

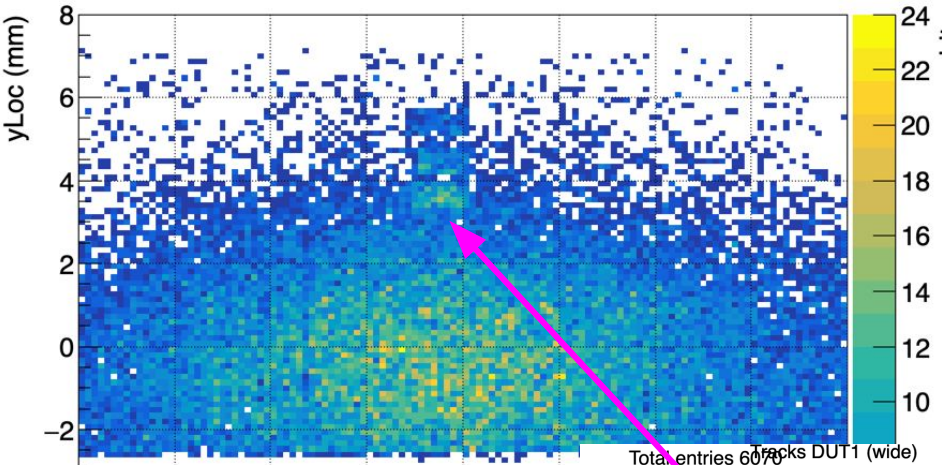
# Update on the April TI-LGAD test beam

Iskra Velkovska

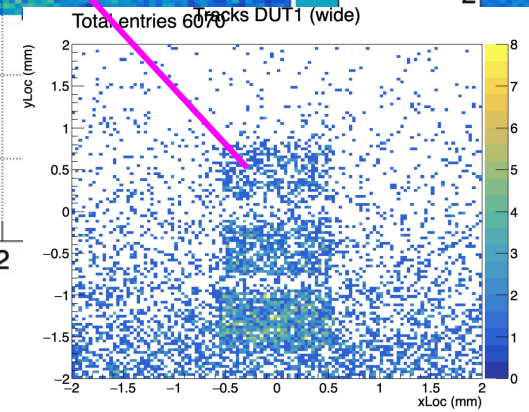
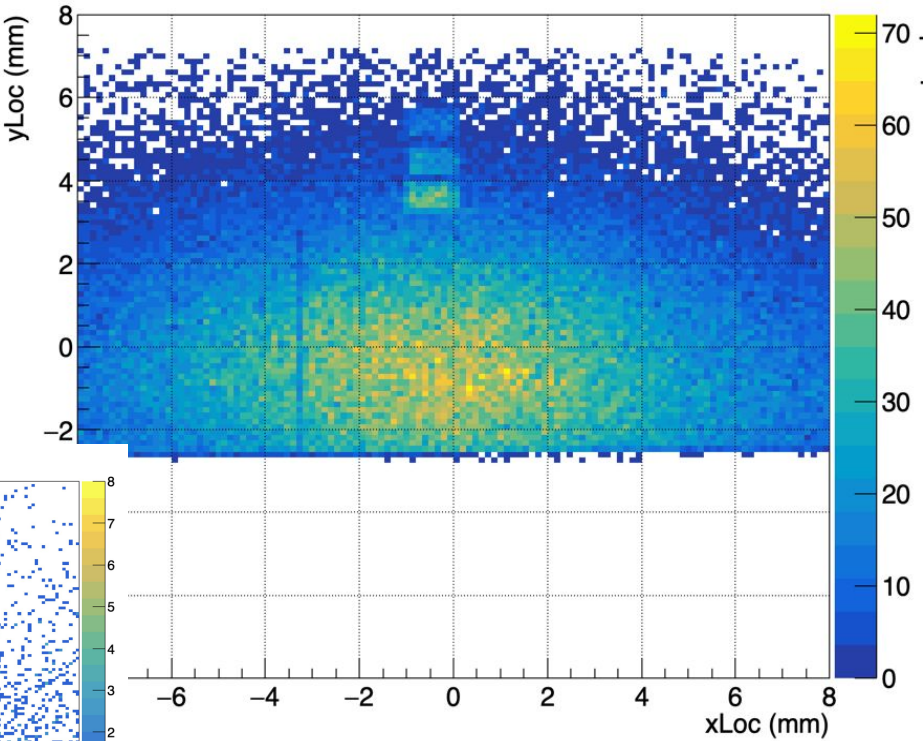
HGTD Meeting, 23.01.2026

April testbeam run 607, tracks -> 139239, wf entries -> 276813

Any-hit DUT1 (wf0..3) (wide)

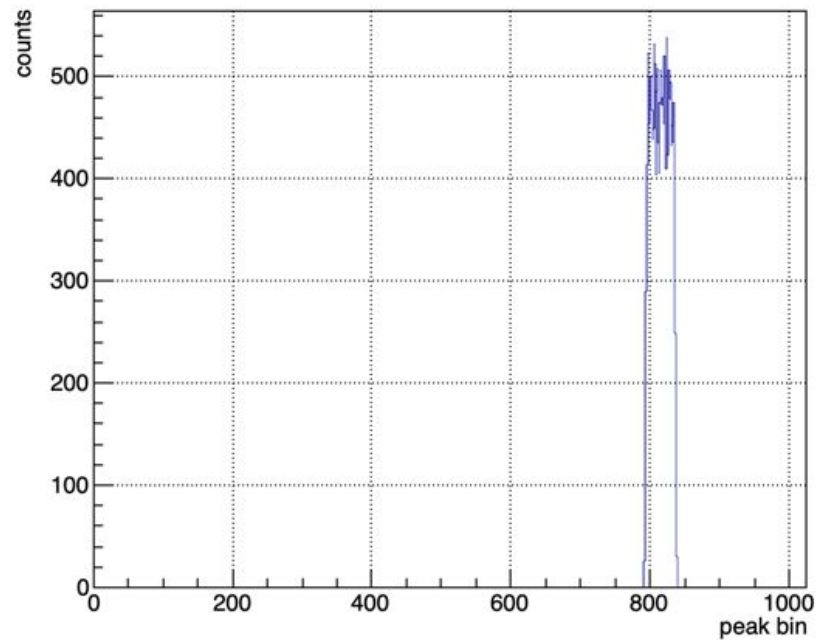


Tracks CAEN\_ETH\_0 (wide)

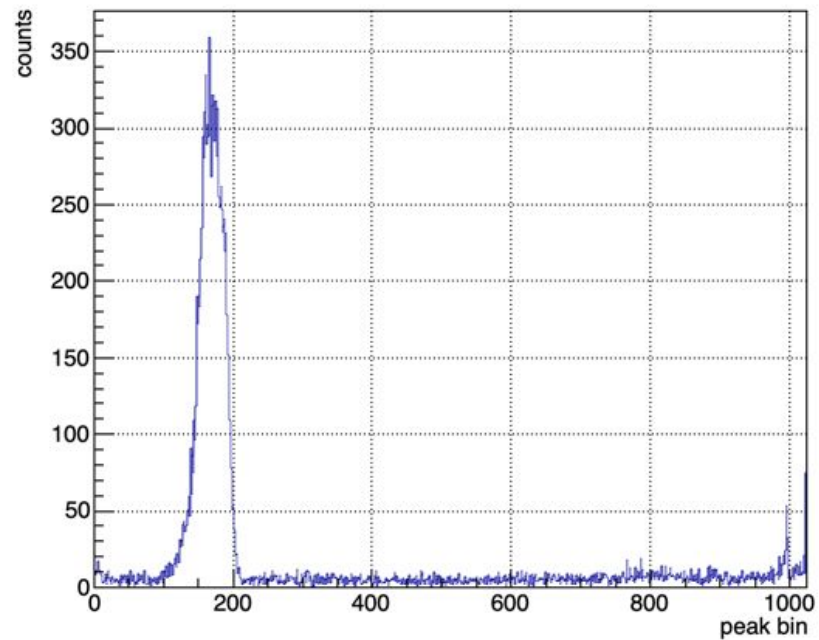




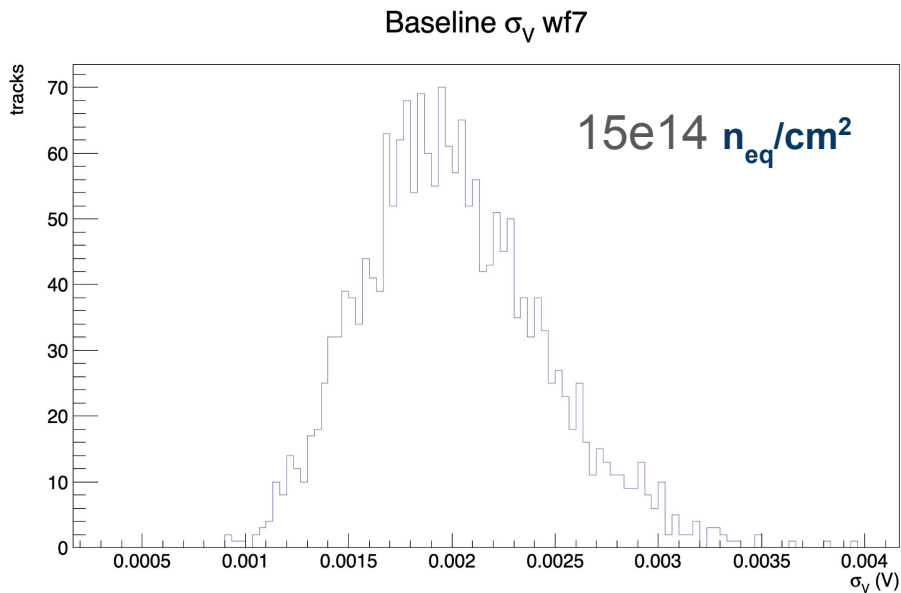
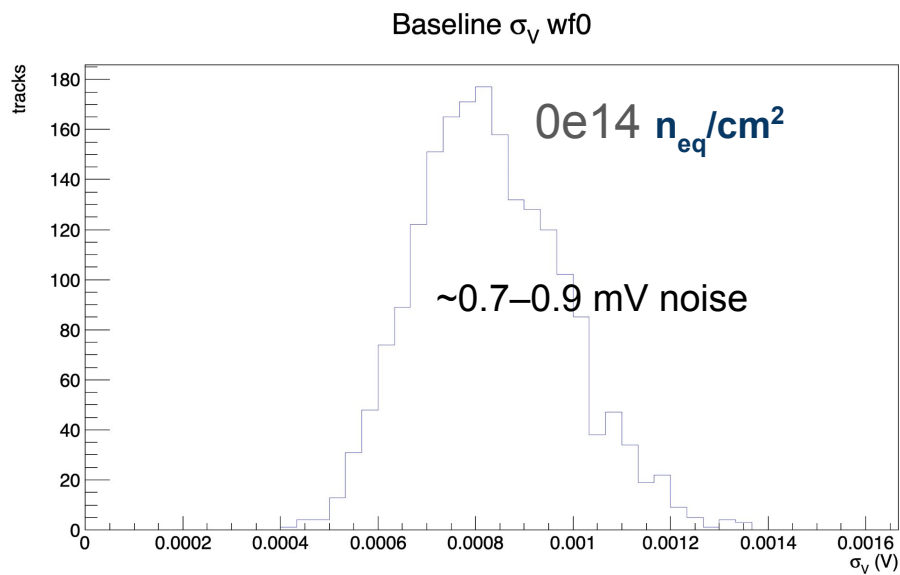
TRG peak-bin (best of wf10/11)



TREF peak-bin (best of wf8/9)

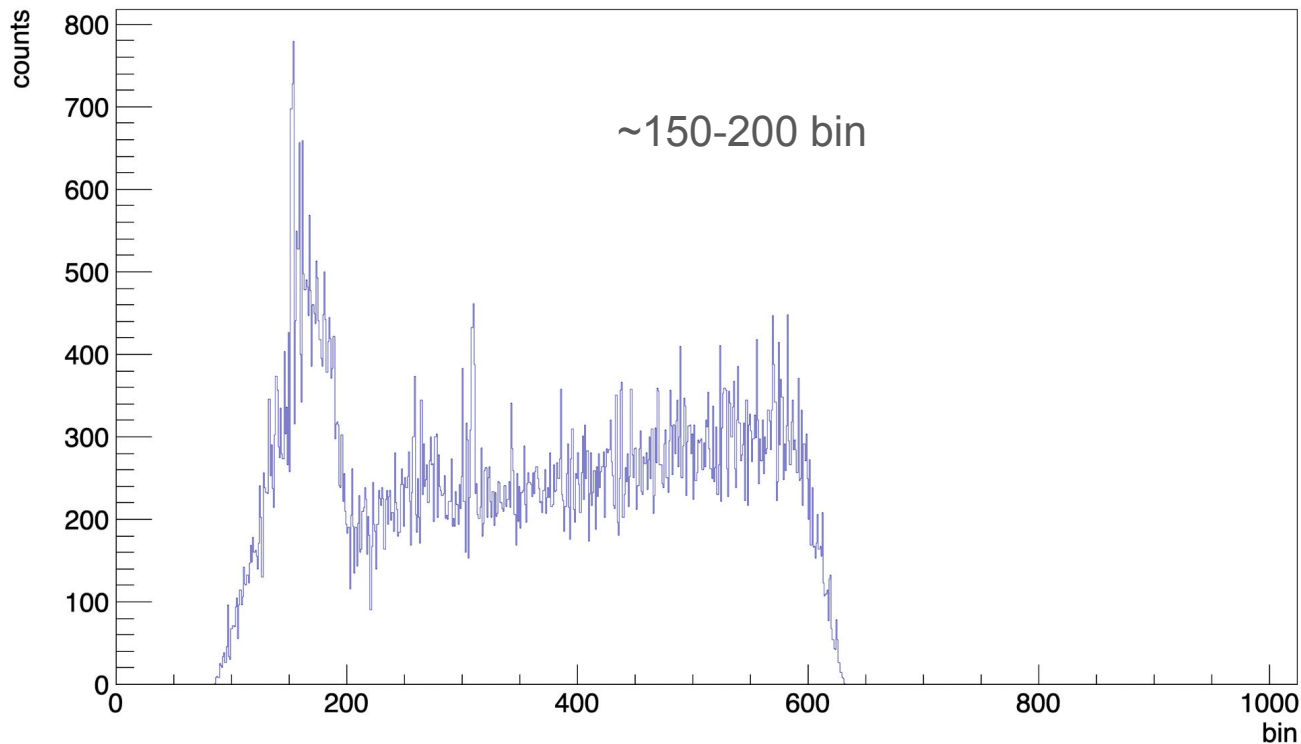


# April testbeam run 607 -> baseline evaluation

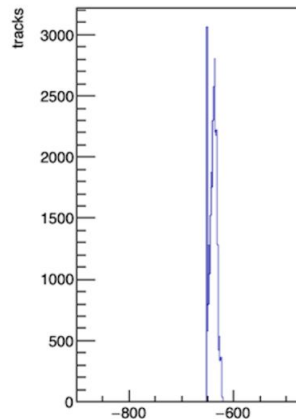


# April testbeam run 607 -> trigger-anchoring time window for hit definition

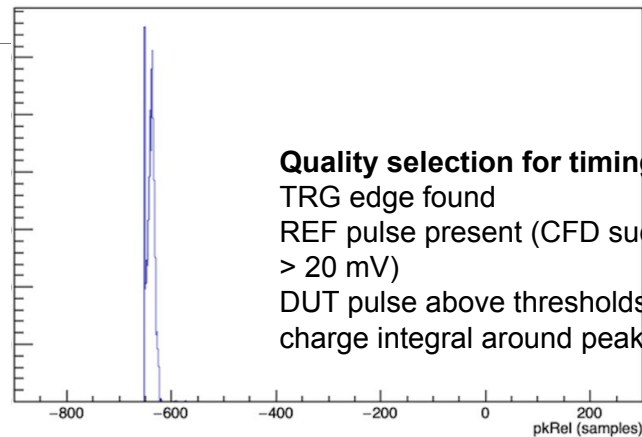
DUT1 wf0 peak-bin (TRG-anchored)



pkRel = tpk(DUT wf0) - tTrig (samples)

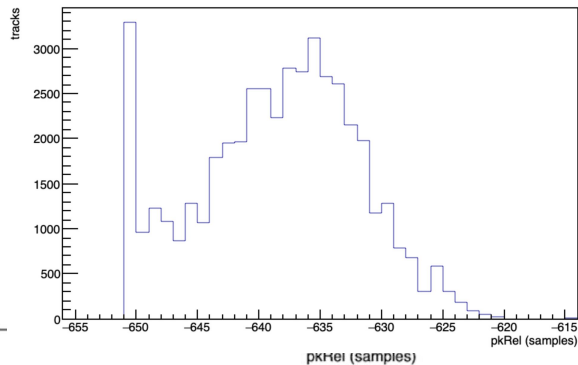


pkRel = tpk(DUT wf1) - tTrig (samples)

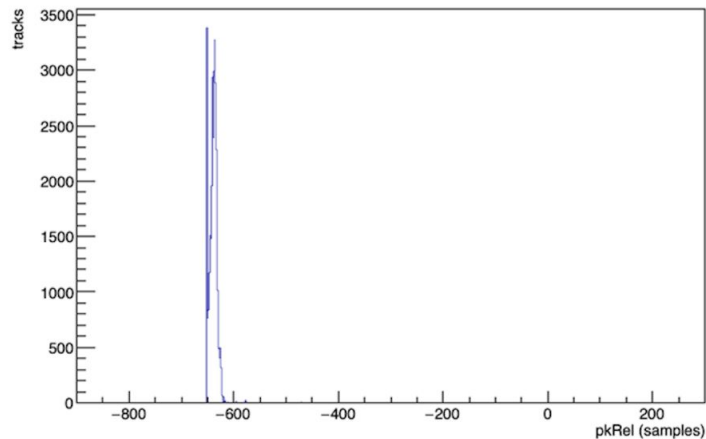


**Quality selection for timing/delay plots:**  
TRG edge found  
REF pulse present (CFD success / amplitude > 20 mV)  
DUT pulse above thresholds (A > 50 mV and charge integral around peak)

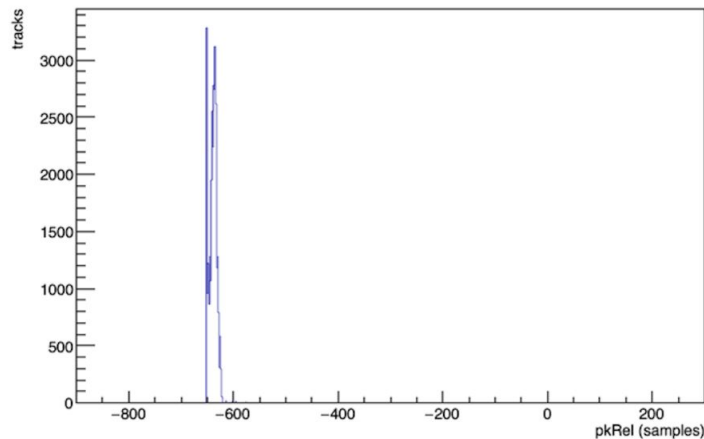
pkRel = tpk(DUT wf3) - tTrig (samples)



pkRel = tpk(DUT wf2) - tTrig (samples)

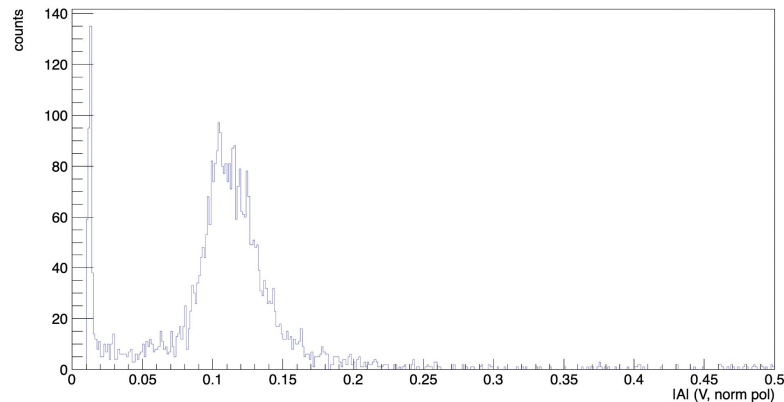


pkRel = tpk(DUT wf3) - tTrig (samples)

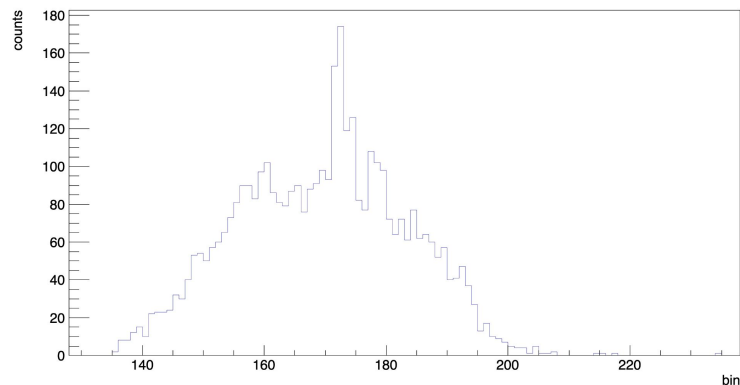


# April testbeam run 607 -> TRG-anchored results

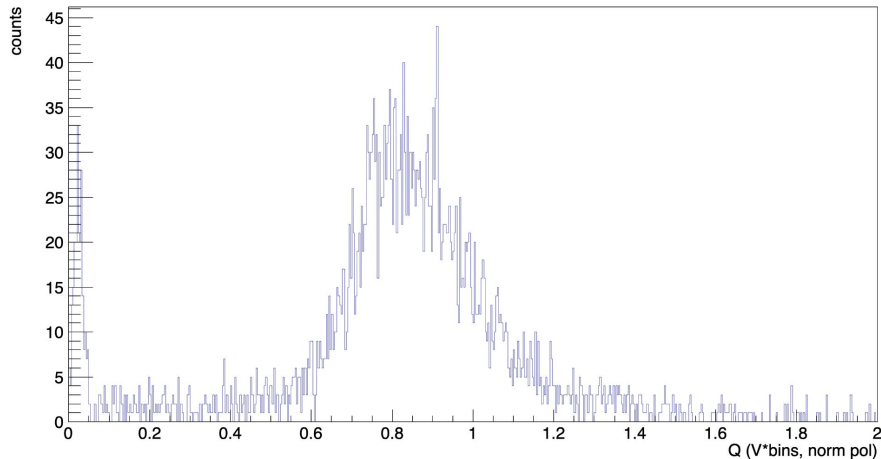
Peak value: DUT1\_0 (CAEN 1)



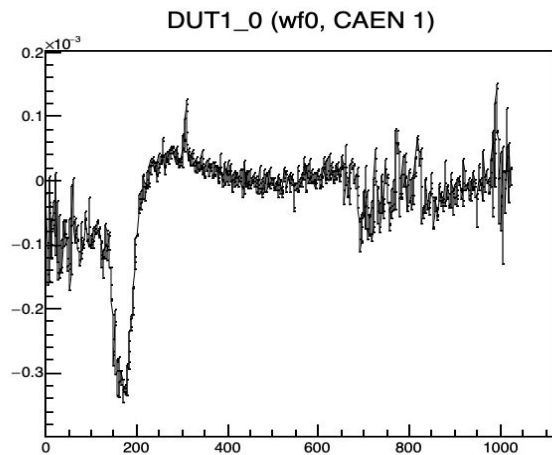
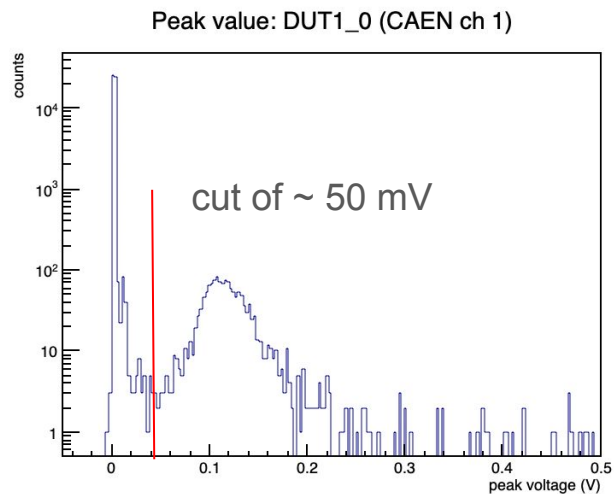
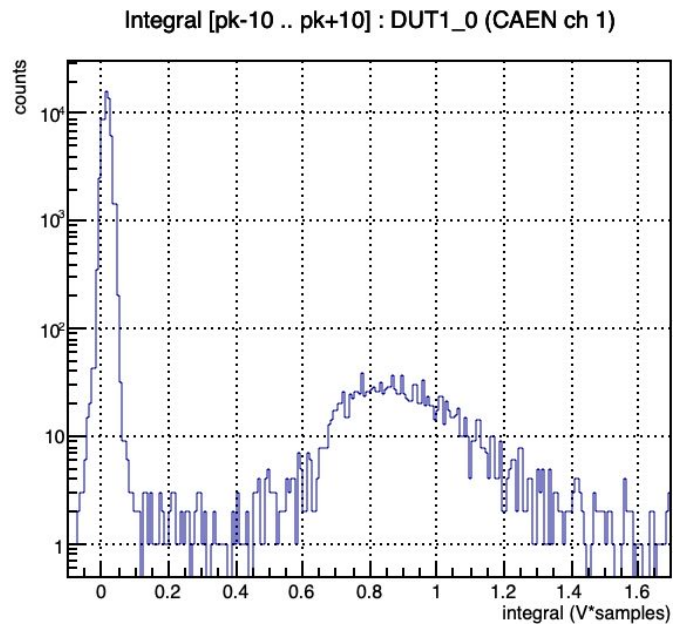
Peak bin (TRG-anchored): DUT1\_0 (CAEN 1)



Integral [pk-10..pk+10]: DUT1\_0 (CAEN 1)

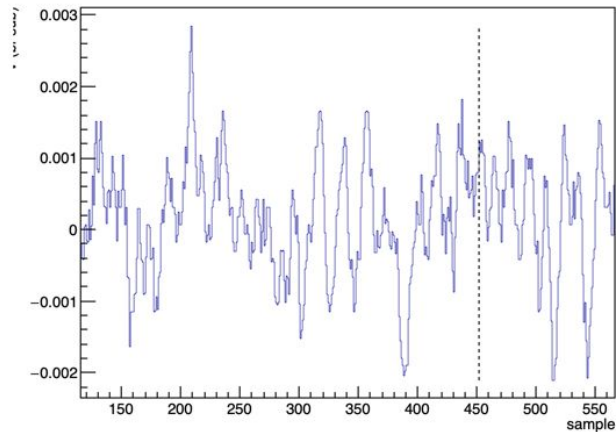


# April testbeam run 607

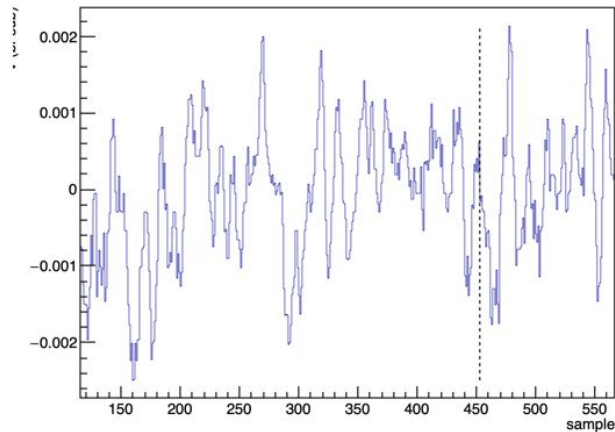




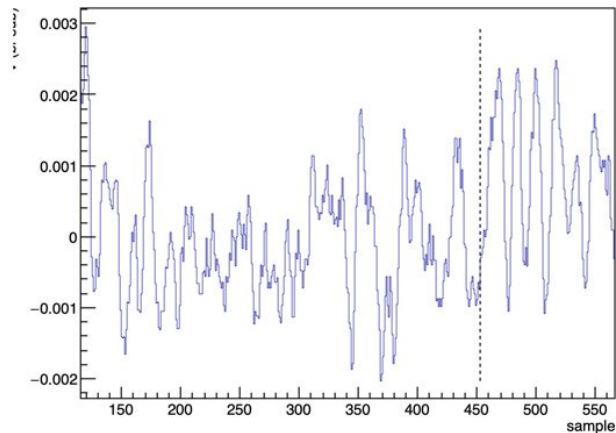
Ineff event=119 trackID=3 wf0 (CAEN idx 0)



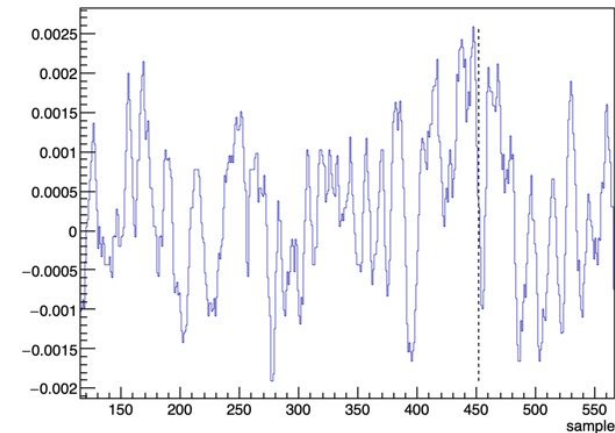
Ineff event=119 trackID=3 wf1 (CAEN idx 1)



Ineff event=119 trackID=3 wf2 (CAEN idx 2)

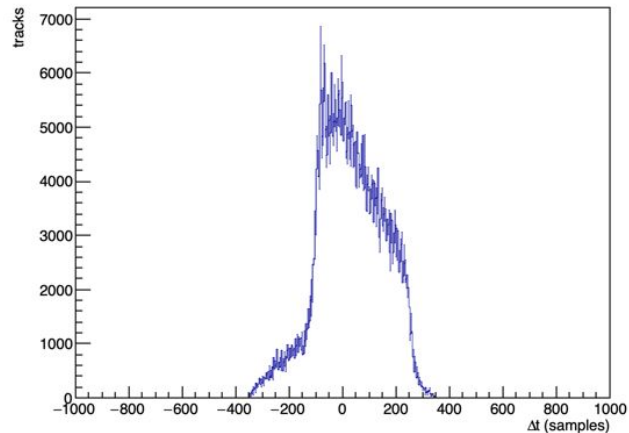


Ineff event=119 trackID=3 wf3 (CAEN idx 3)

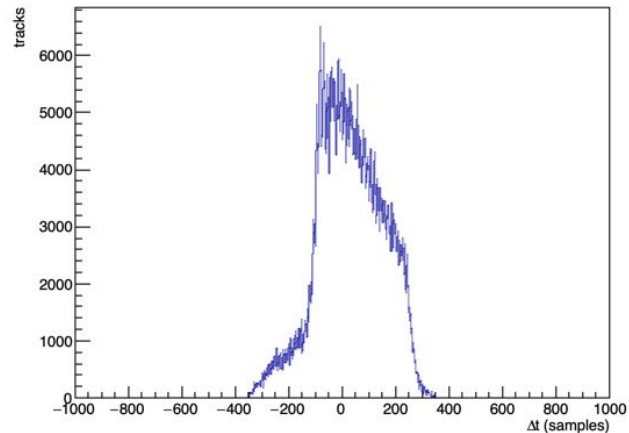


Inefficient events in  
selected ROI

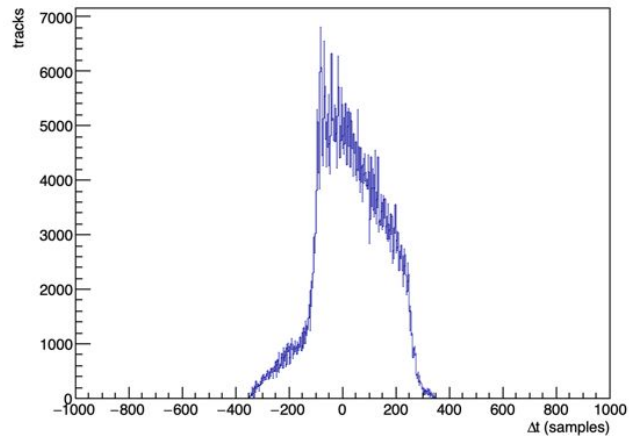
tpk(DUT wf0) - tpk(REF1) (samples)



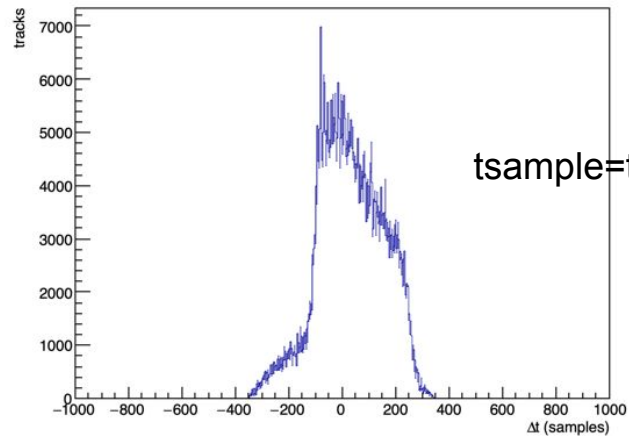
tpk(DUT wf1) - tpk(REF1) (samples)



tpk(DUT wf2) - tpk(REF1) (samples)

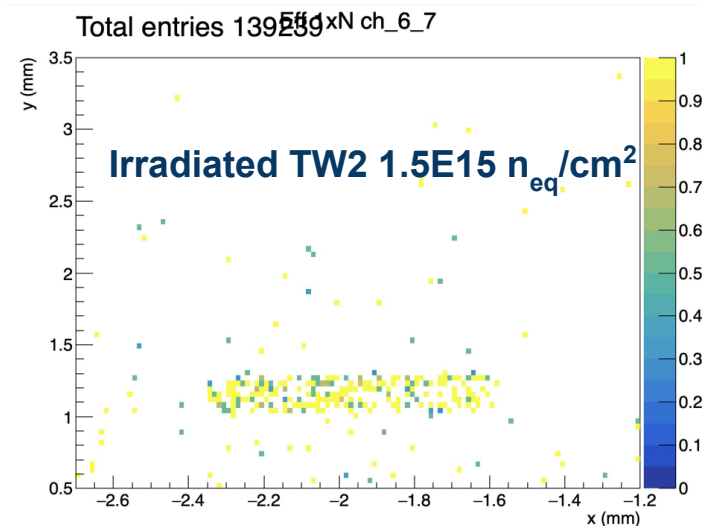
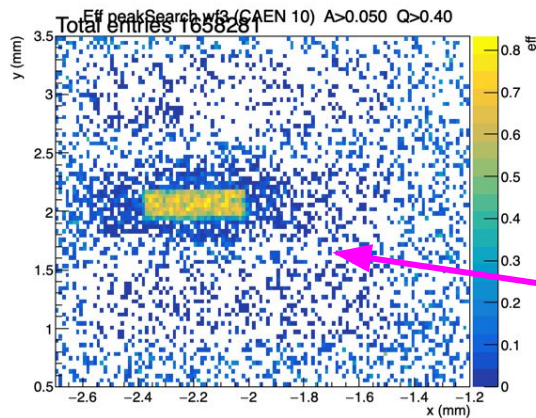
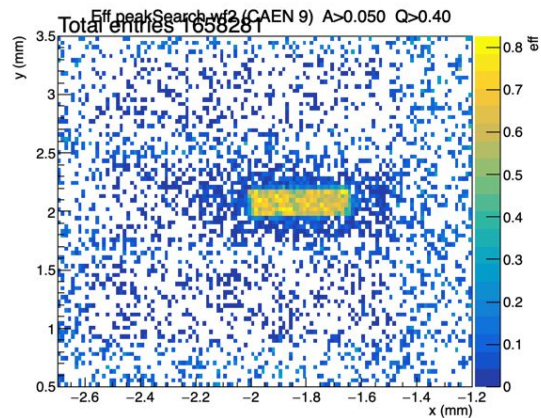
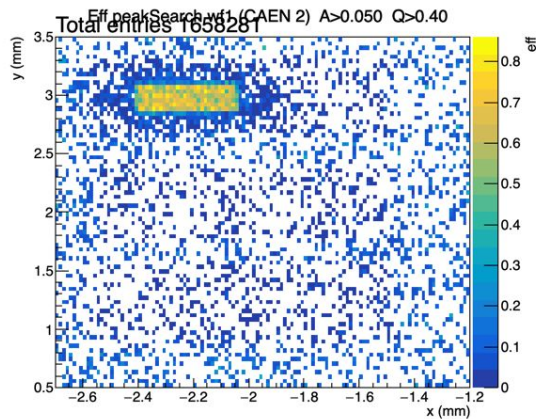
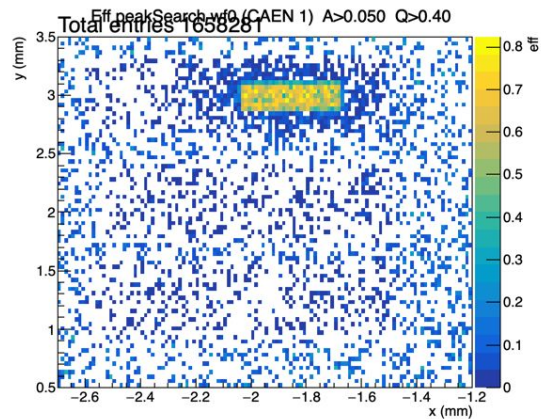


tpk(DUT wf3) - tpk(REF1) (samples)



$$t_{\text{sample}} = t_{\text{REF}}(\text{ToA}) + \text{median } \Delta k$$

# Efficiency results for non-irradiated TW2/3



without an explicit  
geometric ROI cut