

Base line shift

E Shulga



Datasets

- Dataset:

/sphenix/sim/sim01/sphnxpro/Micromegas/3/G4Hits_sHijing_0-12fm_000000_001000.root

- 100 events

- SW:

Implemented before PHG4TpcDigitizer

https://github.com/mohaas33/coresoftware/blob/baseline_shift/offline/packages/tpc/TpcPadBaselineShift.cc

https://github.com/mohaas33/coresoftware/blob/baseline_shift/offline/packages/tpc/TpcPadBaselineShift.h



Implemented shift strip by strip:

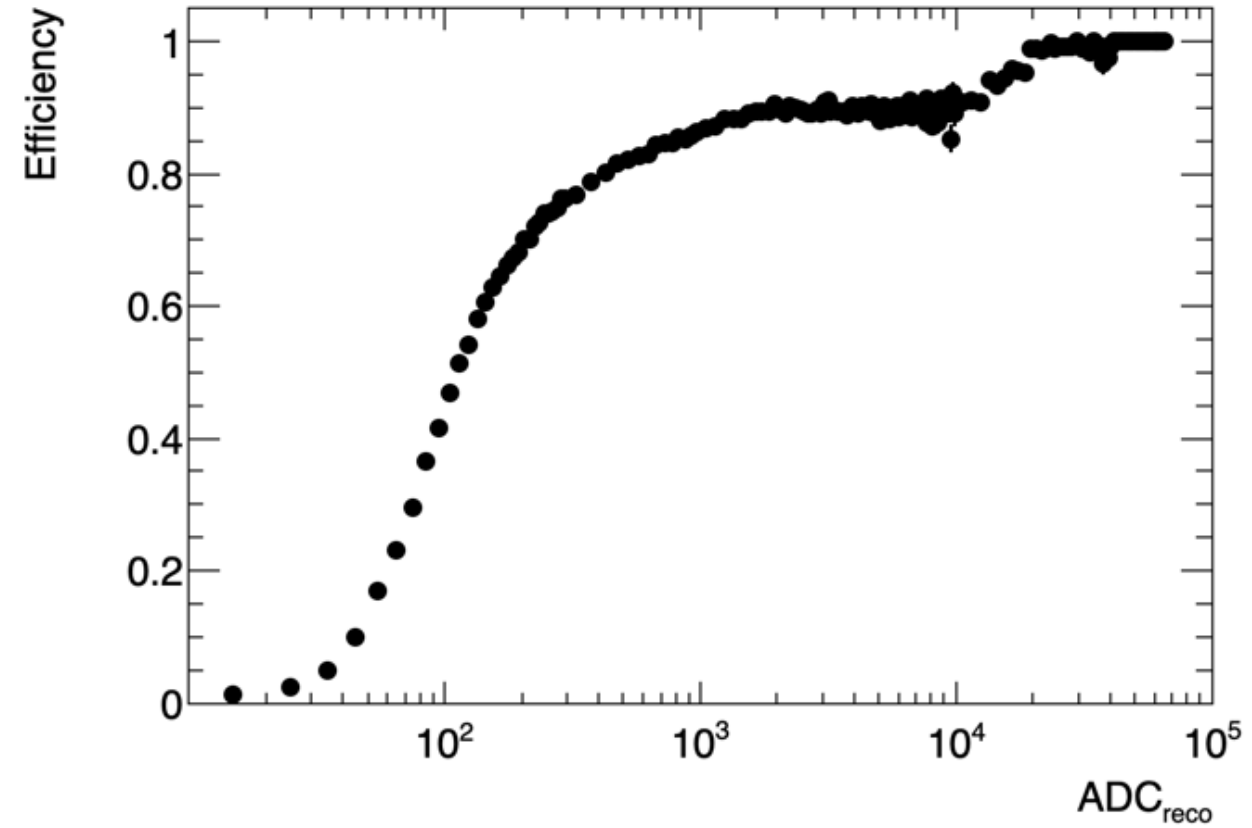
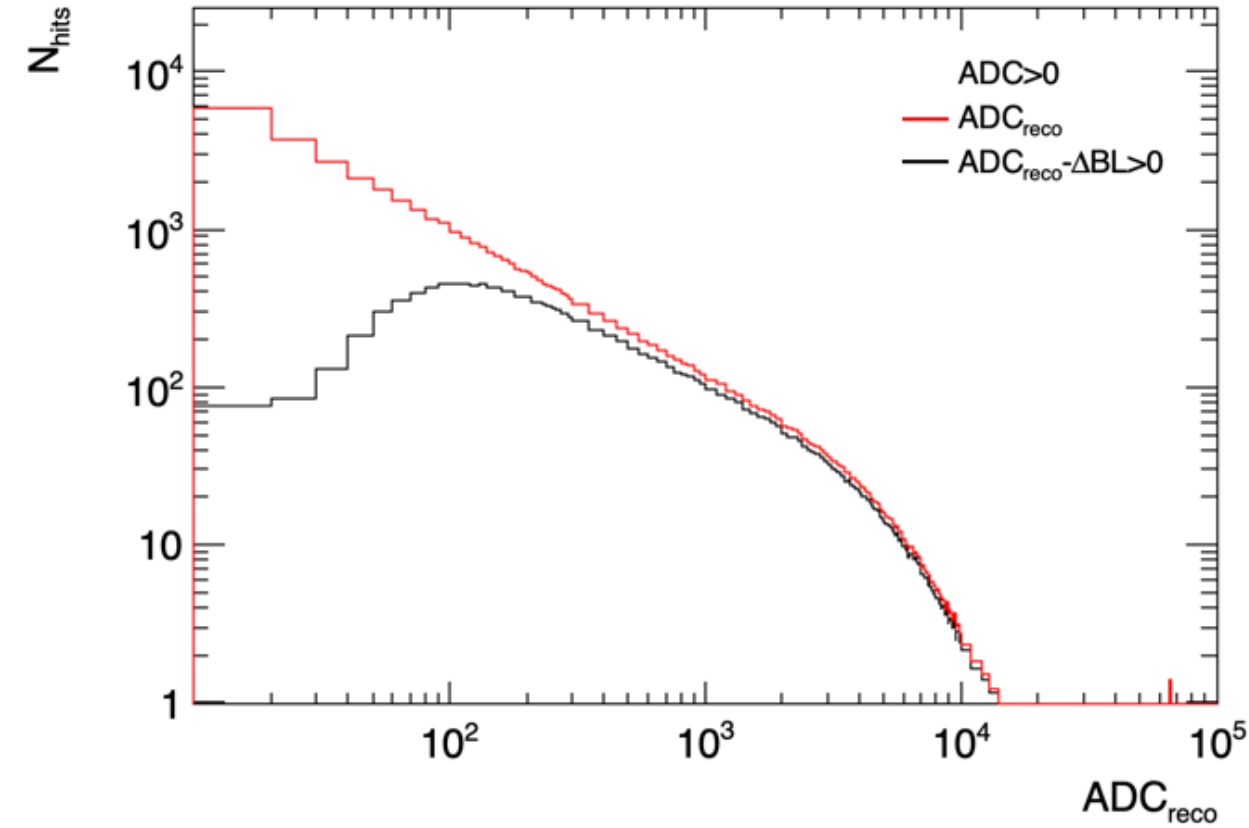
- $ADC = ADC_{reco}^{hit} - \Delta BL$
- $\Delta BL = 0.5 * \sum ADC_{reco}^{hit} / N_{pad}(R)$

From TTree:

N = 100 events

**/sphenix/user/shulga/Work/workfest2021_v1p0/macros/detectors/sPHENIX/
hitsBLS.root**

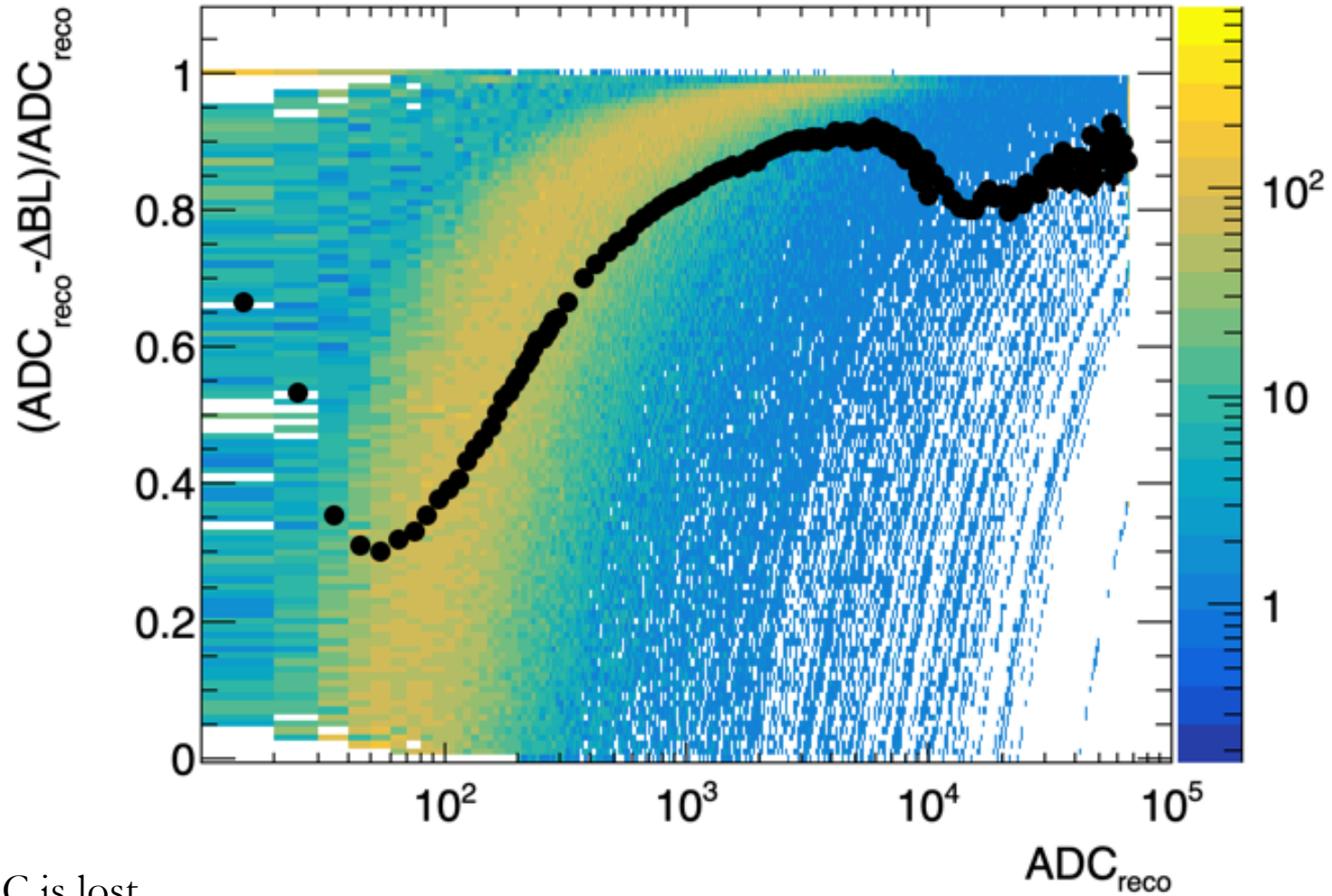
ADC



$$Efficiency = \frac{N_{hits}(ADC_{reco} - \Delta BL > 0)}{N_{hits}}$$

- ~20% of the hits are lost if $(ADC_{reco} - \Delta BL > 0)$

$(ADC_{reco} - \Delta B L) / ADC_{reco}$ vs ADC_{reco}



- $\sim 20\%$ of the ADC is lost

From DST files:

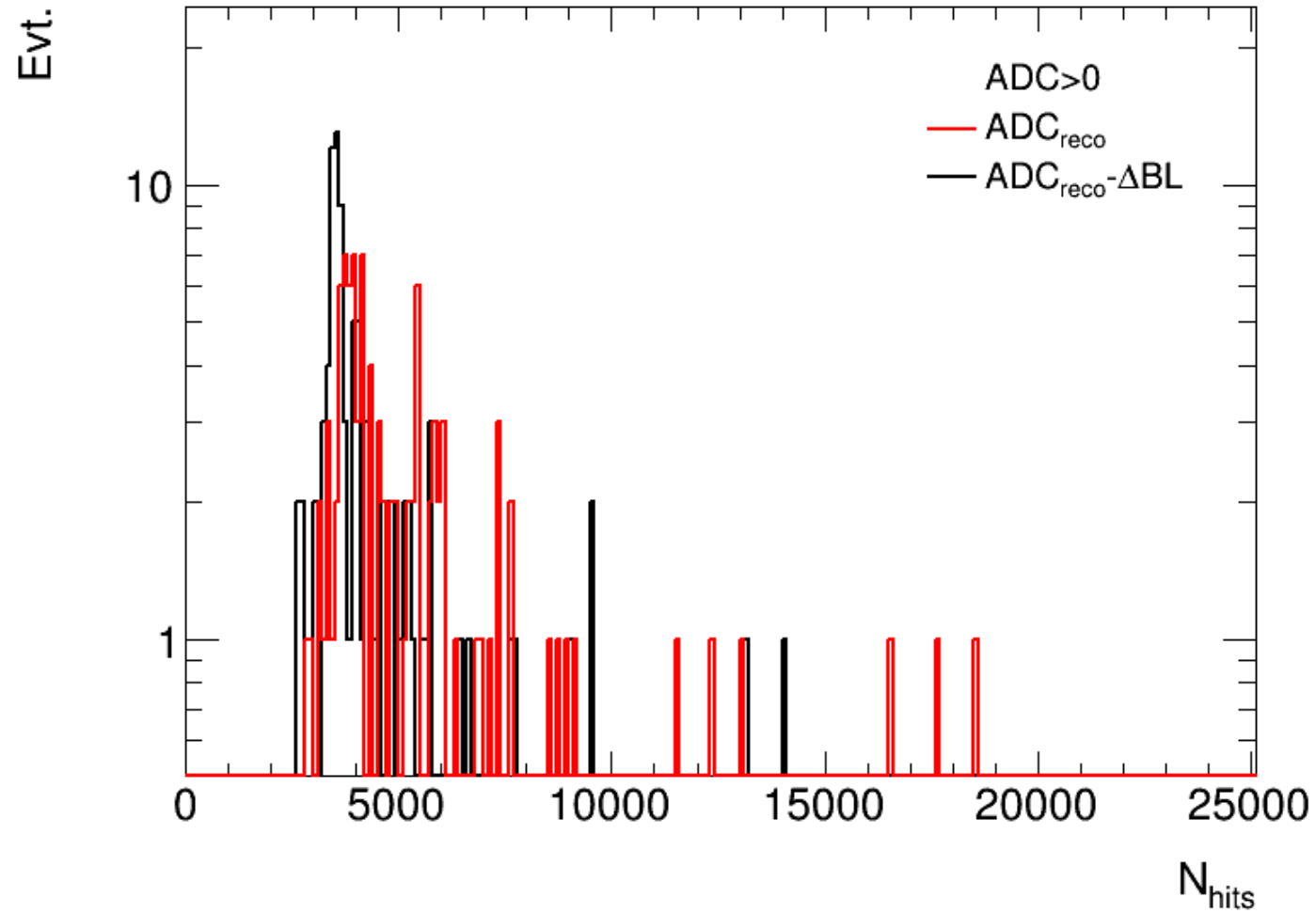
N = 100 events

/sphenix/user/shulga/Work/workfest2021_v1p0/macros/detectors/sPHENIX/

DST_G4sPHENIX_BLSHIFT_1evt.root

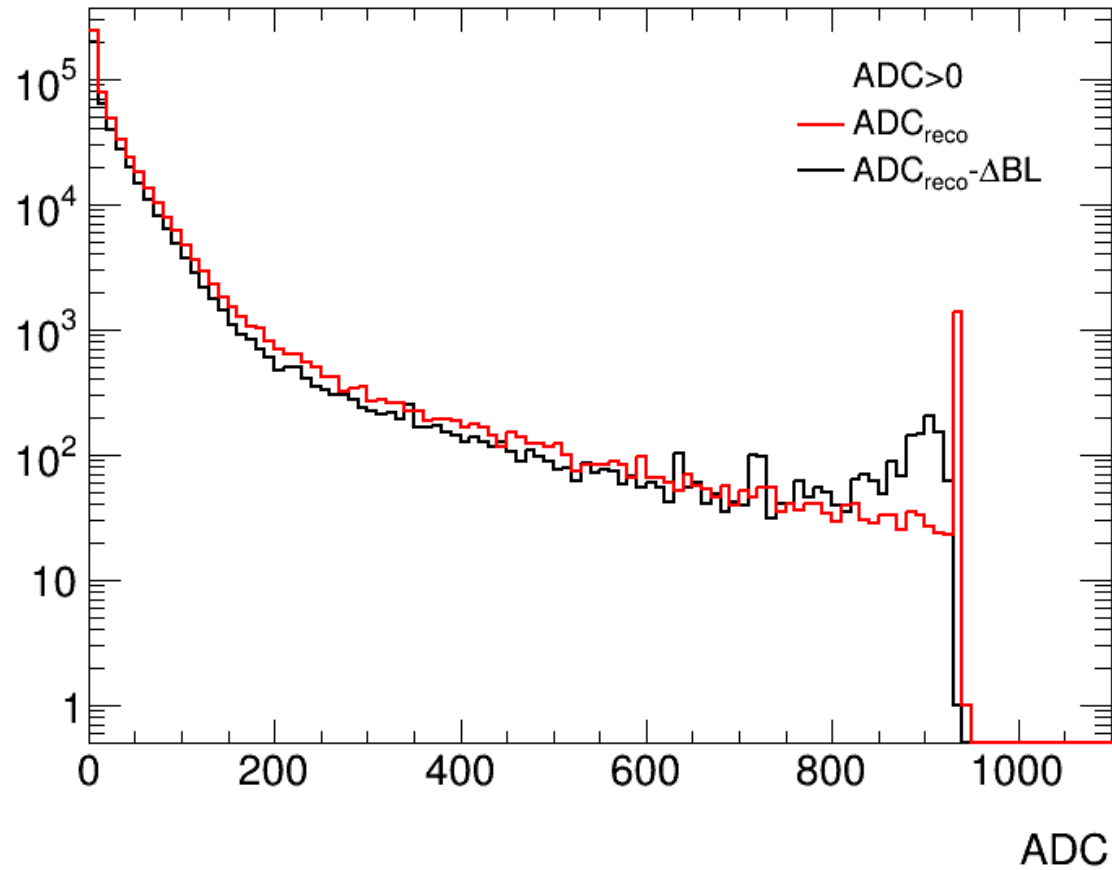
DST_G4sPHENIX_1evt.root

Number of hits with ADC>0

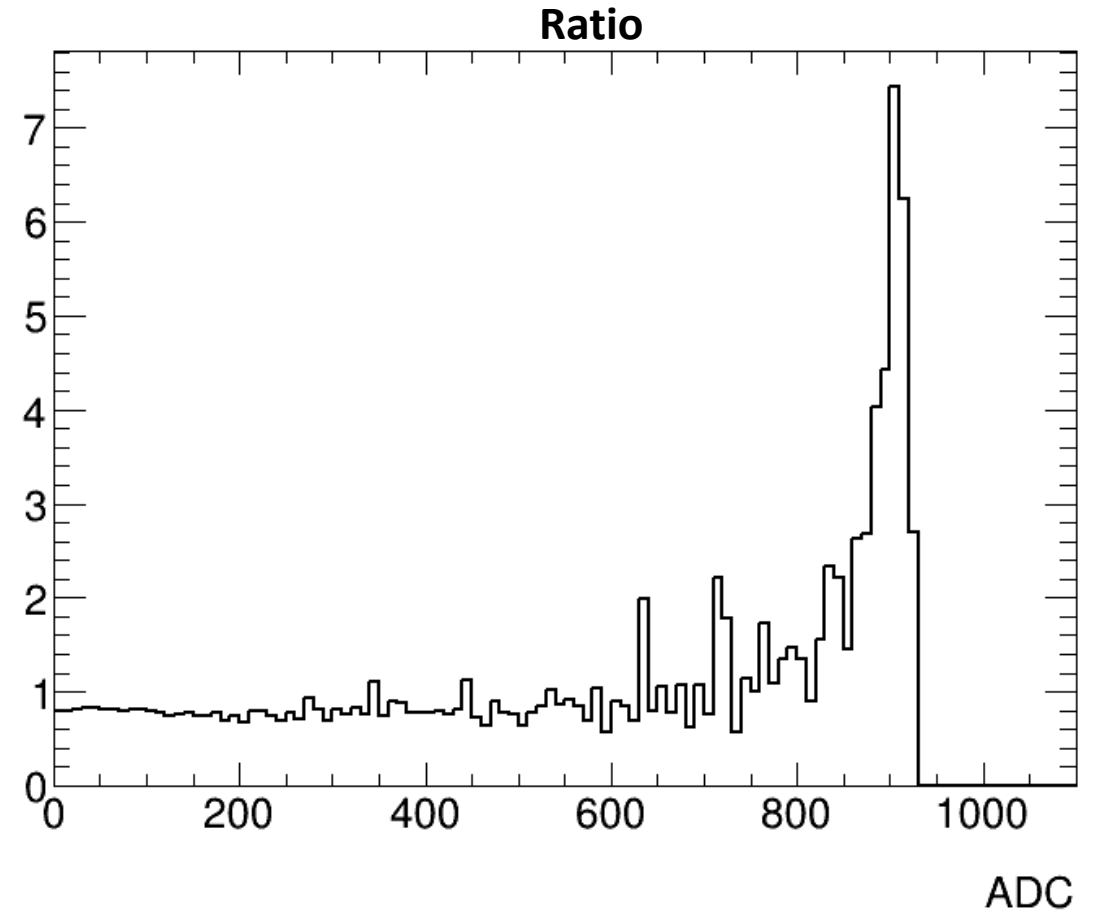


- Less hits
- Need to check tracks

ADC

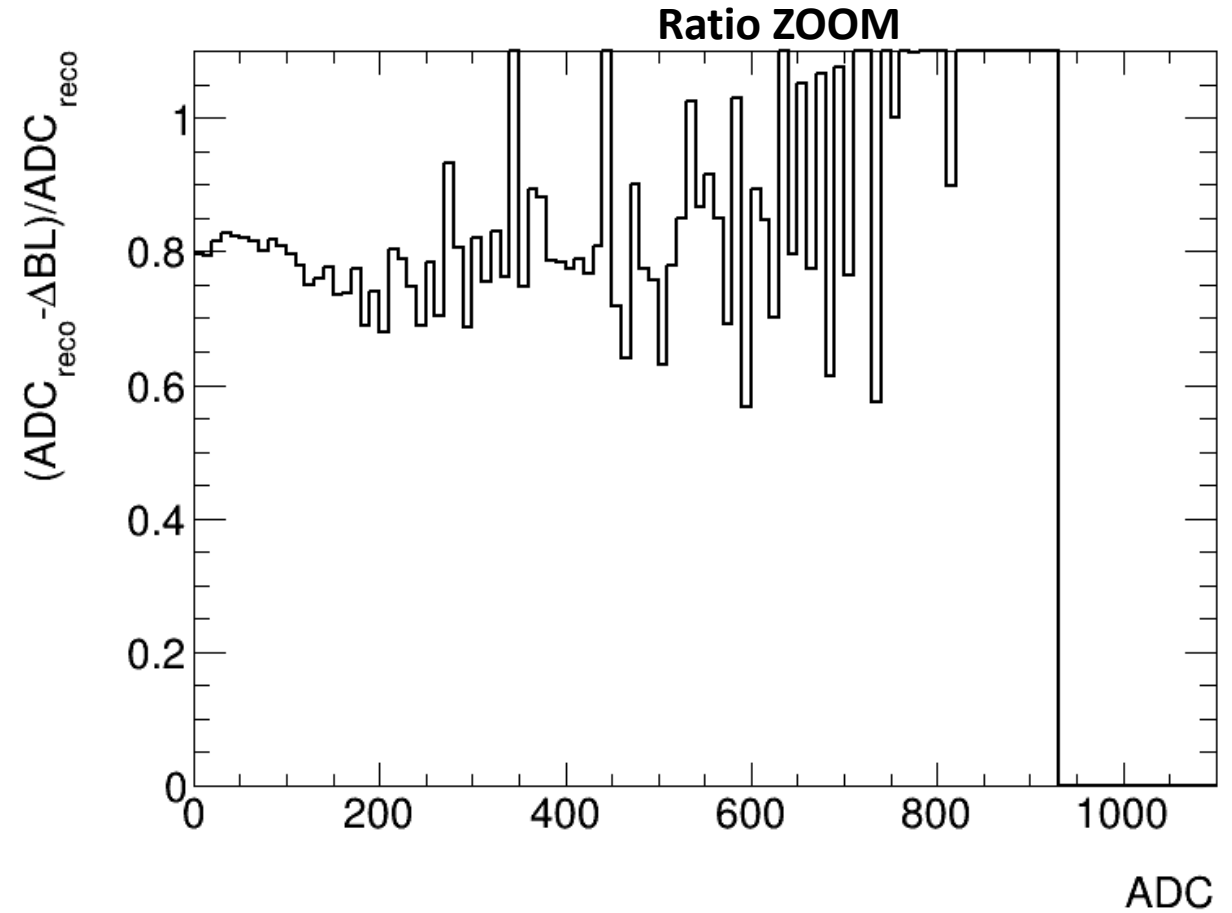
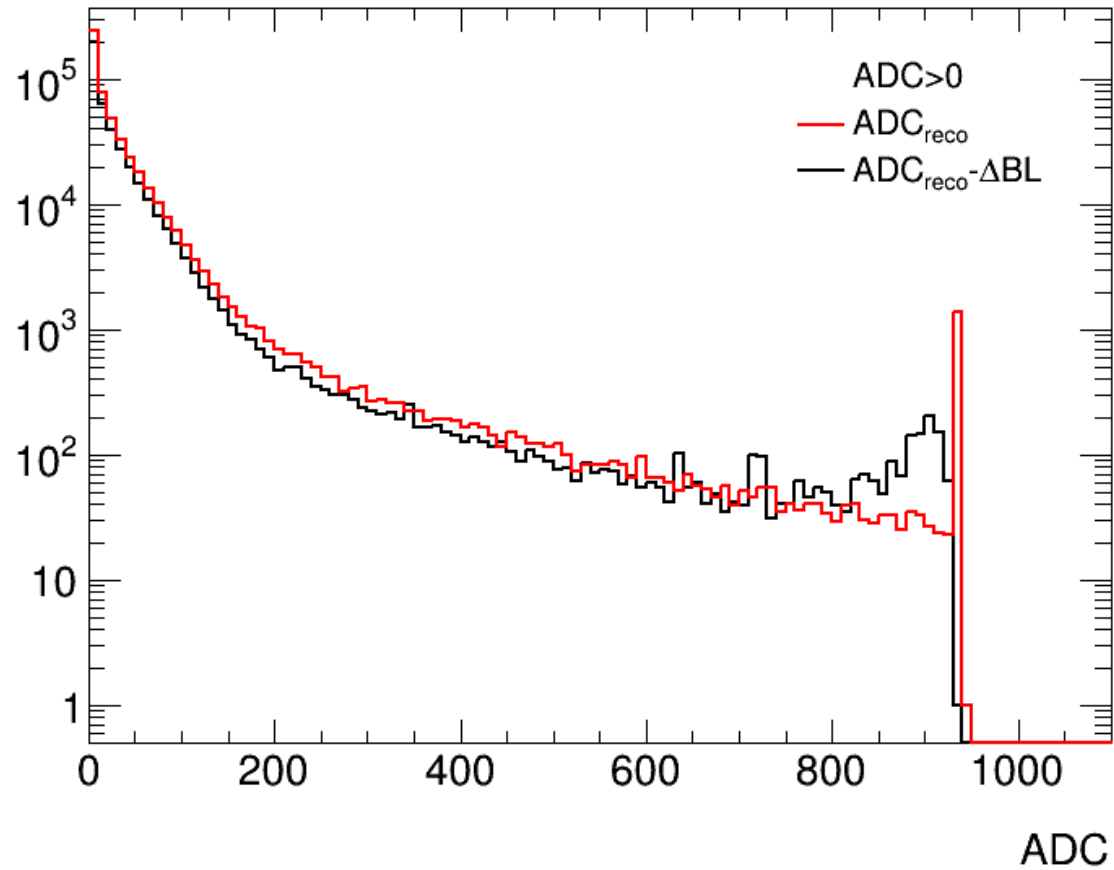


$(ADC_{reco} - \Delta BL) / ADC_{reco}$



- Shift to the lower ADC
- Loss in ADC is $\sim 20\%$

ADC Zoom



- Shift to the lower ADC
- Loss in ADC is $\sim 20\%$

Conclusions

- Function to subtract ADC is working
- Need to check tracking

