



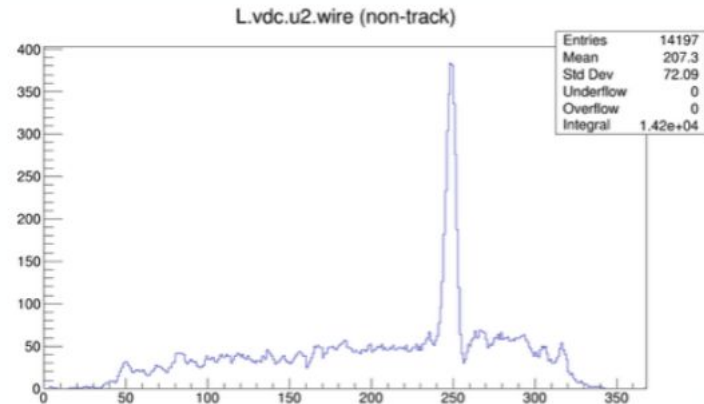
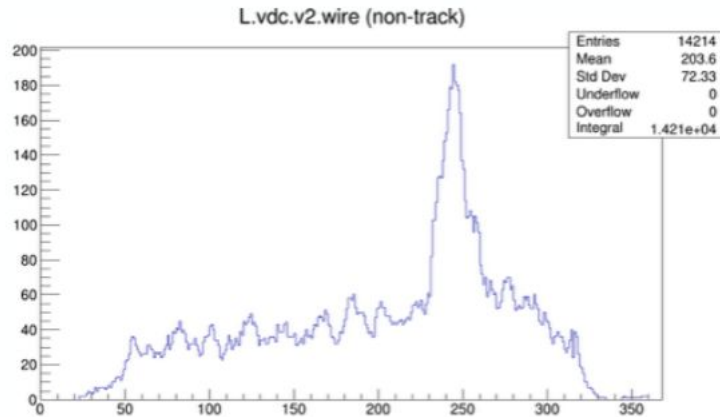
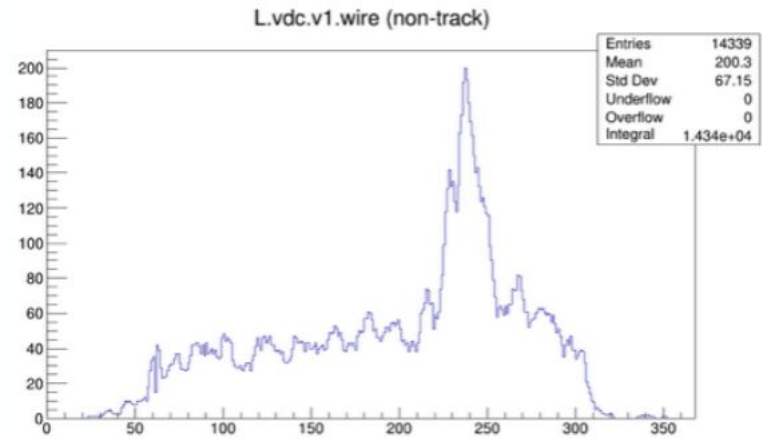
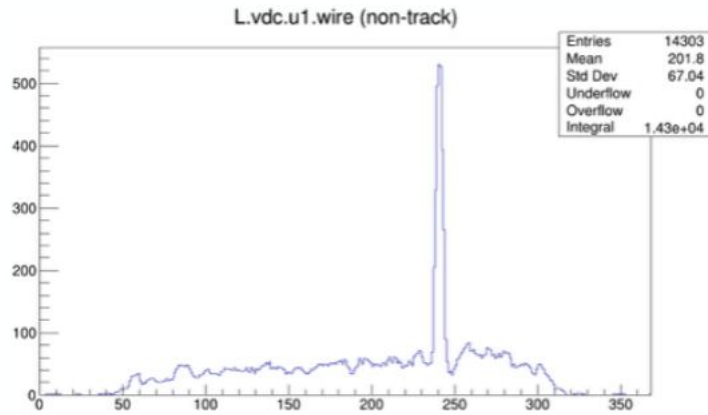
VDC Tracking Issue

Hanjie Liu, Shujie Li

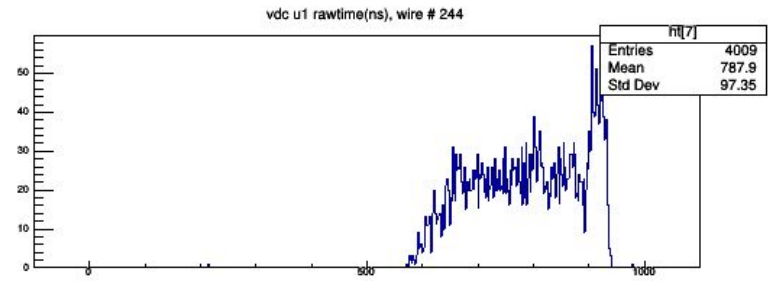
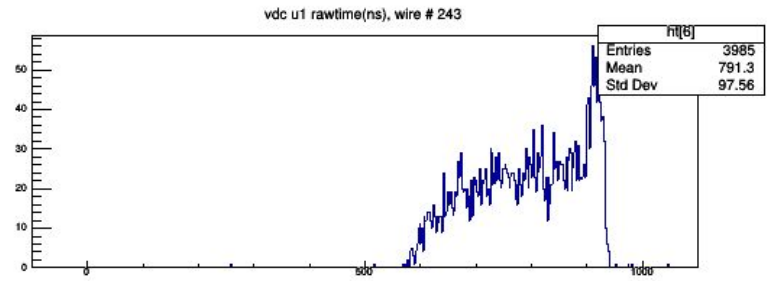
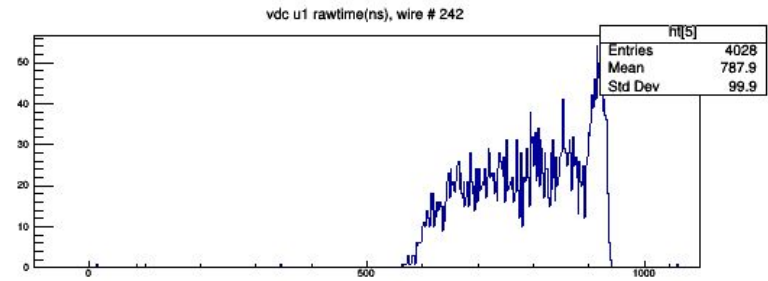
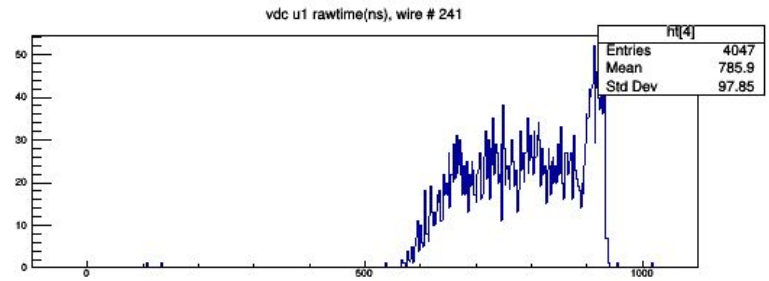
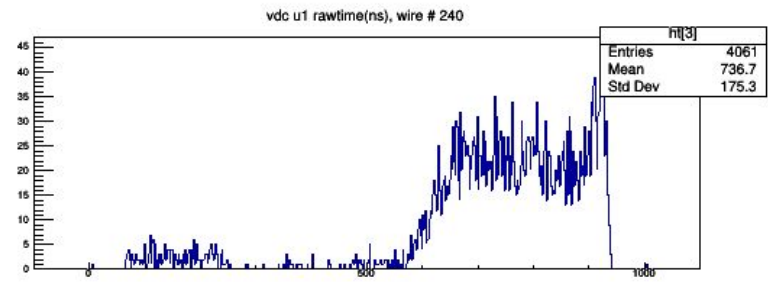
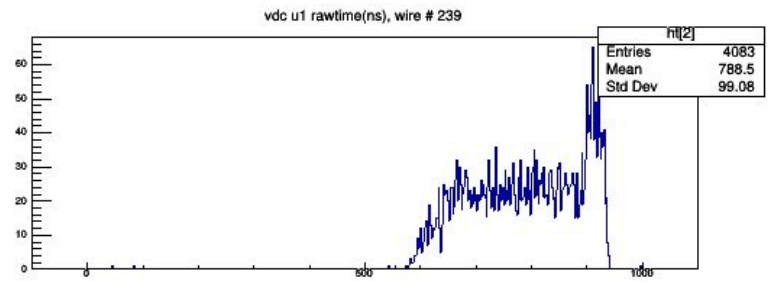
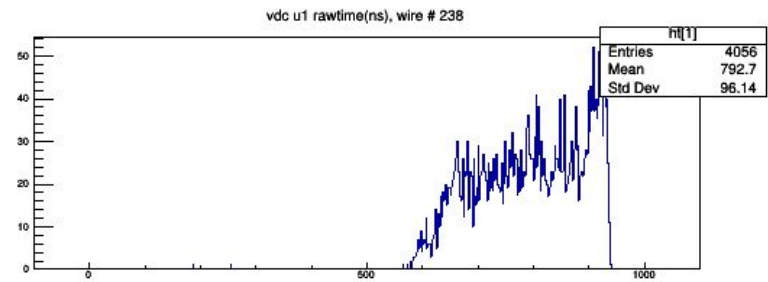
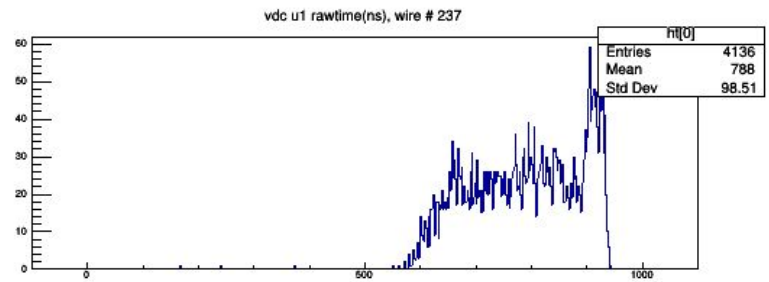
Jun 05, 2018

Questions:

Lots of non-track potential electron events are around wire 240-250



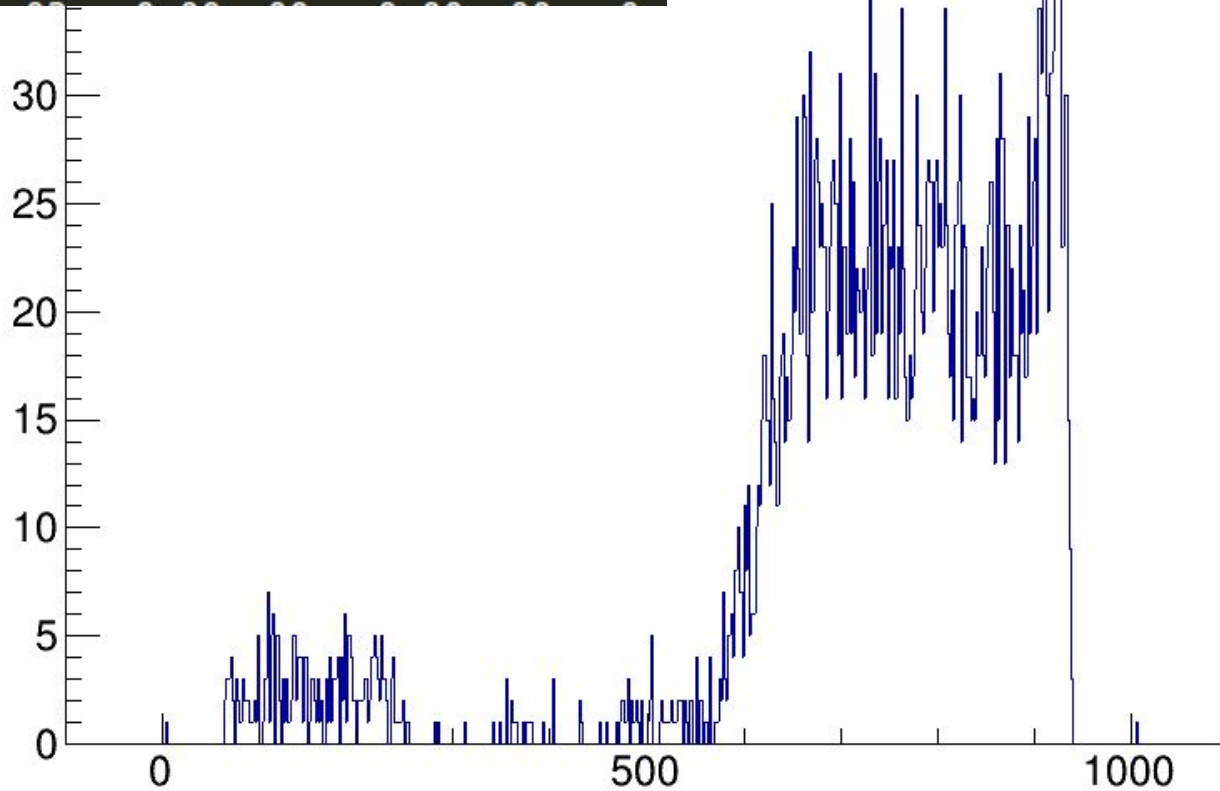
Run 3142 is used to make plots unless specified.



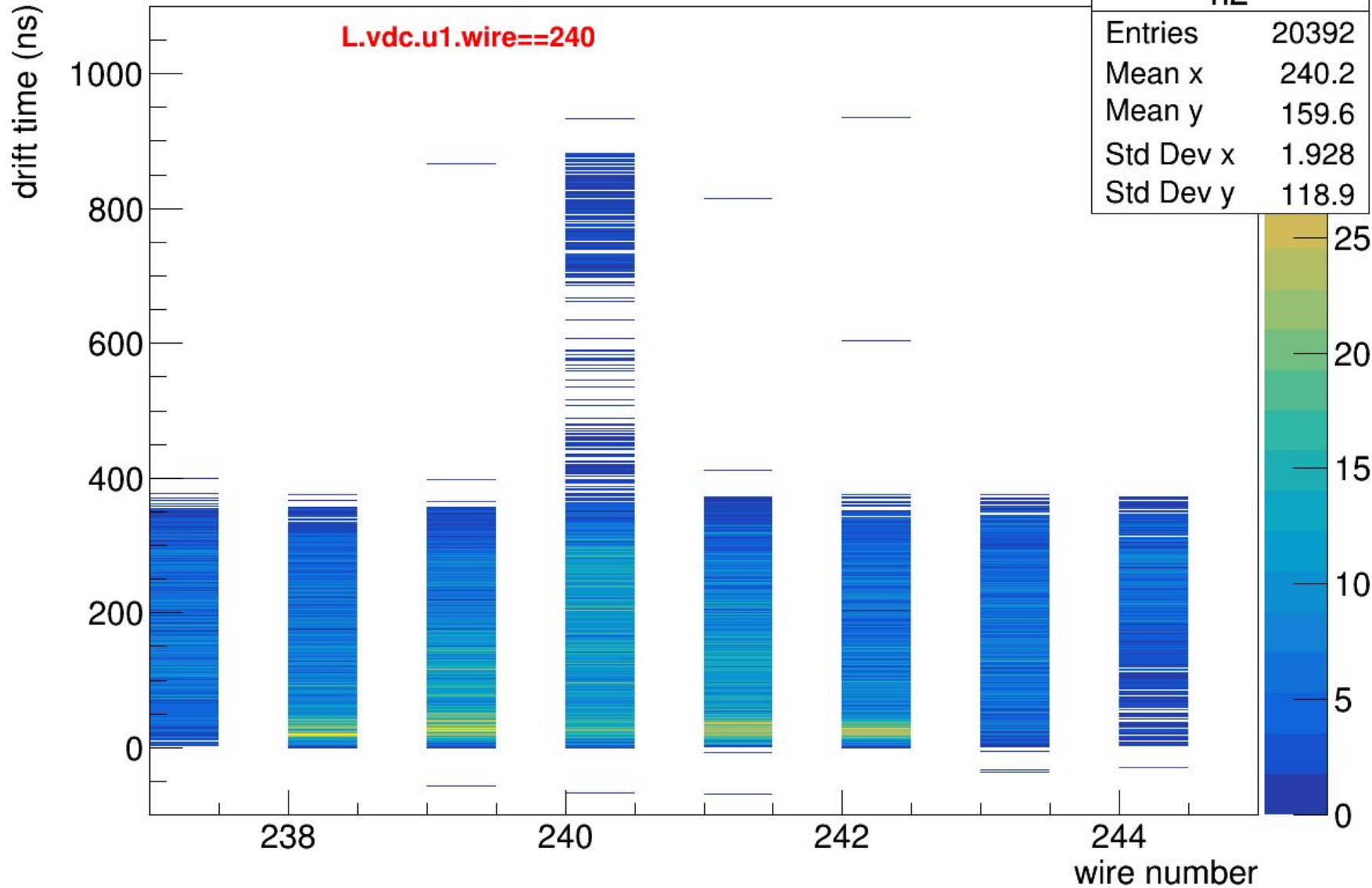
vdc u1 rawtime(ns), wire # 240

```
L.vdc.nwires = 368  
L.vdc.wire.spacing = -0.0042426  
L.vdc.tdc.min = 800  
L.vdc.tdc.max = 2200  
L.vdc.tdc.res = 5e-10  
L.vdc.ttd.param =
```

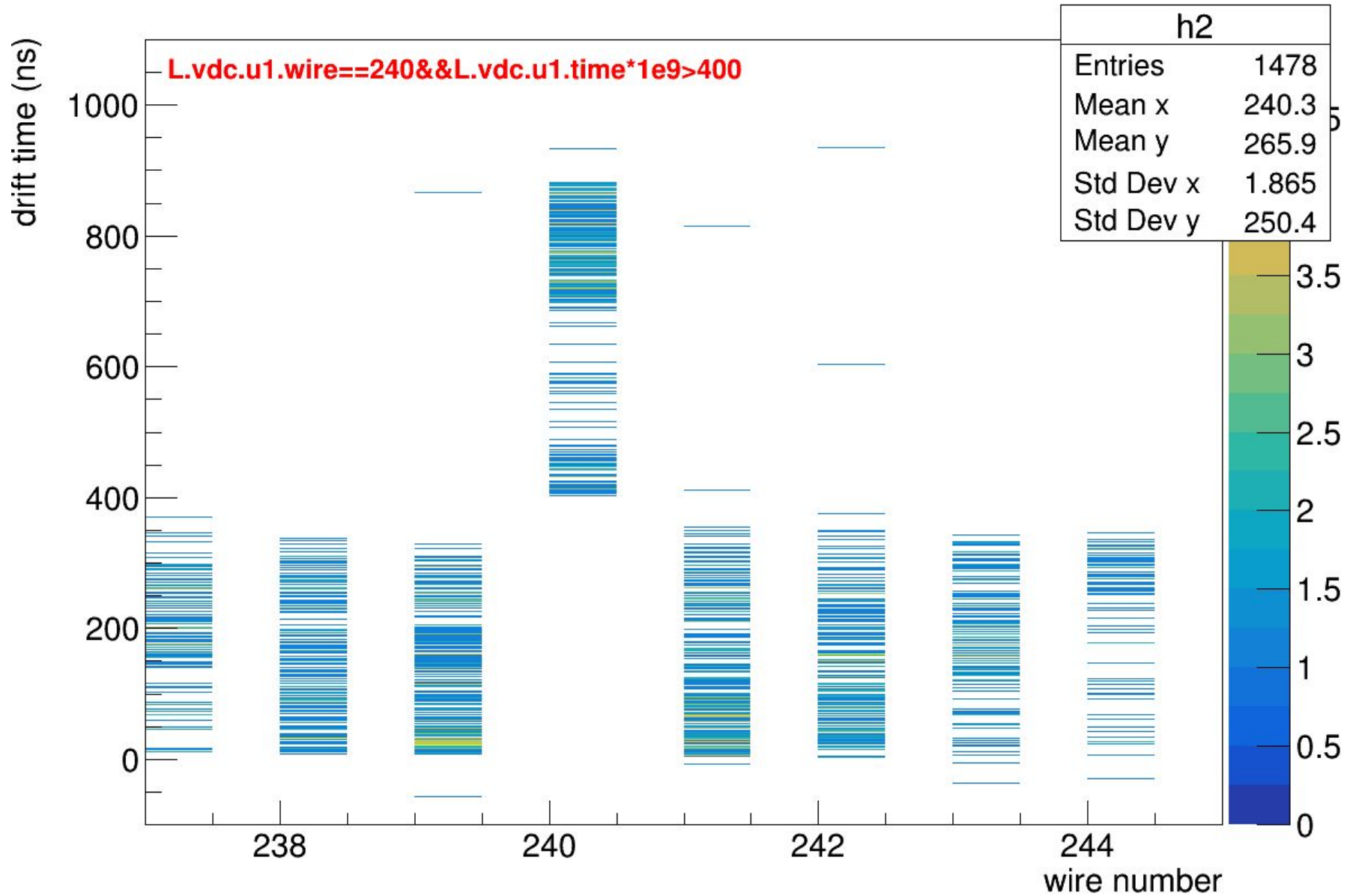
ht[0]	
Entries	4061
Mean	736.7
Std Dev	175.3



vdc u1 time v.s. wire number

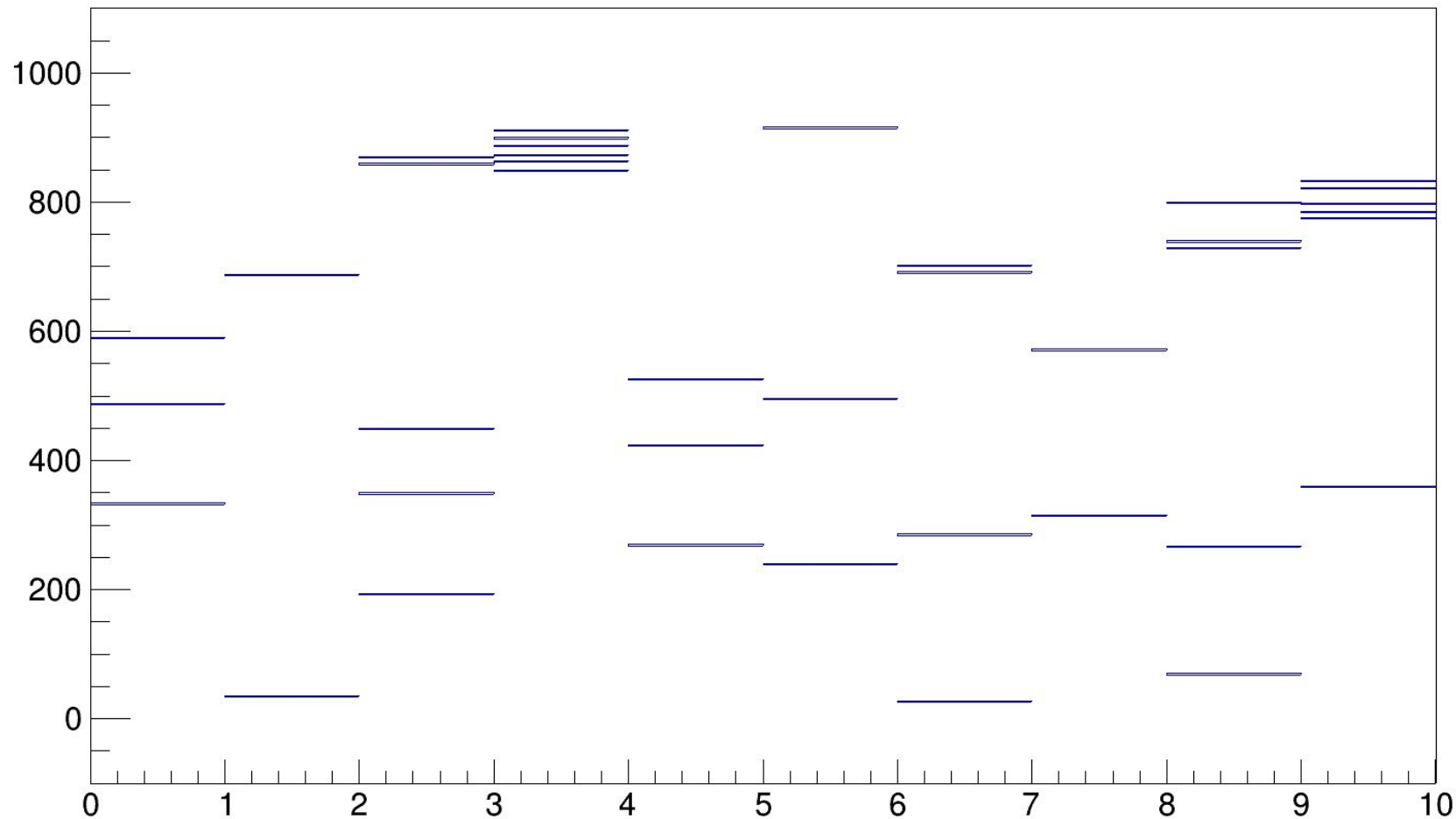


vdc u1 time v.s. wire number

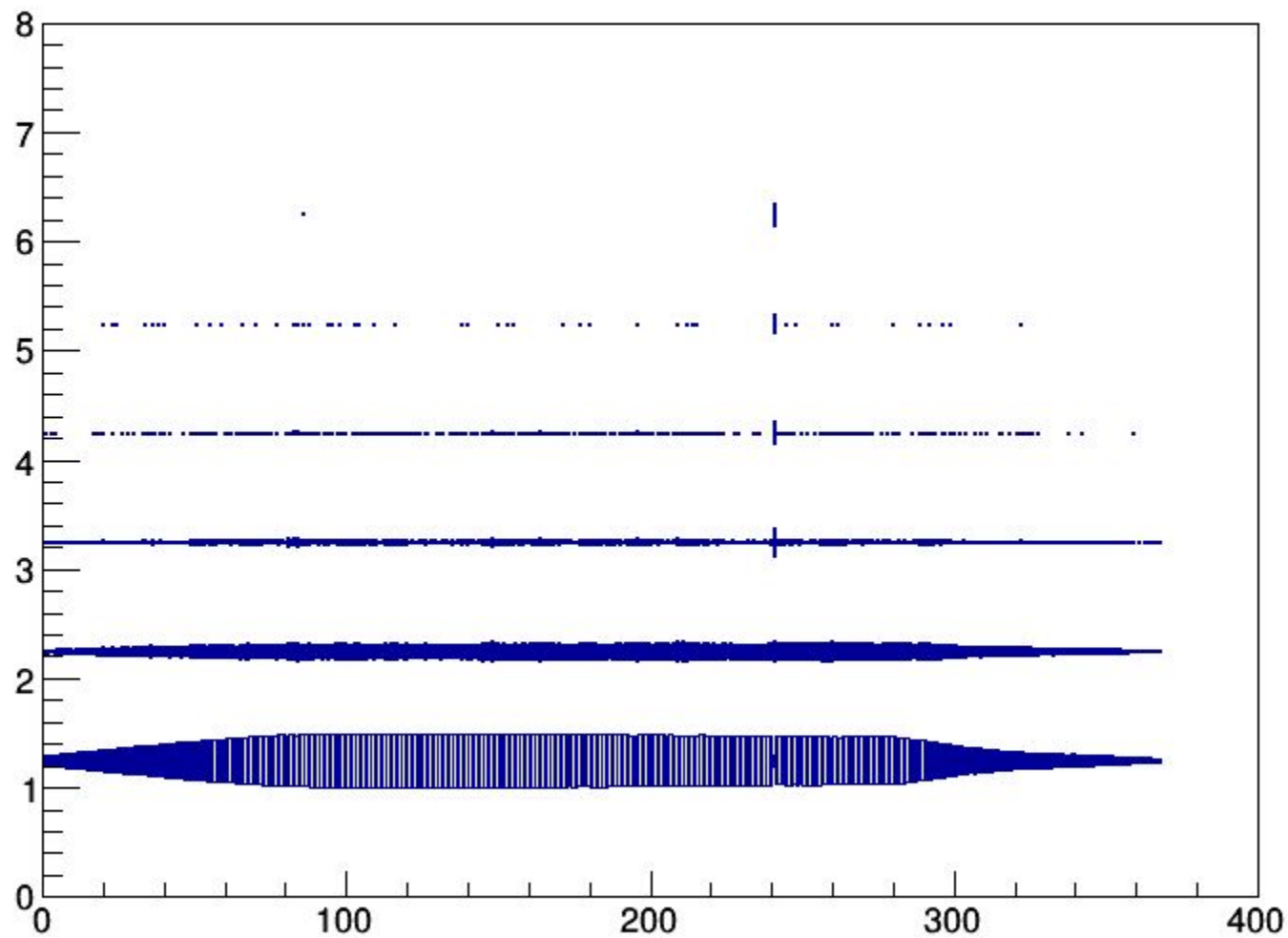


Wire 240 has a lot of multi hits: bad wire? Bad electronics?

L.vdc.u1.time*1e9:Entry\$ {L.vdc.u1.wire==240}



vdc u1 hits per channel v.s. wire number





Wire 240 Tracking Quality Check:

Q:

1. Percentage of “bad” hit from wire 240
2. When the wire 240 tdc value passed `hard_cut` but has multi hits, can we trust it?



Wire 240 Tracking Quality Check:

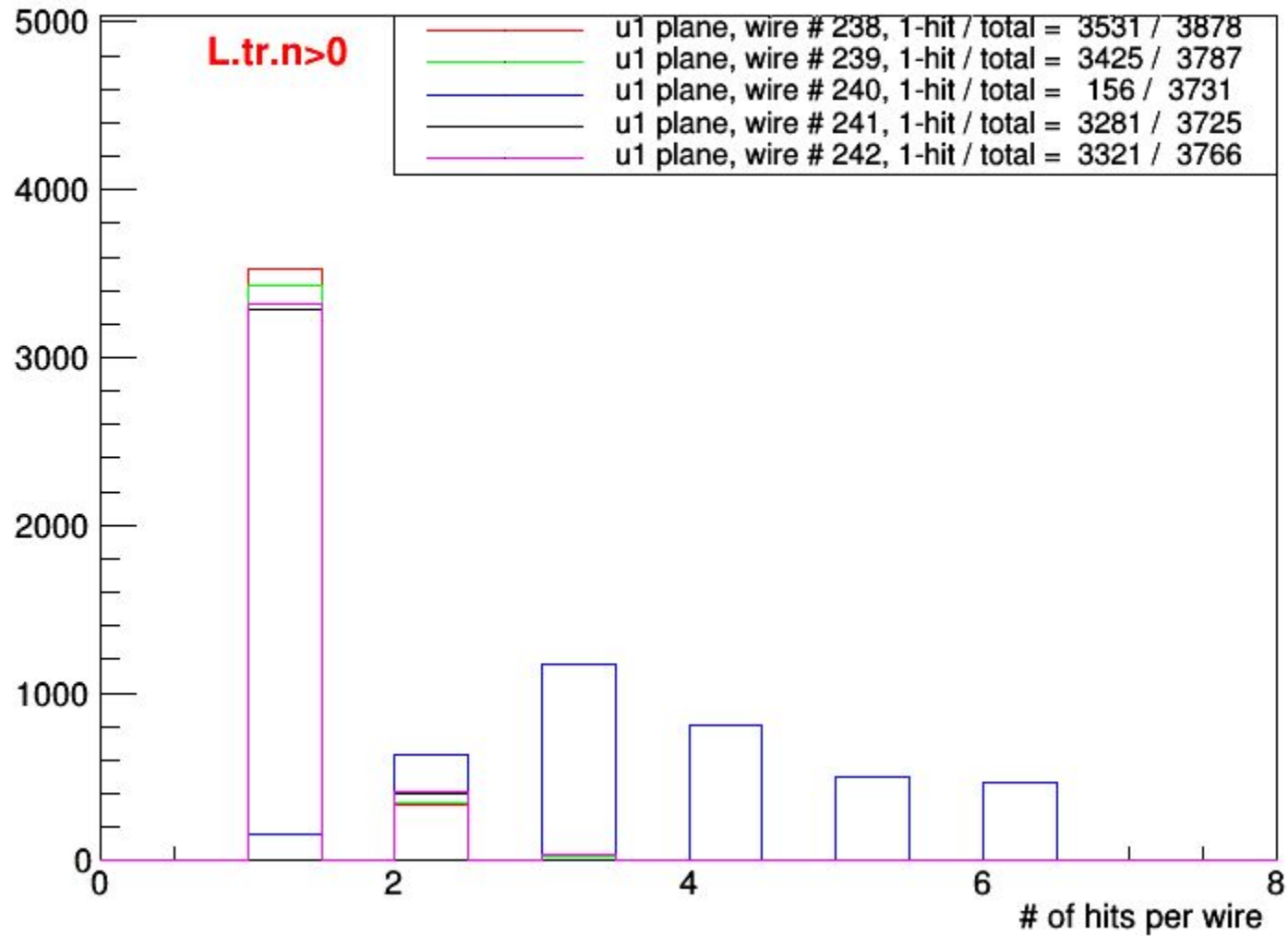
1. Find potential good electron events:

```
TCut pid = "DL.bit2>0&&L.cer.asum_c>2000 &&  
(L.prl1.e+L.prl2.e)>(HacL_D1_P0rb*800)";
```

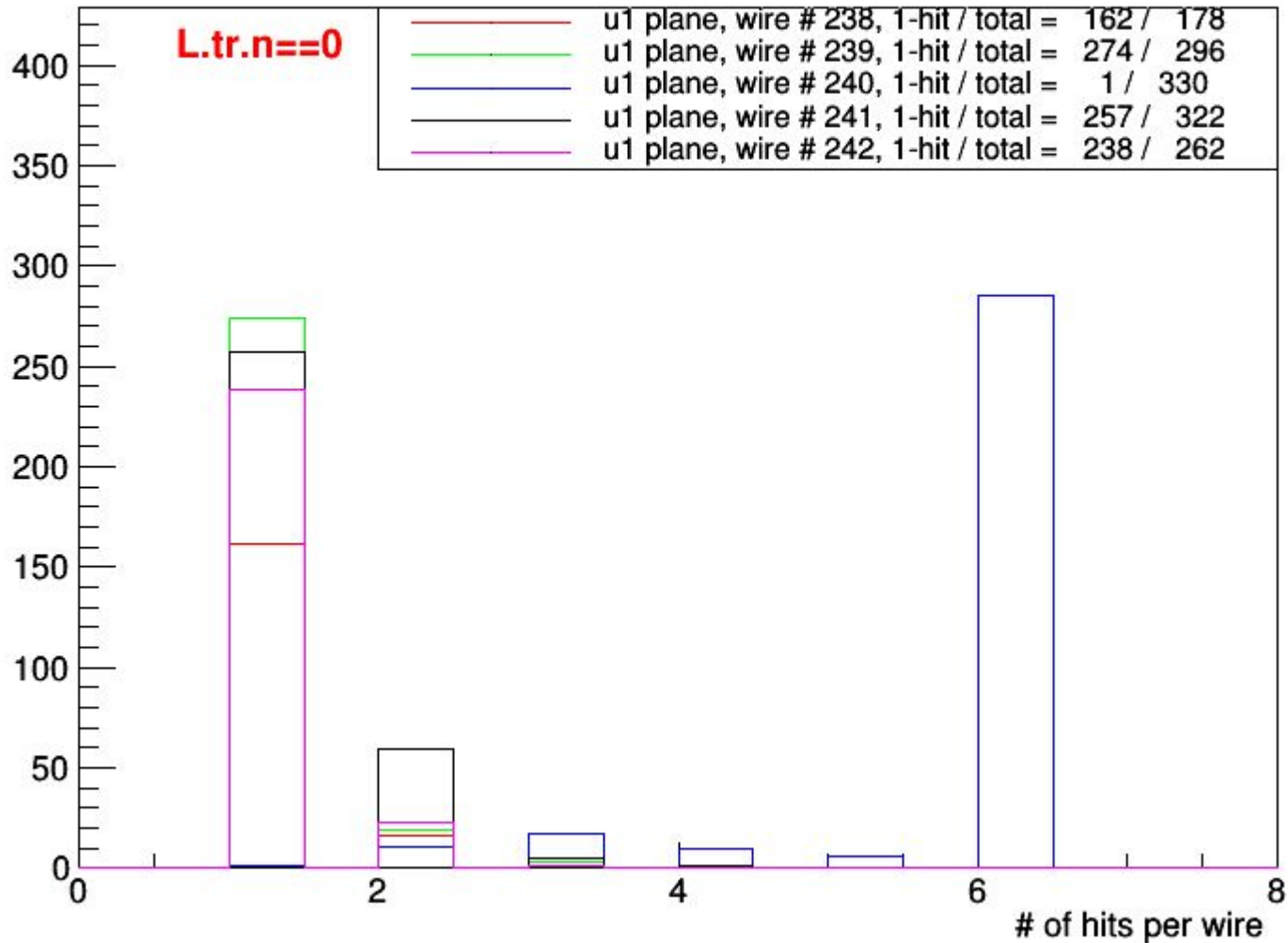
2. Look at hits / tracks per wire
3. If no track , is the fired wire not used for cluster or cluster formed but not used for track ??

```
"L.vdc.u1.clbeg[0]<240&&L.vdc.u1.clend[0]>240&&L.vdc.u1.wire==240"
```

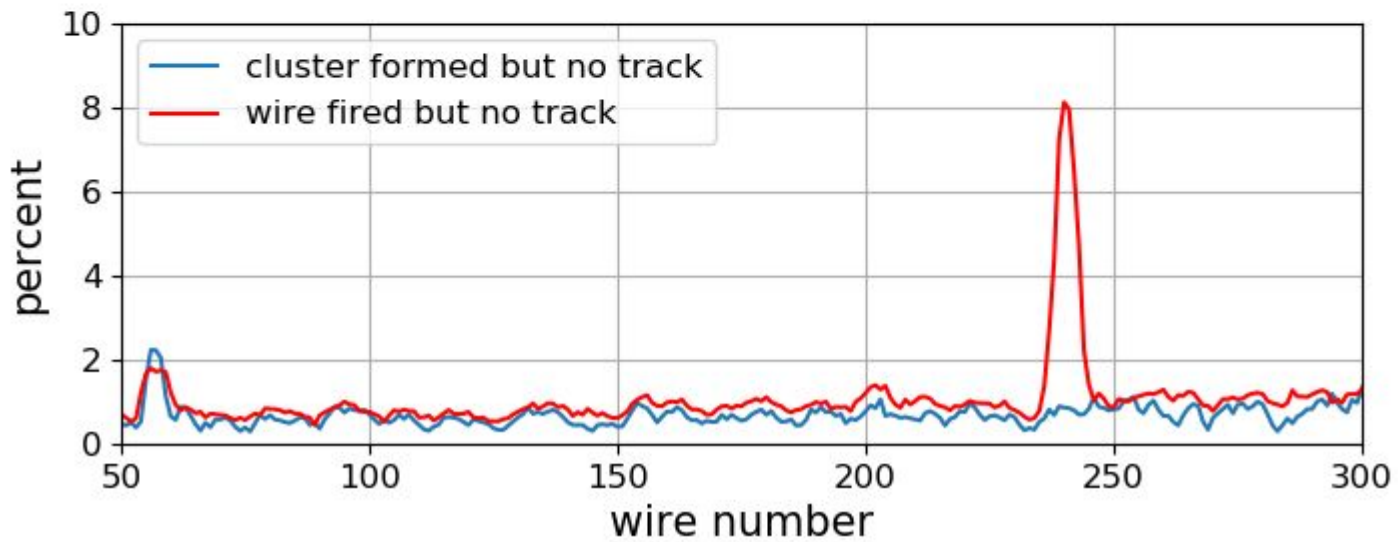
of TDC hits per VDC wire



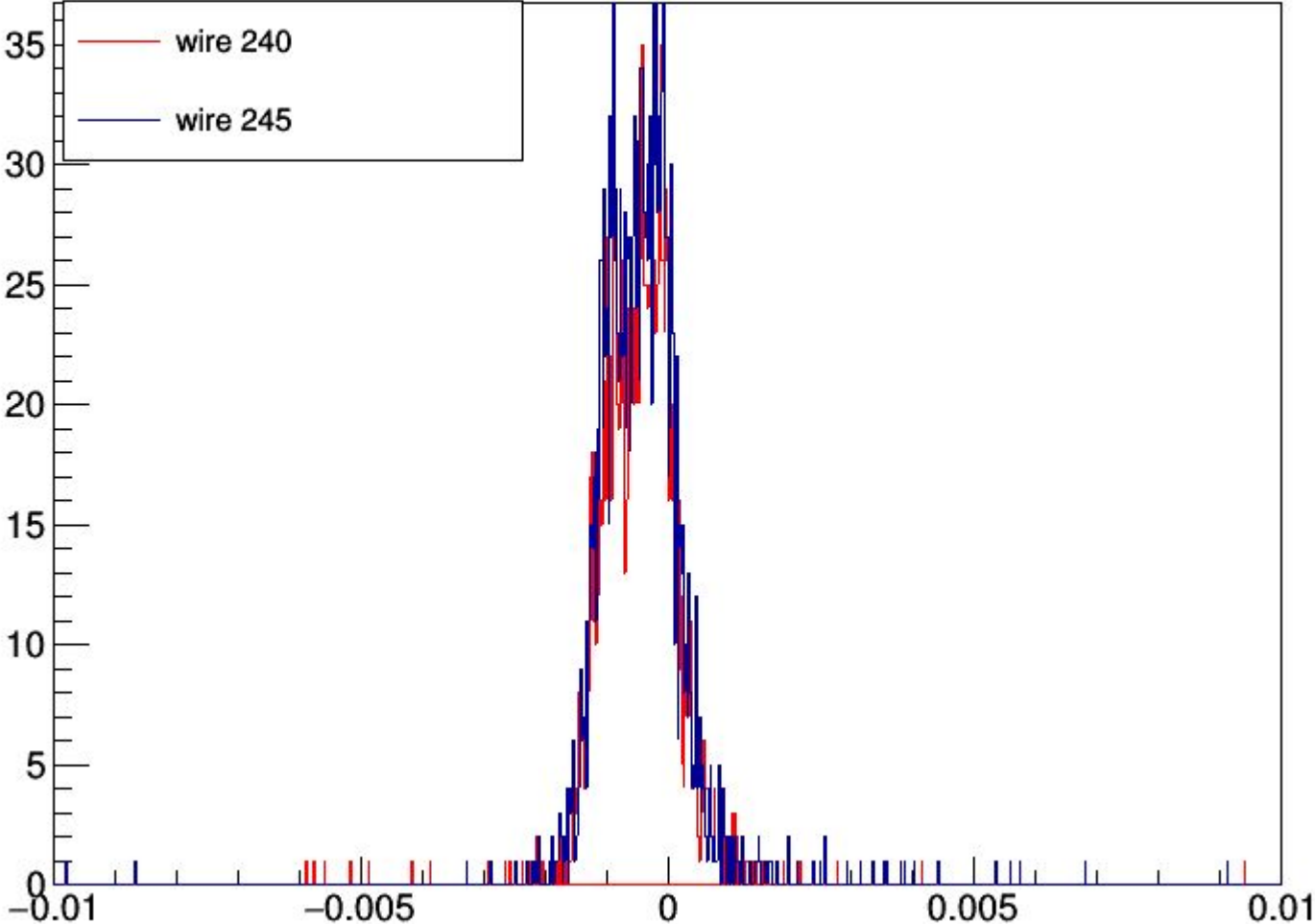
of TDC hits per VDC wire



Run 3142, U1 plane



distance from track: trdist-dist





Conclusion:

1. U1 wire 240 is noisy (multi-hits) across the spring run period
2. When analyzer was able to find cluster with wire 240, the track looks OK (?)
3. 8% of hit from the wire could be good but didn't used to for cluster