Ti Boiling Target Status

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Motivation:

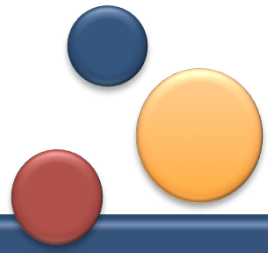
Perform Ti boiling target study, and prepare for Ar boiling study during Ar($e, e`p$) experiment.

Some issues:

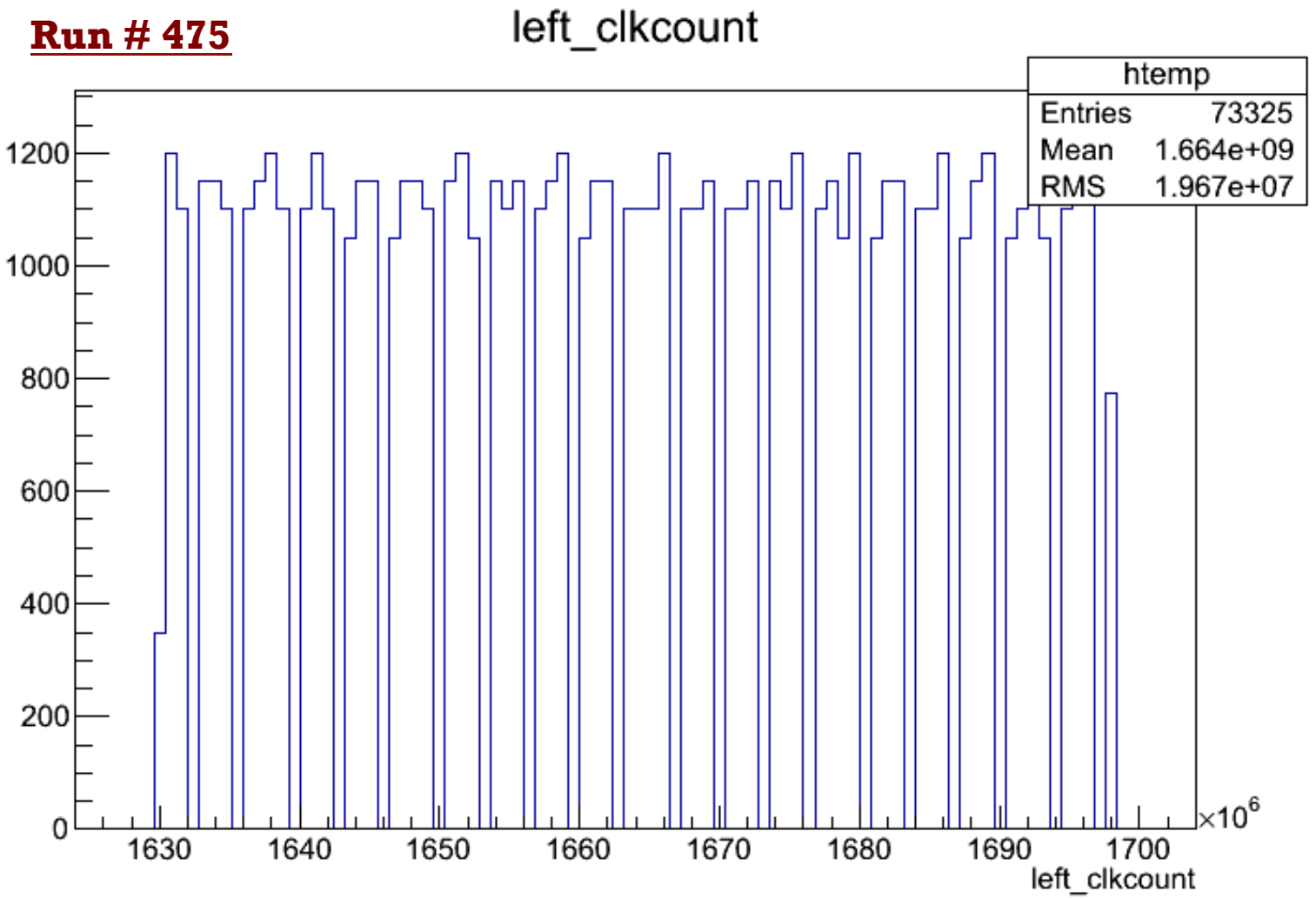
- Left Clock output:

1. does not reset to zero at the beginning of the run.
2. Negative time at some runs due to disk saturation (maybe?).

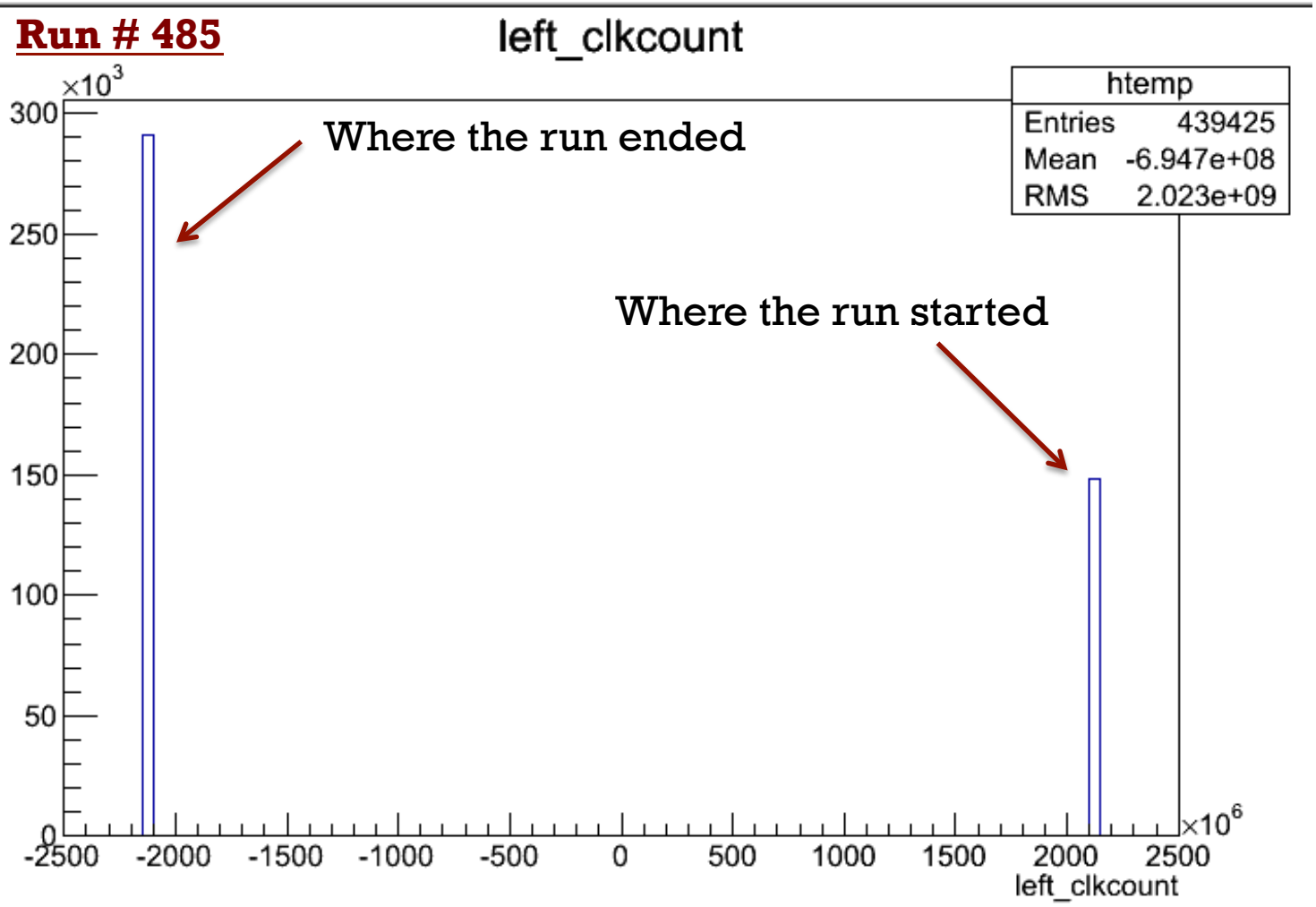
- BCM's response to low currents (<4uA).
- BCM's are not giving same normalized yield (DB?)



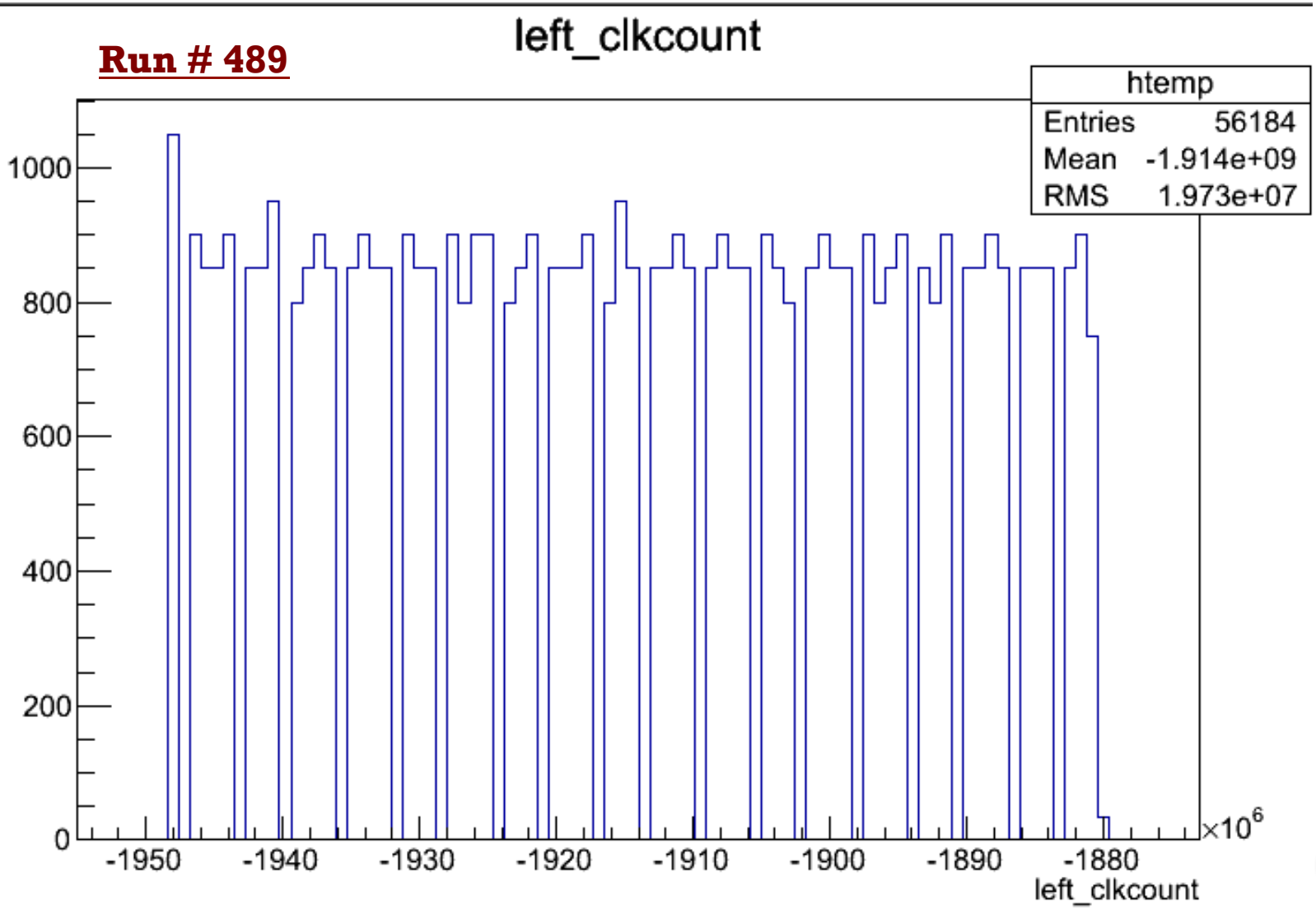
Run # 475

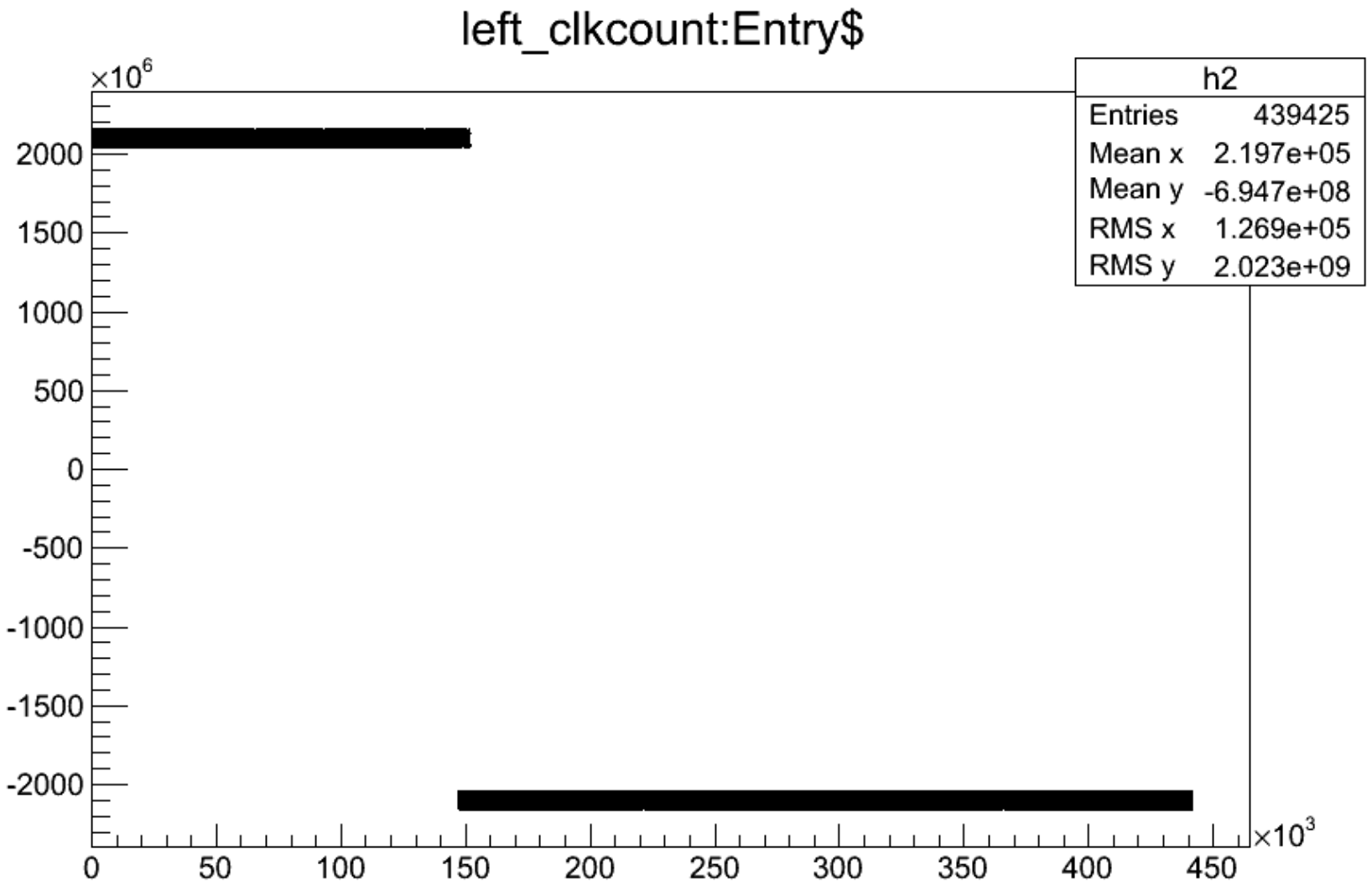

left_clkcount
htemp
Entries 73325
Mean 1.664e+09
RMS 1.967e+07
1200
1000
800
600
400
200
0
1630
1640
1650
1660
1670
1680
1690
1700
×10^6
left_clkcount

Run # 485

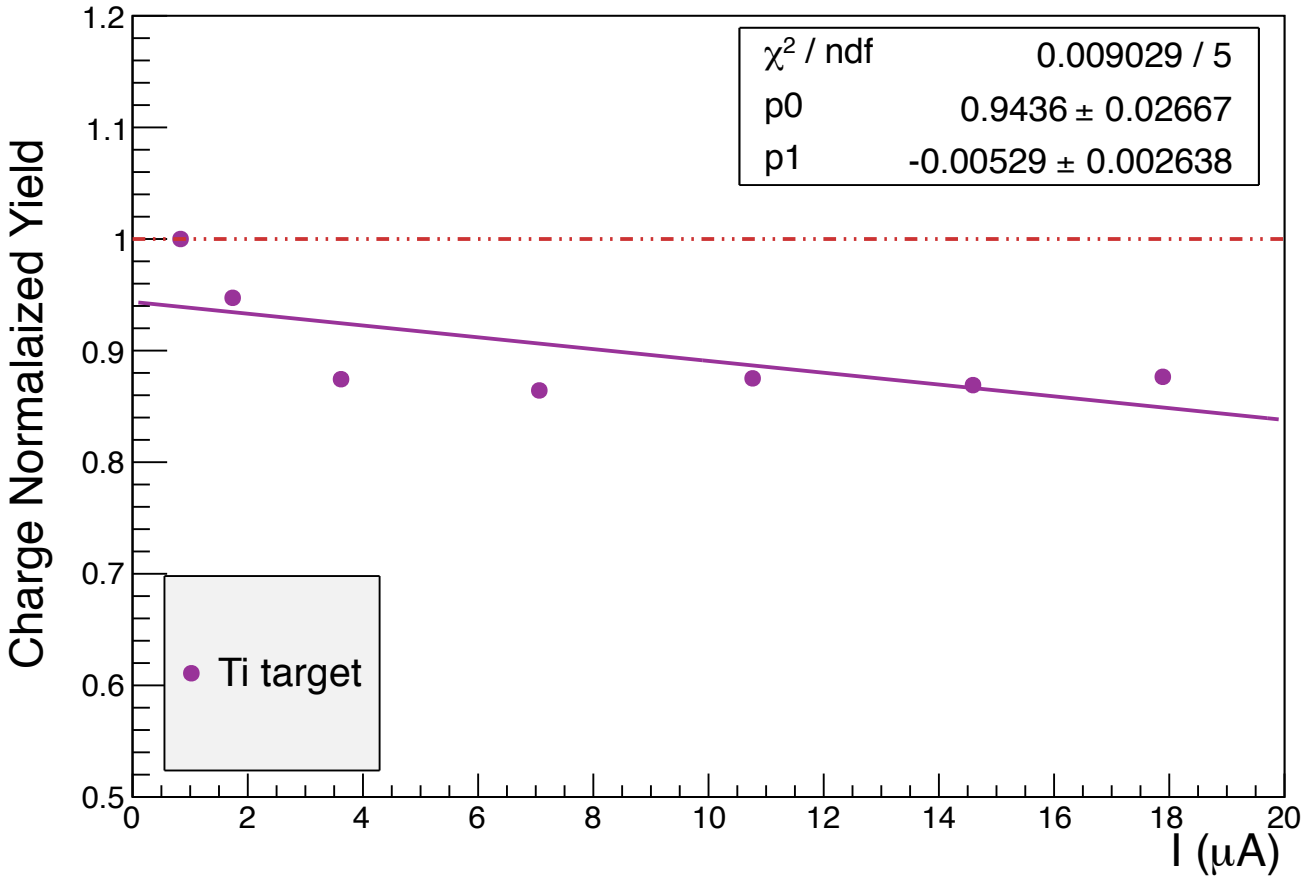

left_clkcount
htemp
Entries 439425
Mean -6.947e+08
RMS 2.023e+09
Where the run ended
Where the run started
×10^3
300
250
200
150
100
50
0
-2500
-2000
-1500
-1000
-500
0
500
1000
1500
2000
2500
×10^6
left_clkcount

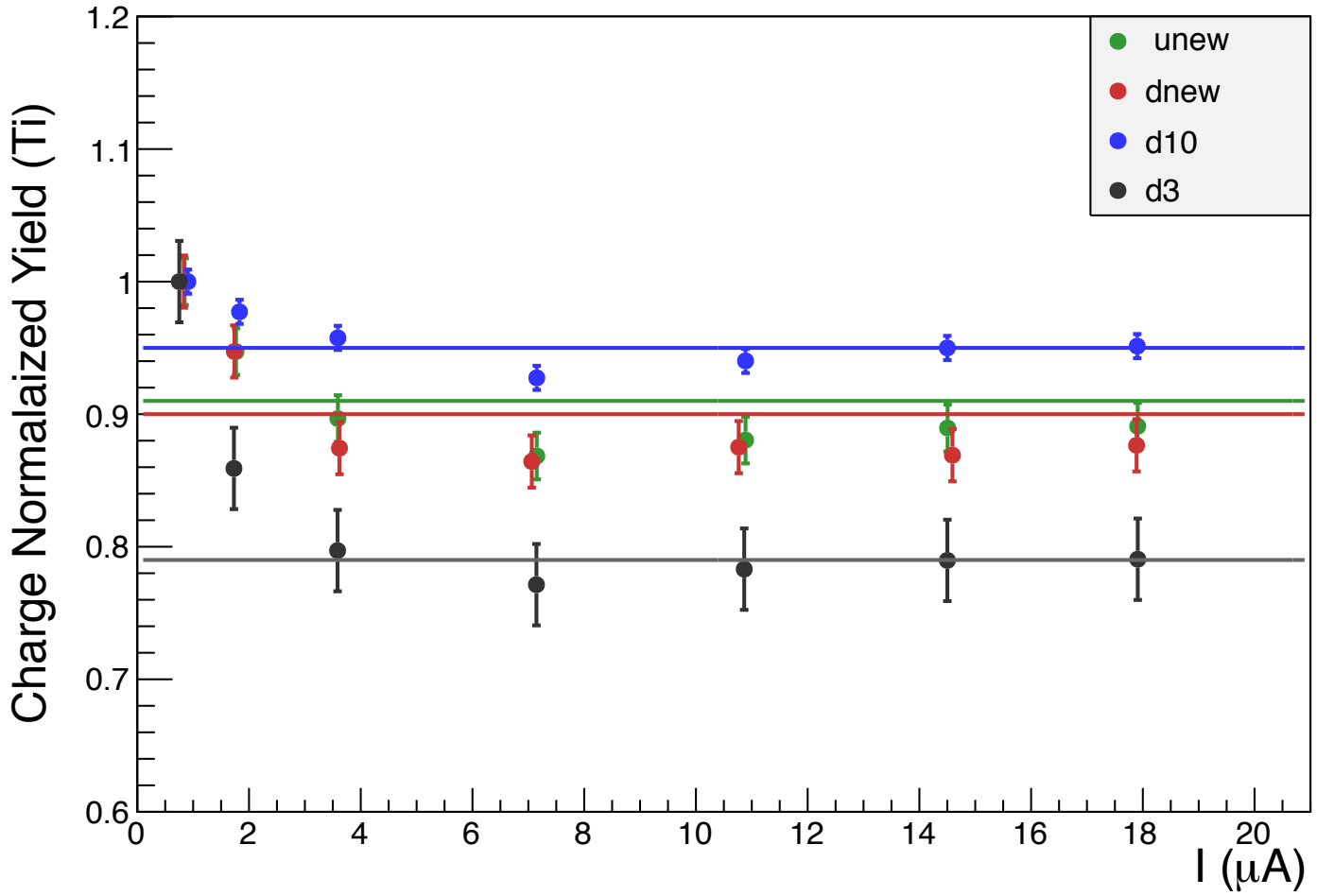
Run # 489


left_clkcount
htemp
Entries 56184
Mean -1.914e+09
RMS 1.973e+07
1000
800
600
400
200
0
-1950
-1940
-1930
-1920
-1910
-1900
-1890
-1880
×10^6
left_clkcount

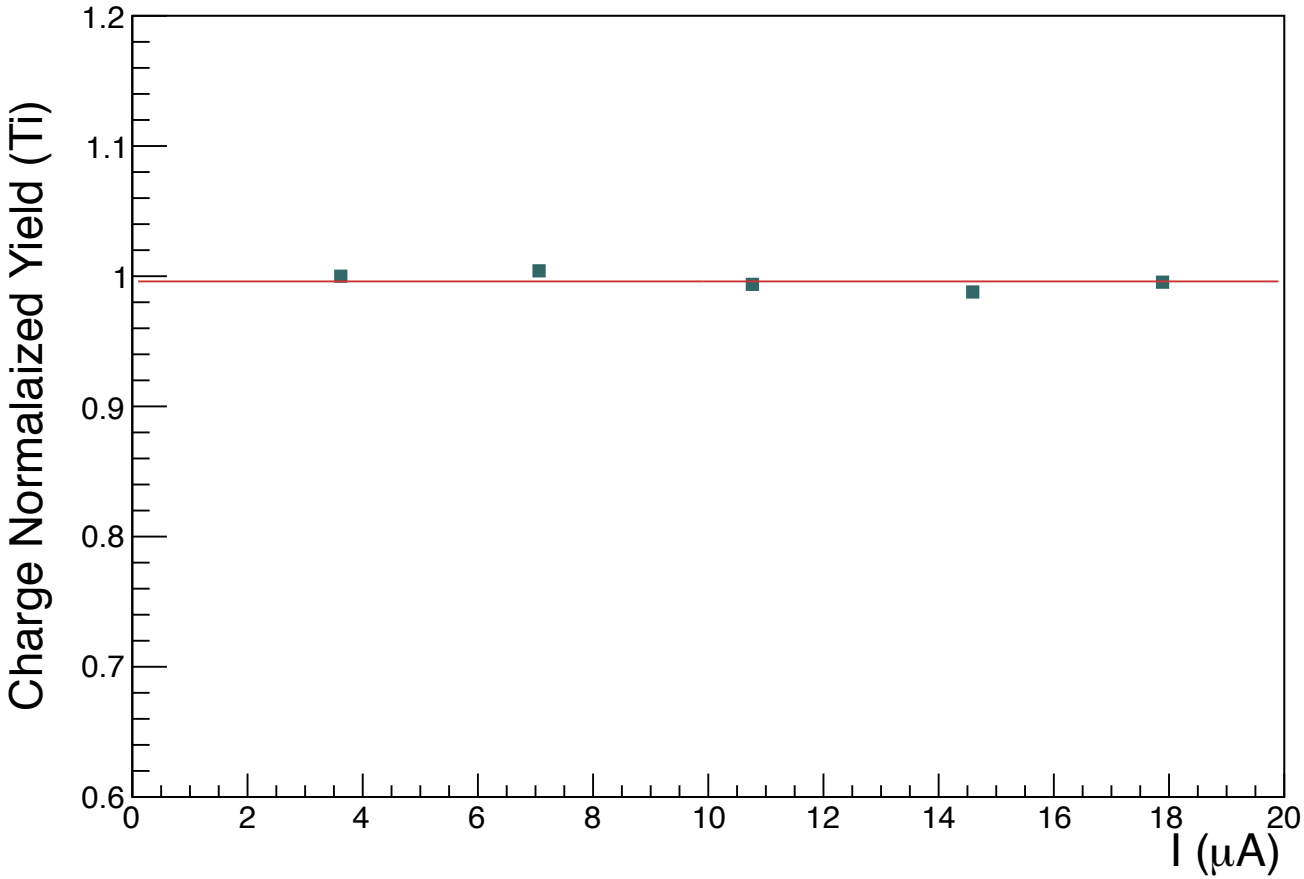

left_clkcount:Entry$
h2
Entries 439425
Mean x 2.197e+05
Mean y -6.947e+08
RMS x 1.269e+05
RMS y 2.023e+09
×10^6
2000
1500
1000
500
0
-500
-1000
-1500
-2000
0
50
100
150
200
250
300
350
400
450
×10^3

BCM: dnew

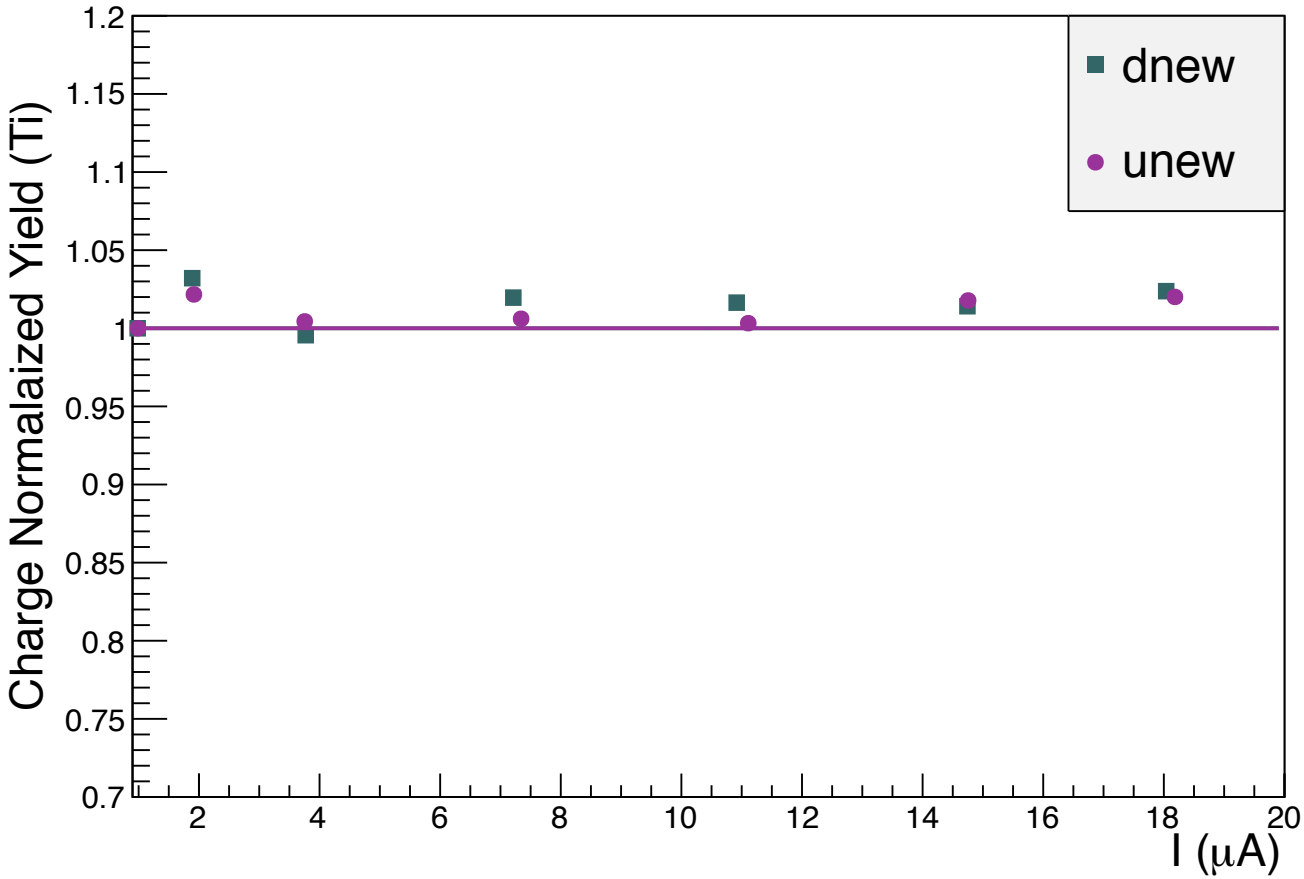

Charge Normalaized Yield
1.2
1.1
1
0.9
0.8
0.7
0.6
0.5
0
2
4
6
8
10
12
14
16
18
20
I (μA)
χ² / ndf 0.009029 / 5
p0 0.9436 ± 0.02667
p1 -0.00529 ± 0.002638
Ti target

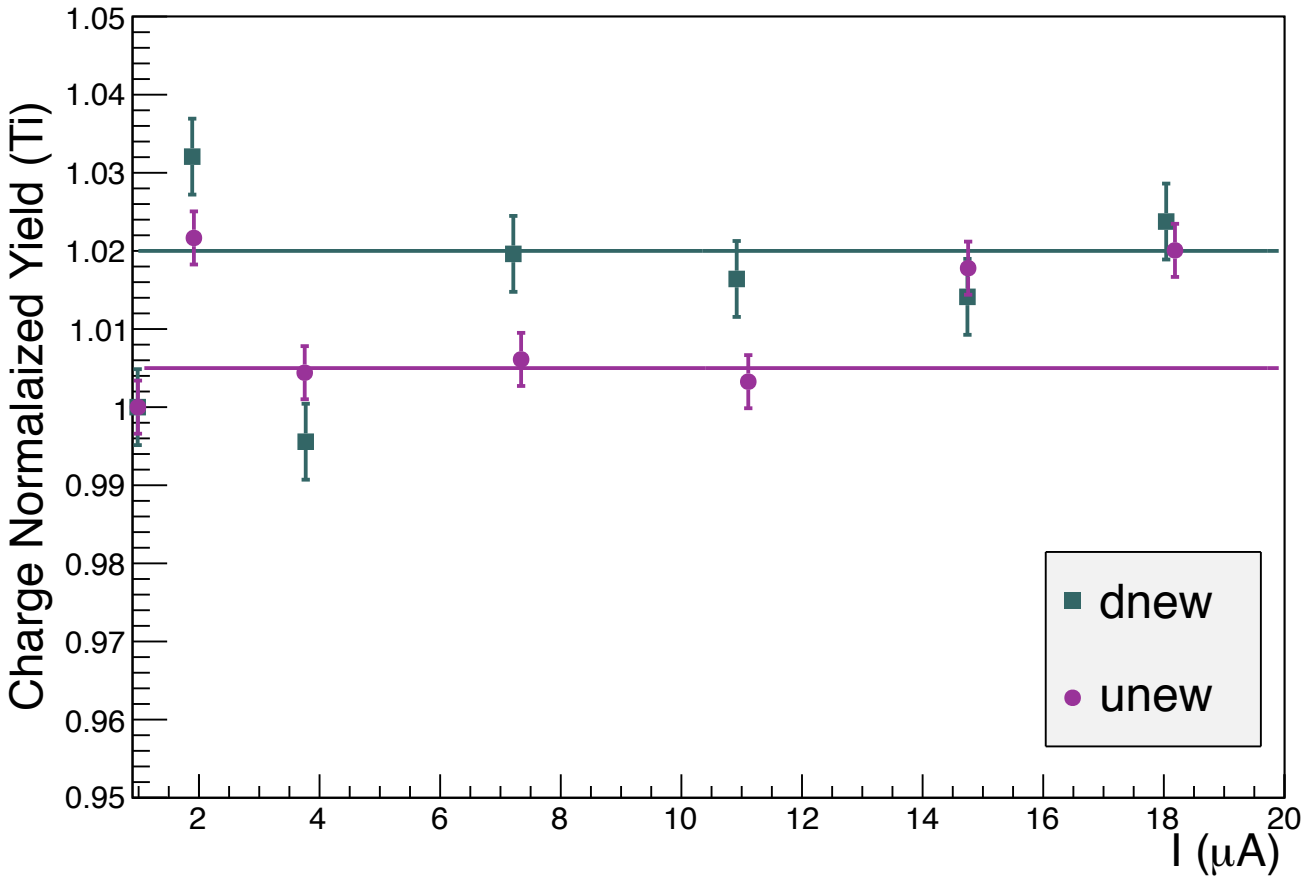

unew
dnew
d10
d3
Charge Normalaized Yield (Ti)
I (μA)
1.2
1.1
1
0.9
0.8
0.7
0.6
0
2
4
6
8
10
12
14
16
18
20

Normalizing over 4 uA yield and ignoring the lower current points:



After taking the BCM offset at low currents into account and adjusting the BCM constants:




Charge Normalaized Yield (Ti)
1.05
1.04
1.03
1.02
1.01
1
0.99
0.98
0.97
0.96
0.95
2
4
6
8
10
12
14
16
18
20
I (μA)
dnew
unew

Things need to be done:

- Analyze new boiling study runs (today) using finer bin in high current region for both Ar, Ti.
- Check offsets and uncertainties .
- Check Charge yield for different BCM's (how different from each other)
- Check the DB and make sure the BCM's are updated.