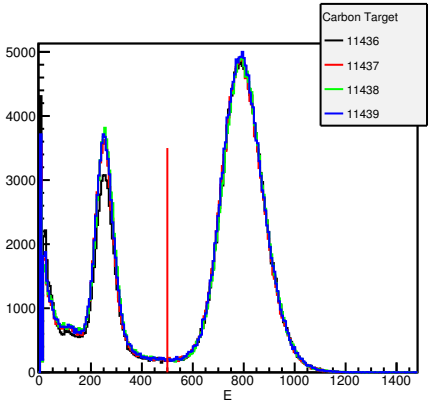
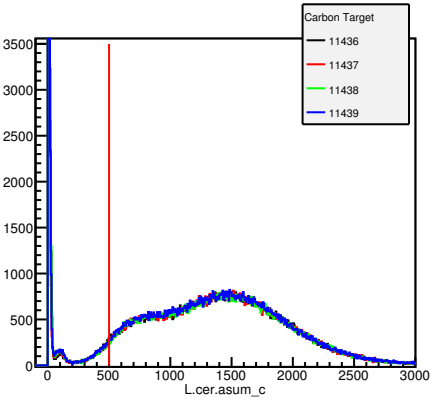
Target Boiling Study

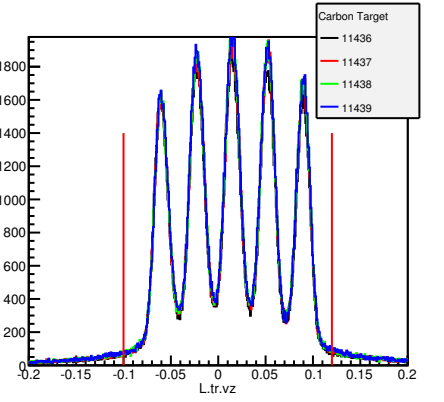
- Applied PID and ncluster cut in order to calculate tracking efficiency, where ncluster cut select both single cluster and one track events.

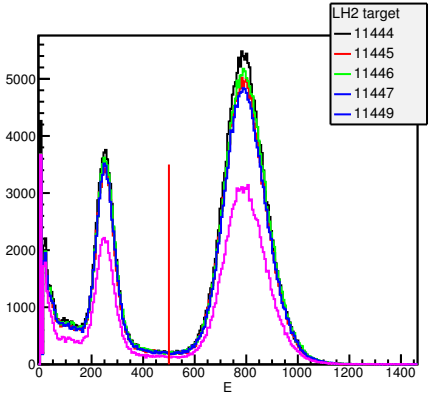
- Removed momentum dependence from PID cut as it only includes the tracks greater than zero.

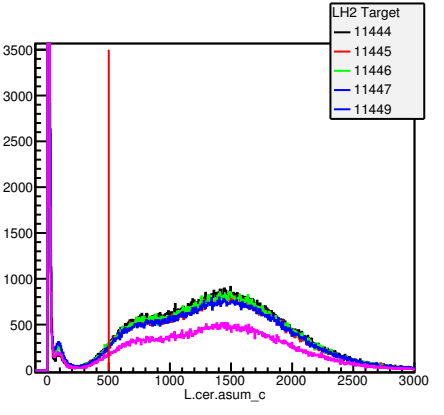
- d3r is used to calculate the charge and current below 10uA in order to down the charge normalized yield, Since unser current below 10uA is 6% higher than BCM fit for u1r.

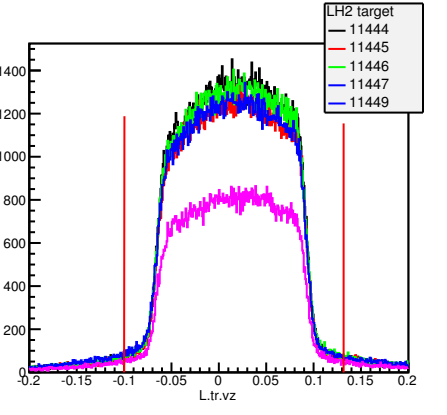

Carbon Target
11436
11437
11438
11439
E

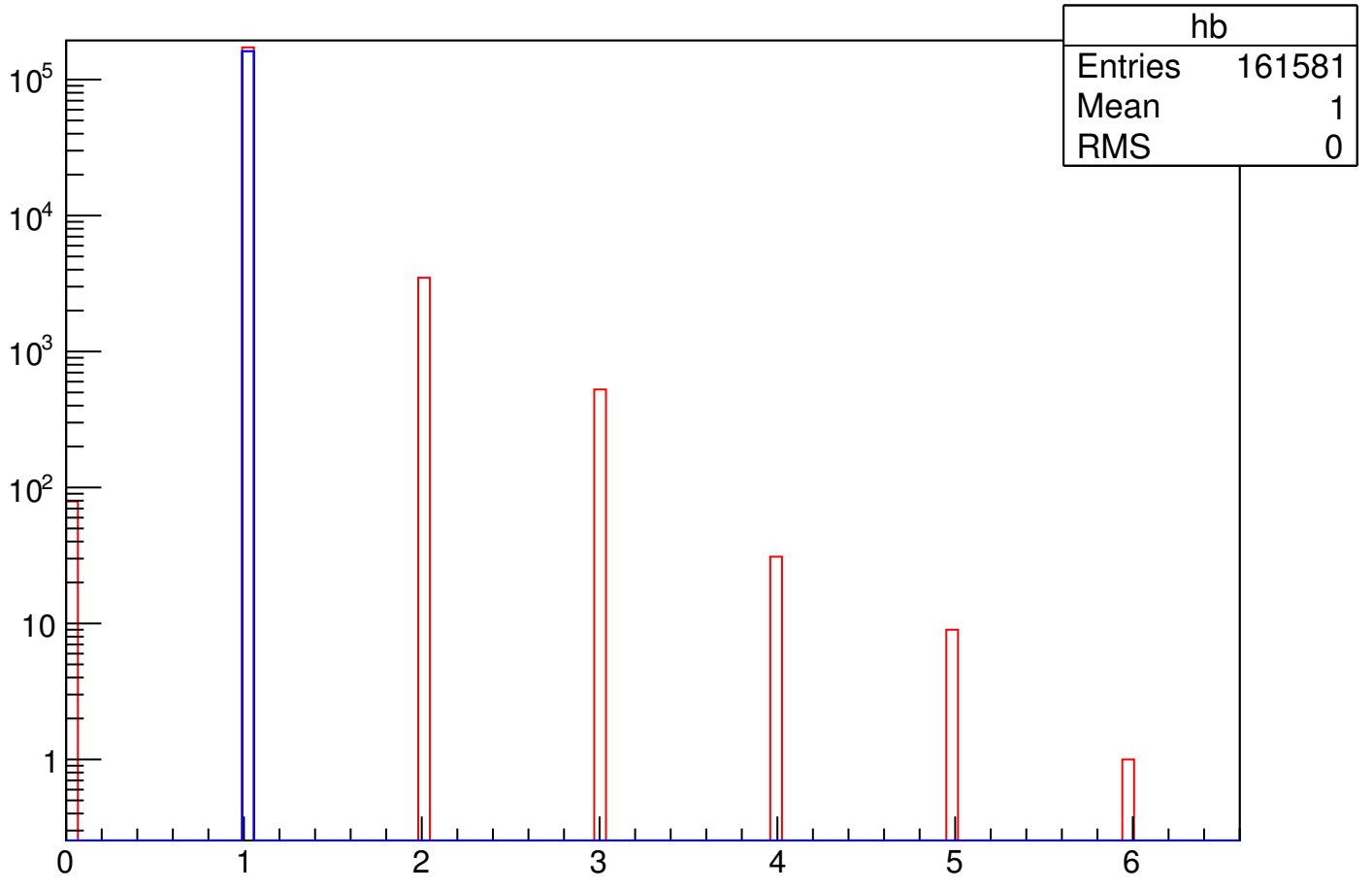

Carbon Target
11436
11437
11438
11439
L.cer.asum_c


Carbon Target
11436
11437
11438
11439
L.tr.vz


LH2 target
11444
11445
11446
11447
11449
E


LH2 Target
11444
11445
11446
11447
11449
L.cer.asum_c

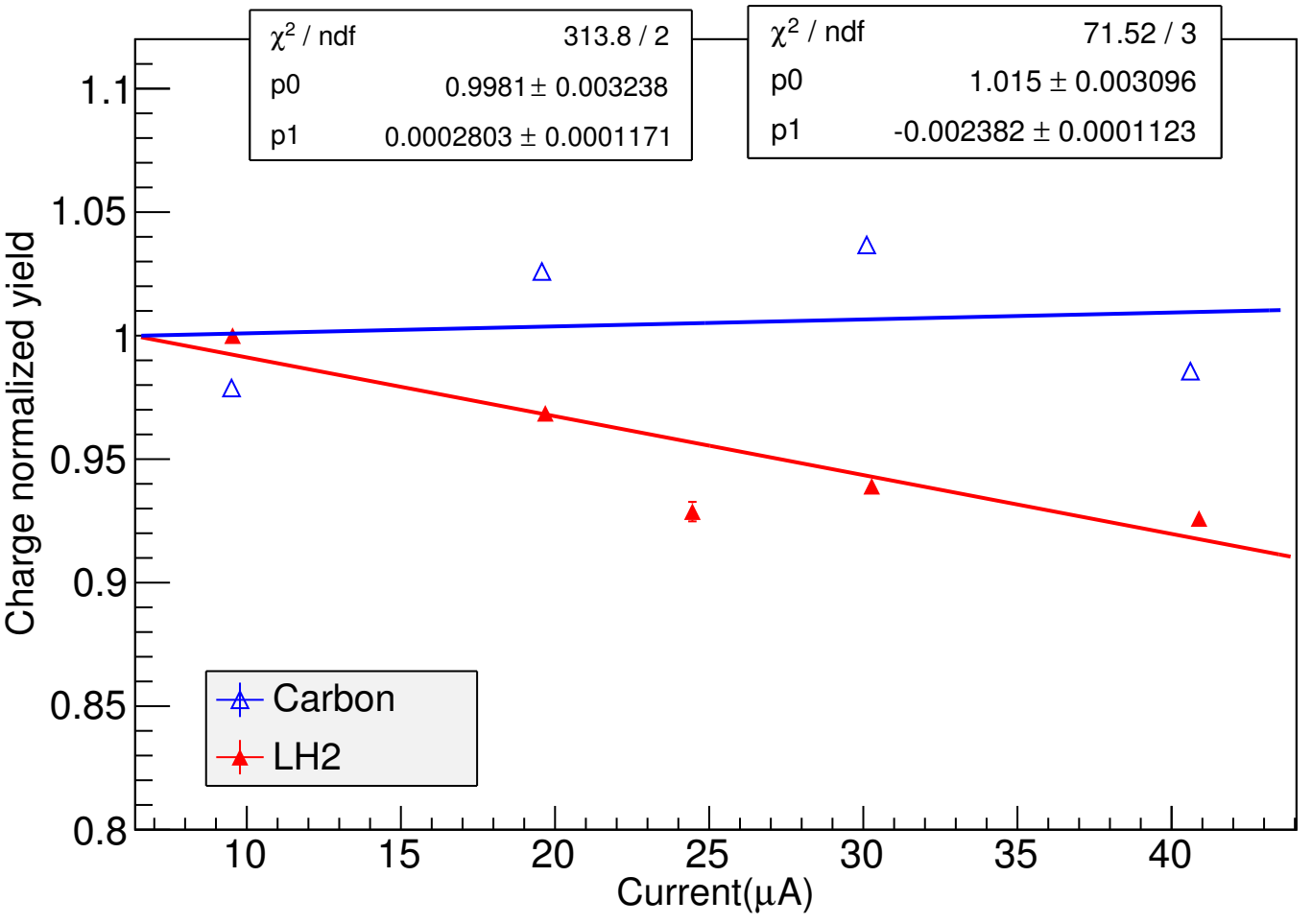

LH2 target
11444
11445
11446
11447
11449
L.tr.vz


hb
Entries 161581
Mean 1
RMS 0
10^5
10^4
10^3
10^2
10
1
0
1
2
3
4
5
6

Target Boiling study

Run# LH2	RunTime(min)	Current(uA)	Charge(uC)	Eff(%)	LT(%)	RunTime*current	No. of events
11444	15.92	9.54	**9074.15**	0.9146	0.965	**9112.608**	562276
11445	12.87	19.68	**15145.1**	0.8975	0.961	**15196.896**	516158
11446	13.79	30.27	**25050.1**	0.8823	0.962	**25045.398**	538558
11447	12.96	40.89	**31796.9**	0.8642	0.962	**31796.064**	510306
11449	17.37	24.45	**25480.9**	0.8538	0.9633	**25481.79**	334700

Run# Carbon	RunTime(min)	Current(uA)	Charge(uC)	Eff(%)	LT(%)	RunTime*current	No. of events
11436	19.52	9.5	**11134.4**	0.9287	0.975	**11126.4**	500640
11437	9.42	19.57	**10915.3**	0.9251	0.946	**11060.964**	512600
11438	9.037	30.11	**16186.9**	0.9213	0.944	**16326.2442**	517902
11439	10.61	40.6	**25851.3**	0.9182	0.951	**25845.96**	524158


χ² / ndf 313.8 / 2
p0 0.9981 ± 0.003238
p1 0.0002803 ± 0.0001171
χ² / ndf 71.52 / 3
p0 1.015 ± 0.003096
p1 -0.002382 ± 0.0001123
Charge normalized yield
Current(μA)
Carbon
LH2
1.1
1.05
1
0.95
0.9
0.85
0.8
10
15
20
25
30
35
40