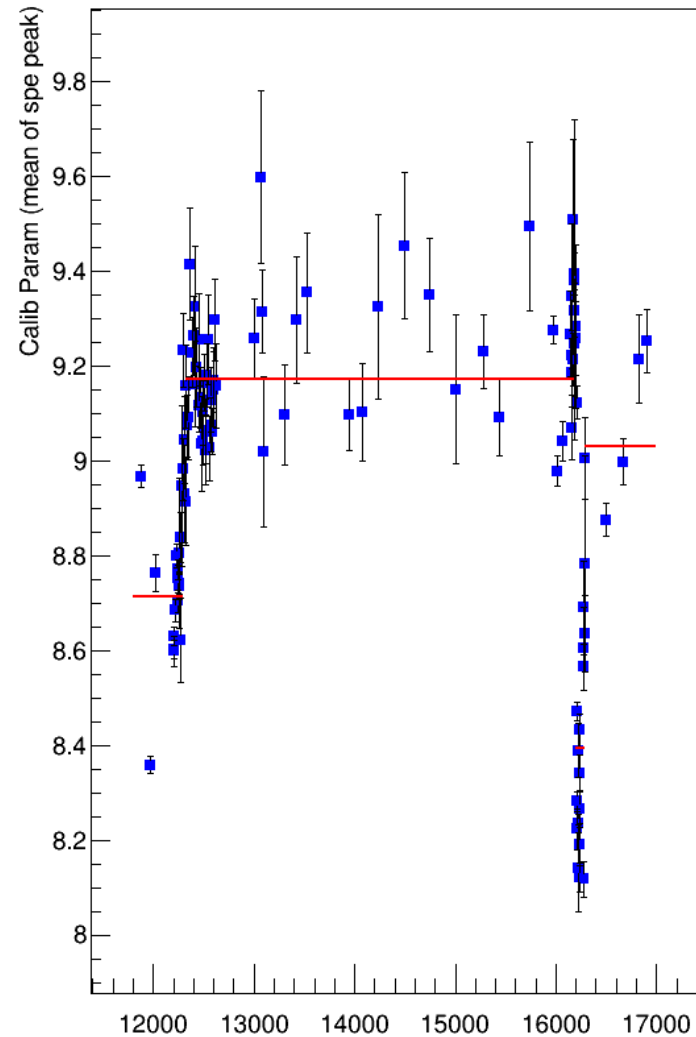
I made the break points fall on the end of settings.

online had 10.17, 9.4

PMT1



PMT2



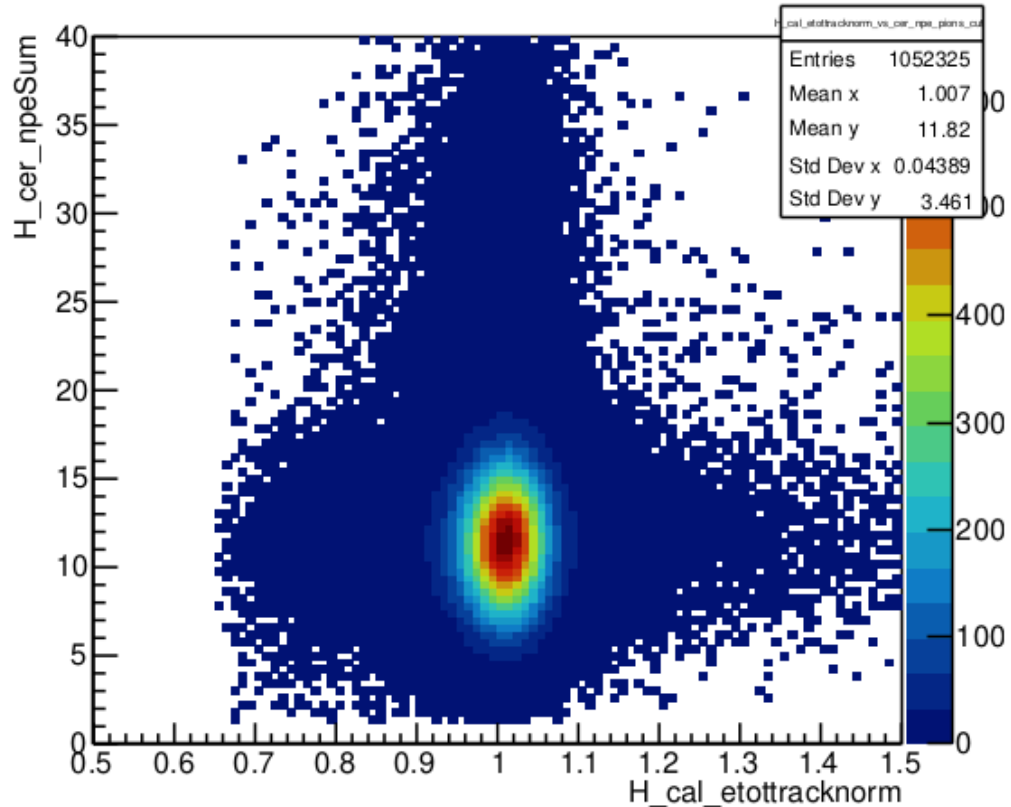
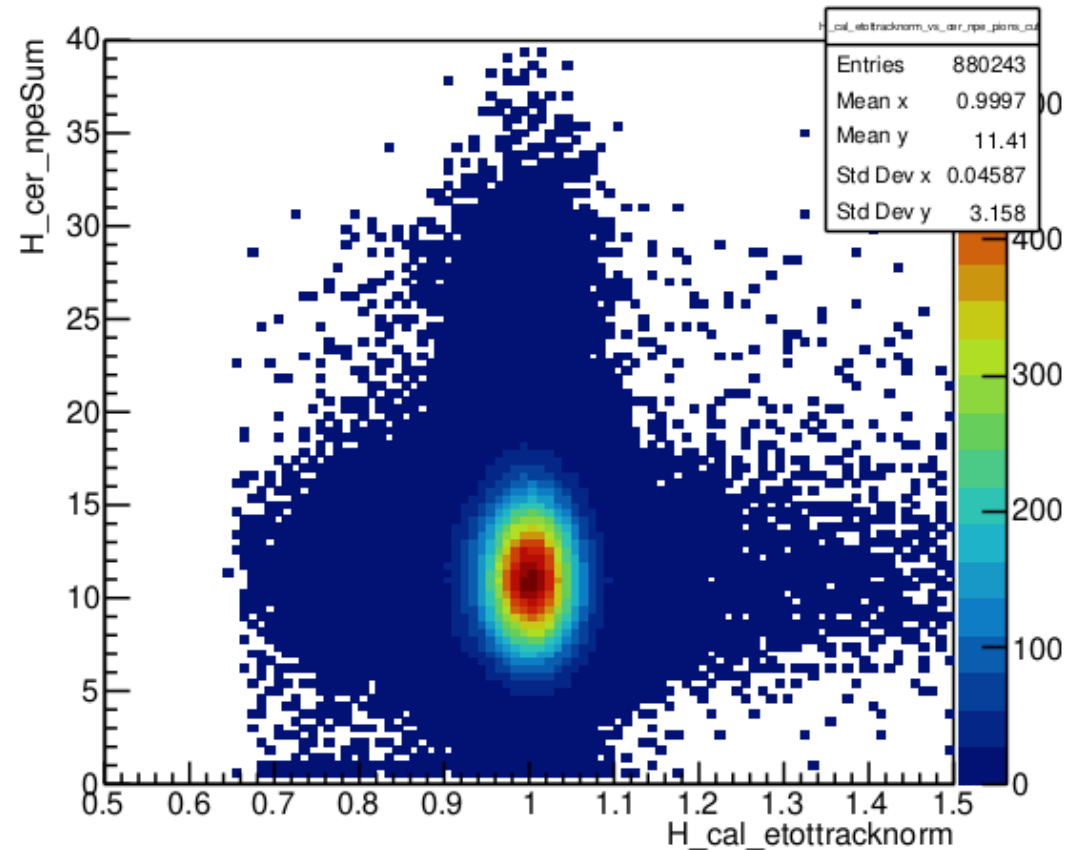
# $Q^2$ 1.60 W 3.08 center high $\varepsilon$ LH+

Online

Offline

HMS cal etottracknorm vs HMS cer npeSum (with cuts)

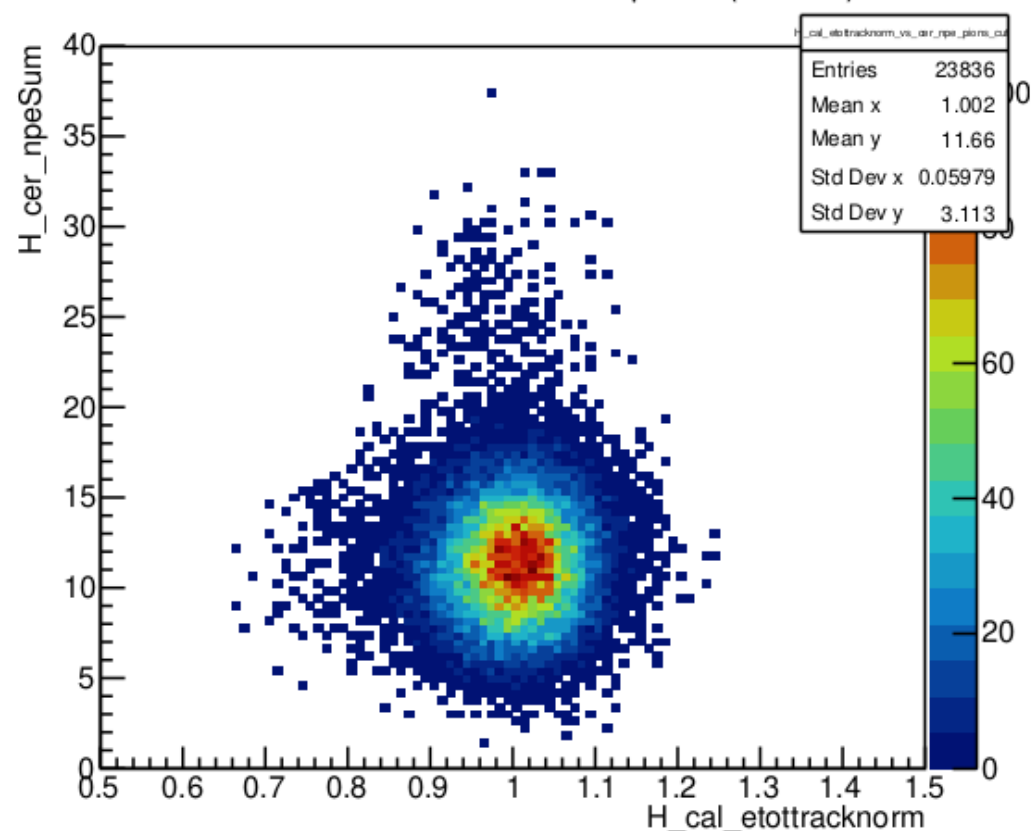
HMS cal etottracknorm vs HMS cer npeSum (with cuts)



# $Q^2$ 3.85 W 2.02 center low $\varepsilon$

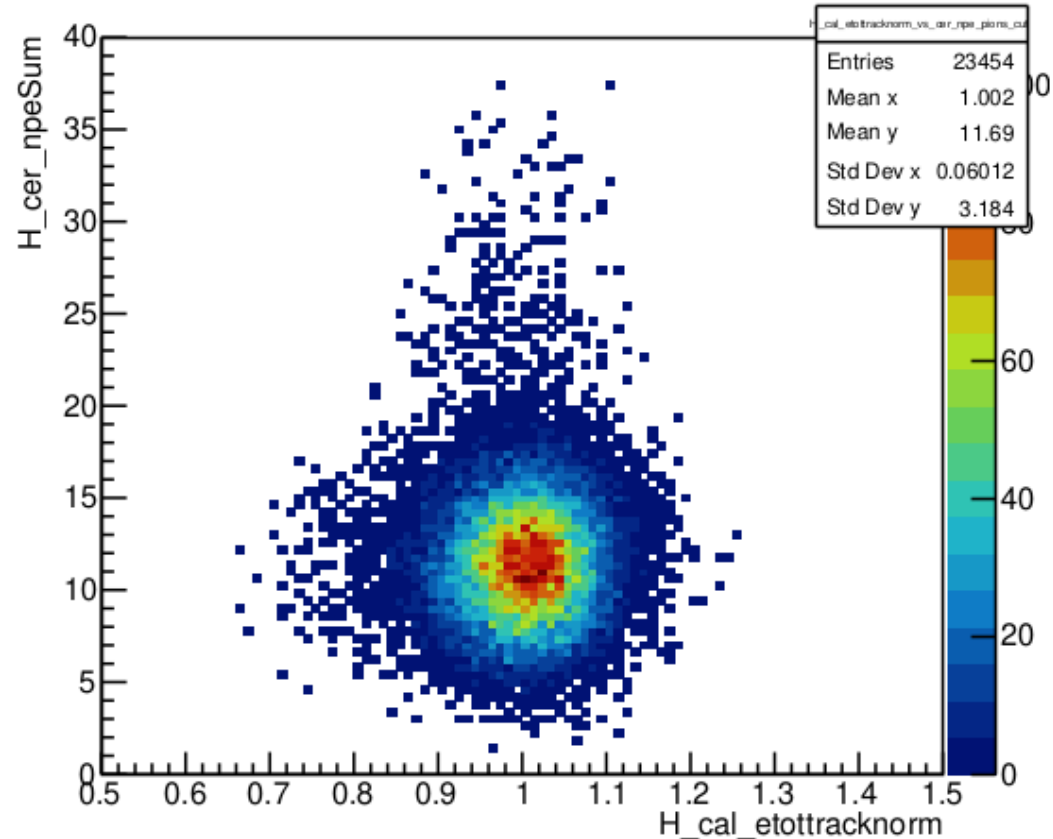
Online

HMS cal etottracknorm vs HMS cer npeSum (with cuts)



Offline

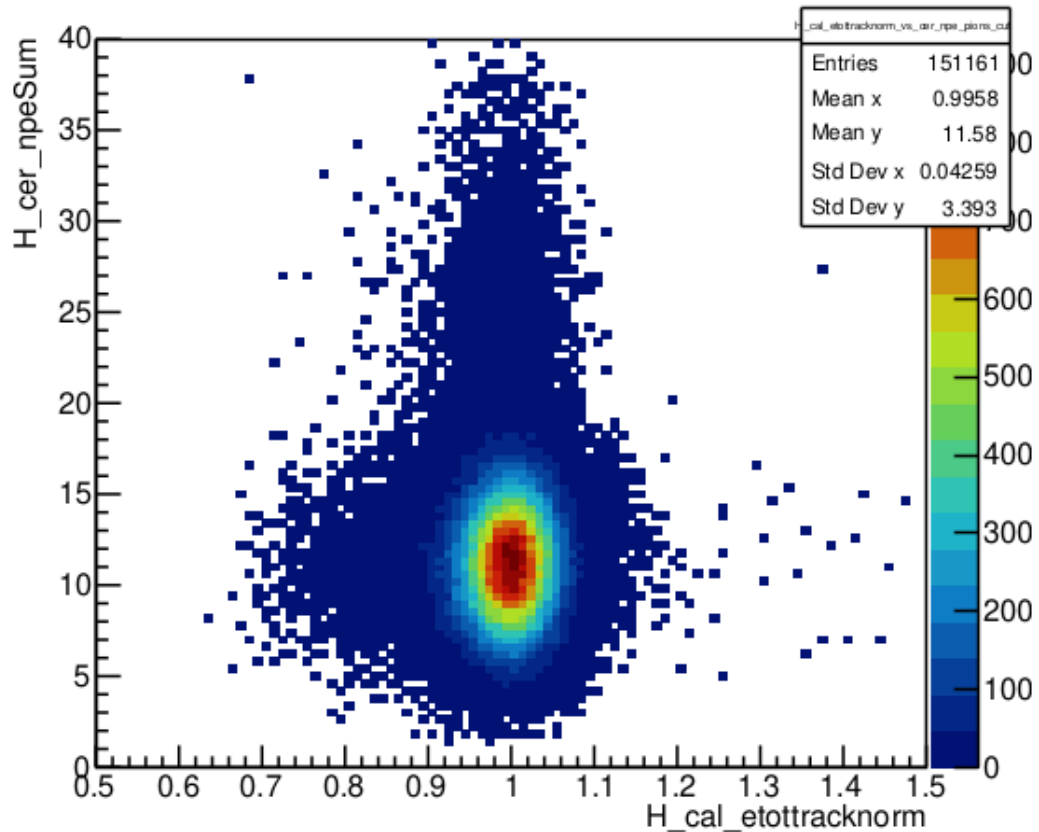
HMS cal etottracknorm vs HMS cer npeSum (with cuts)



# $Q^2$ 5.00 W 2.95 center LH+

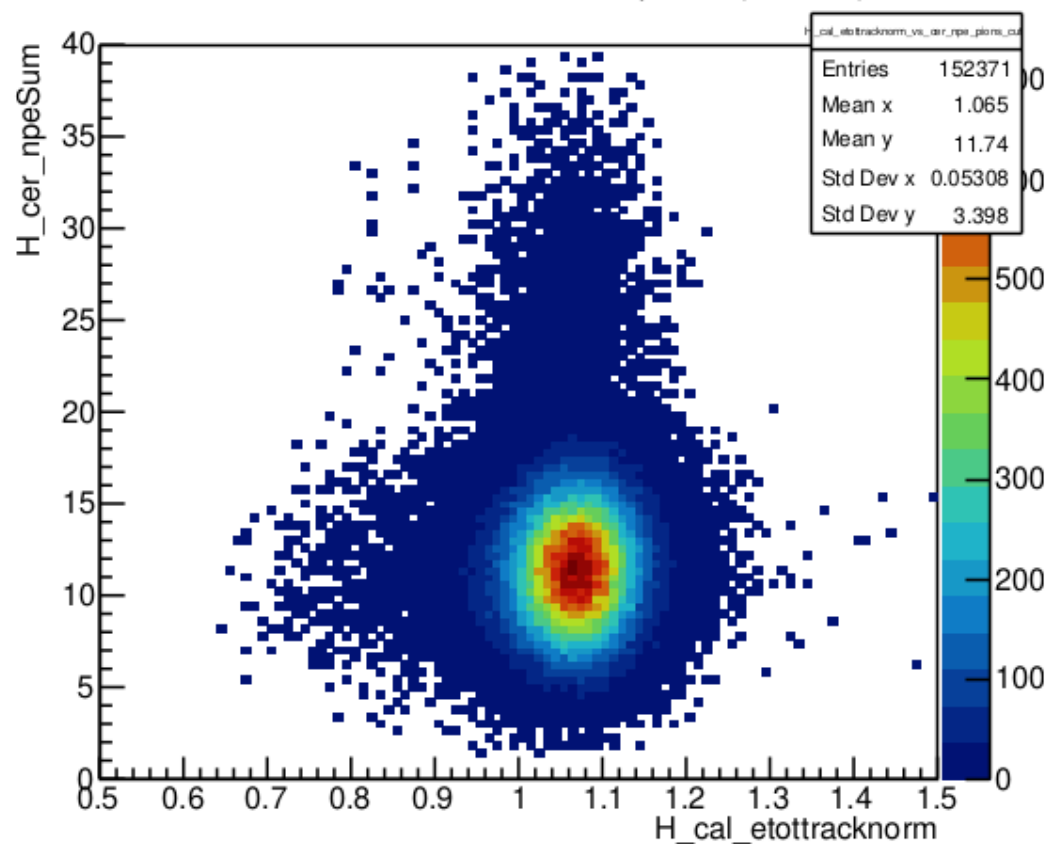
Online

HMS cal etotracknorm vs HMS cer npeSum (with cuts)



Offline

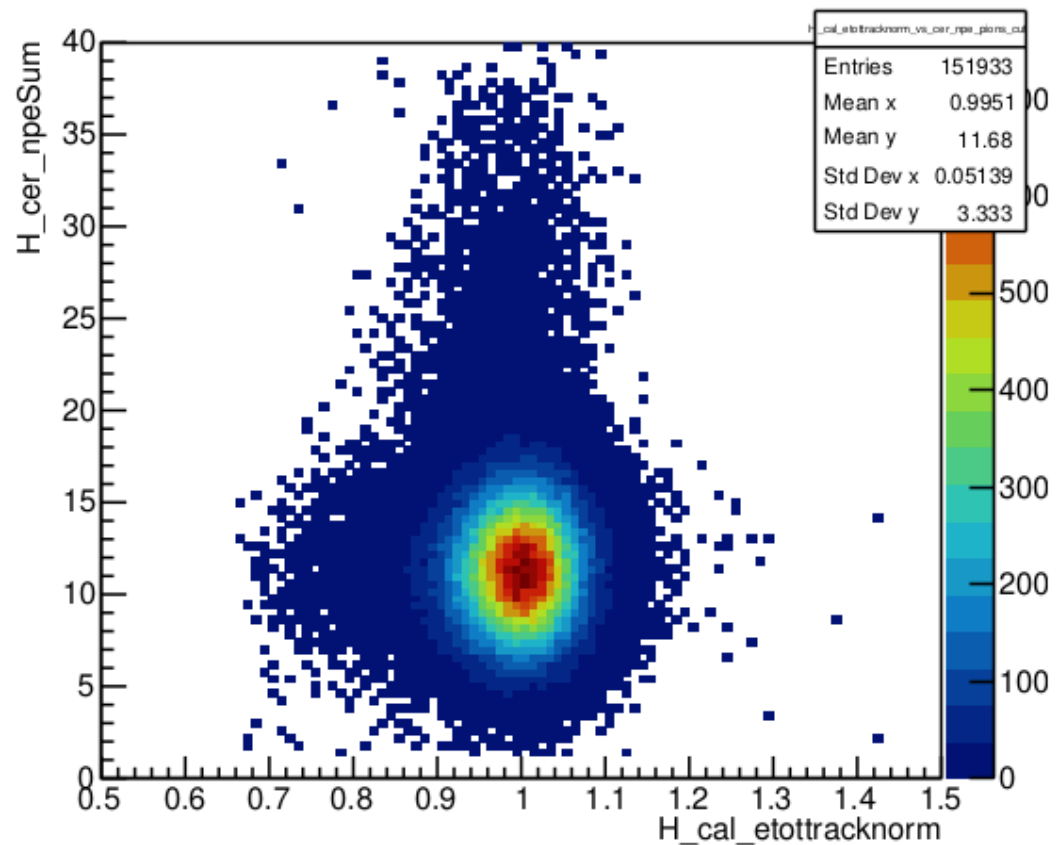
HMS cal etotracknorm vs HMS cer npeSum (with cuts)



# $Q^2$ 6.0 W 3.195 center high $\varepsilon$ LH+

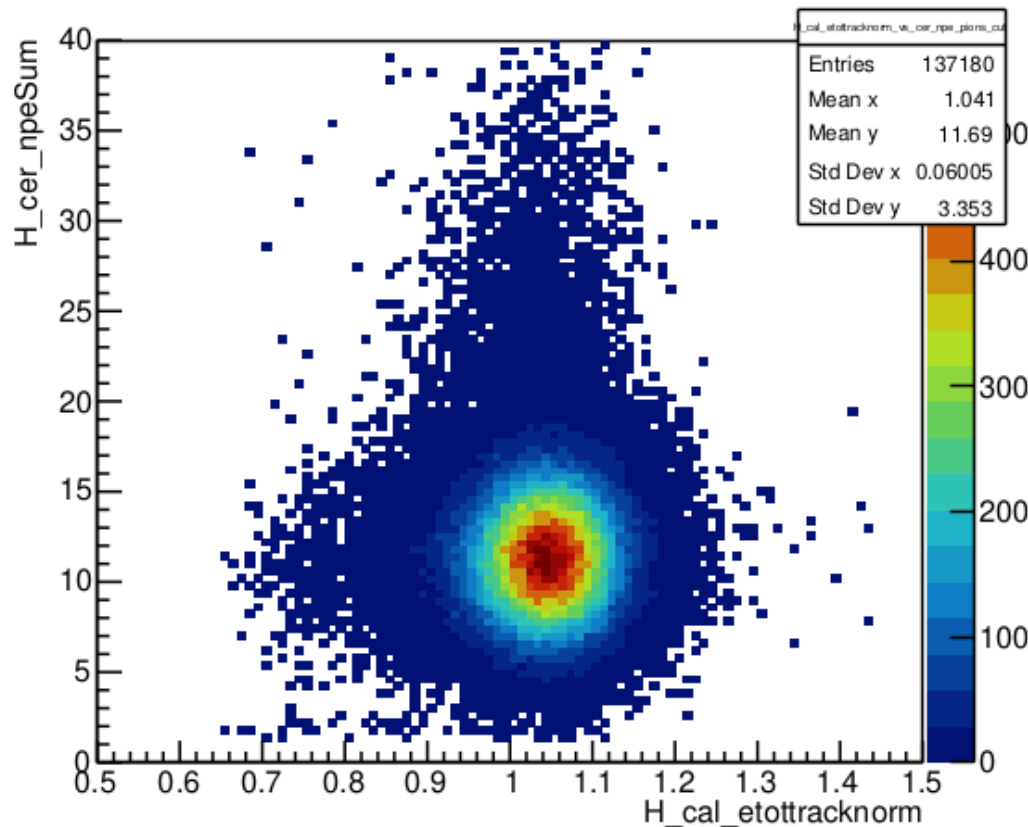
Online

HMS cal etottracknorm vs HMS cer npeSum (with cuts)



Offline

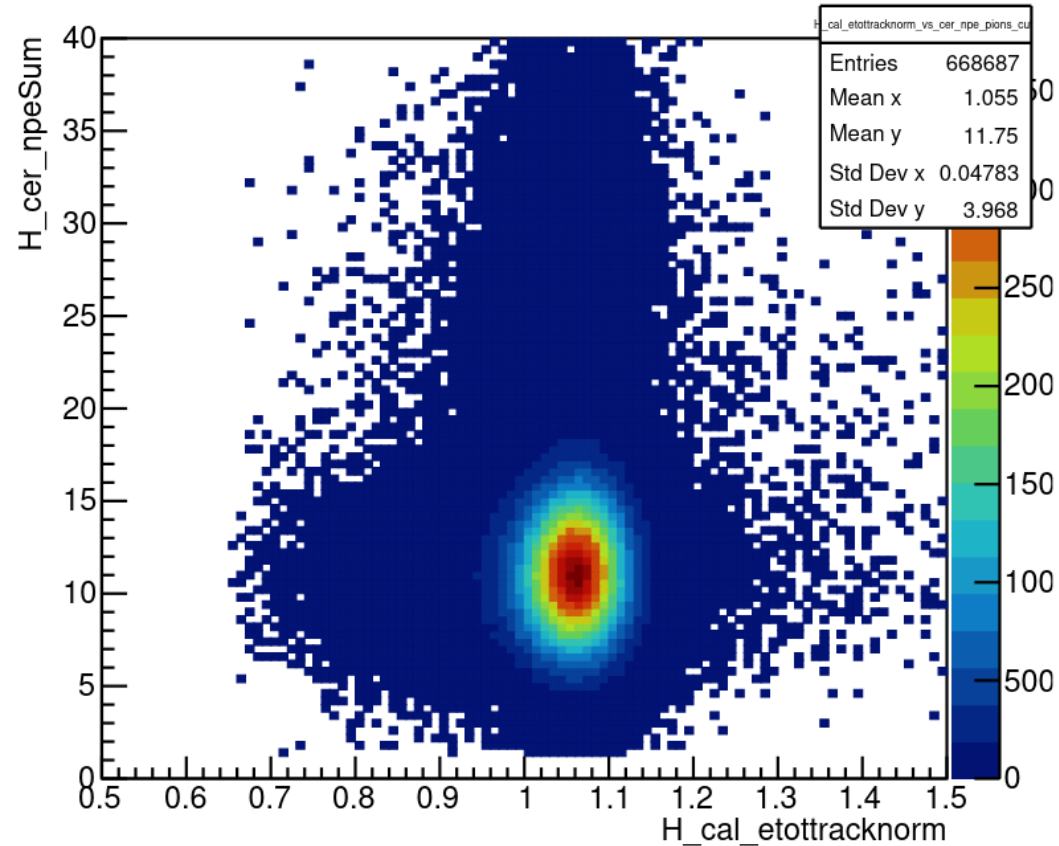
HMS cal etottracknorm vs HMS cer npeSum (with cuts)



# $Q^2$ 1.45 W 2.02 center low $\varepsilon$ LH+

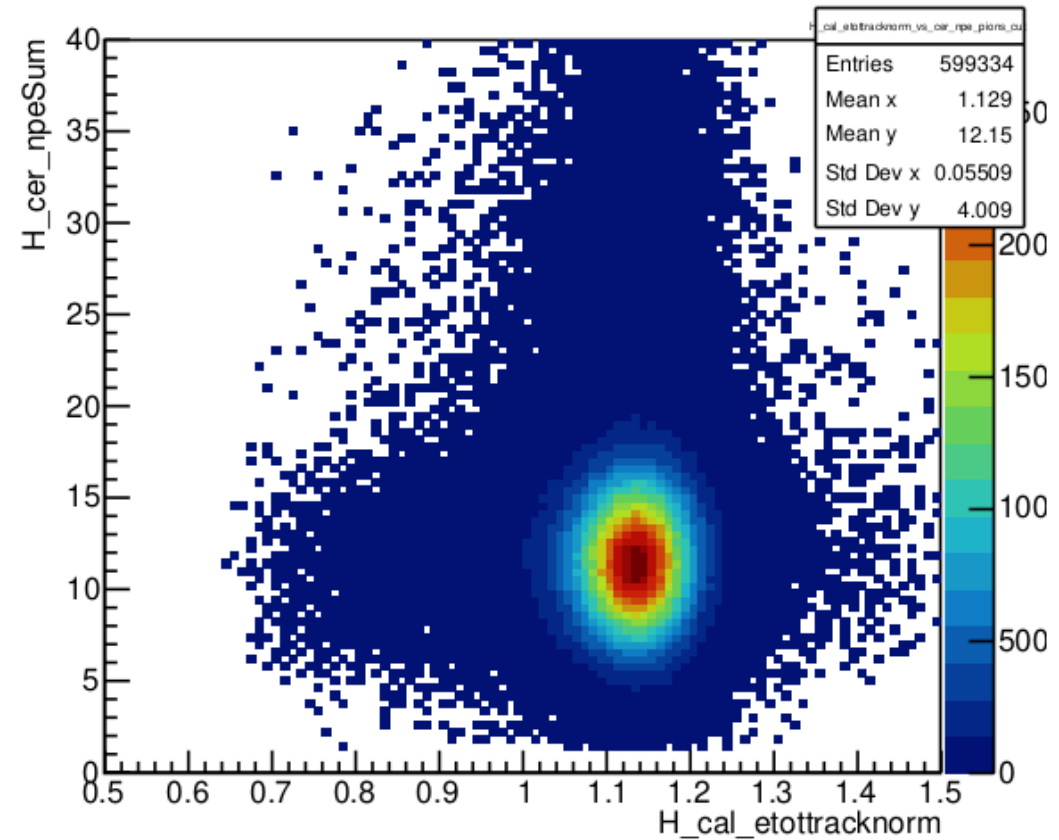
Online

HMS cal etottracknorm vs HMS cer npeSum (with cuts)



Offline

HMS cal etottracknorm vs HMS cer npeSum (with cuts)



# Conclusions

- New calibration had very little effect on distribution.
- Makes sense as the old parameters were not changed too much (online had 10.17, 9.4)
- Moving on to ngcer calibration