

Lithium tests @ 120 units on T6 & 500mm target

config	dates 2018	changes before installation	intensity	run numbers	L1	L1*	L2	PE
1	April 19 - May 8	—	~120 at 500mm	Before BMS removal: 282890 (179), 282891 (13), 282892 (56), 282893 (200), 282894 (200), 282896 (200), 282897 (200), 282898 (200), 282899 (200), 282900 (104), 282901 (10), 282902 (19), 282903 (147), 282919 (9), 282920 (72)	X			
2	May 8	DC4 fix, solenoid OFF	~115-124 at 500mm	282925 (200), 282926 (200), 282927 (200)				
3	May 8	solenoid on		282938 (91), 282939 (200), 282940 (200), 282941 (200)				X
4	May 9			282971(200), 282973(200), 282975(200)		X	X	
5 (2015)				282991(200), 282992(200), 282993(200)	X		X	X



Planning:

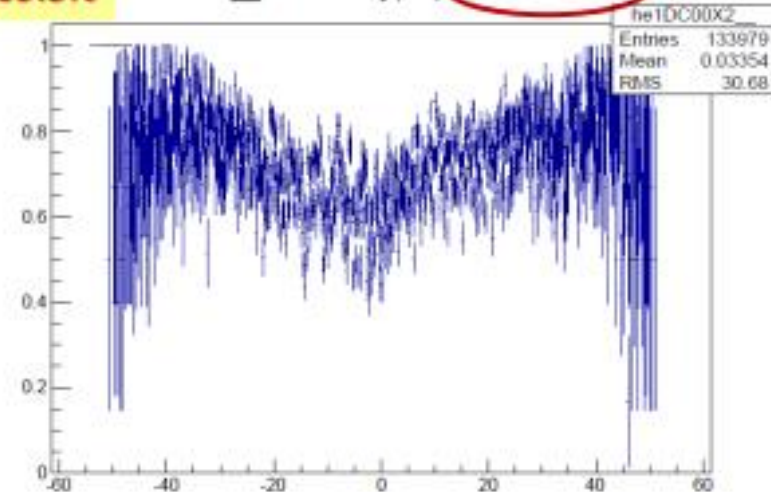
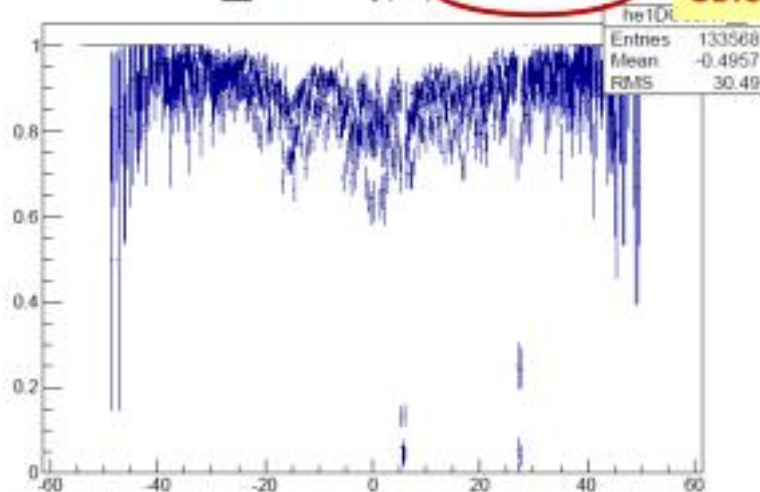
- Thursday morning (backup: Thursday afternoon): remove (L2 & L1*), add L1, L2, PE

282926: bad extraction
282925, 282926: no RW

Need complete analysis as was done in 2014 & 2015

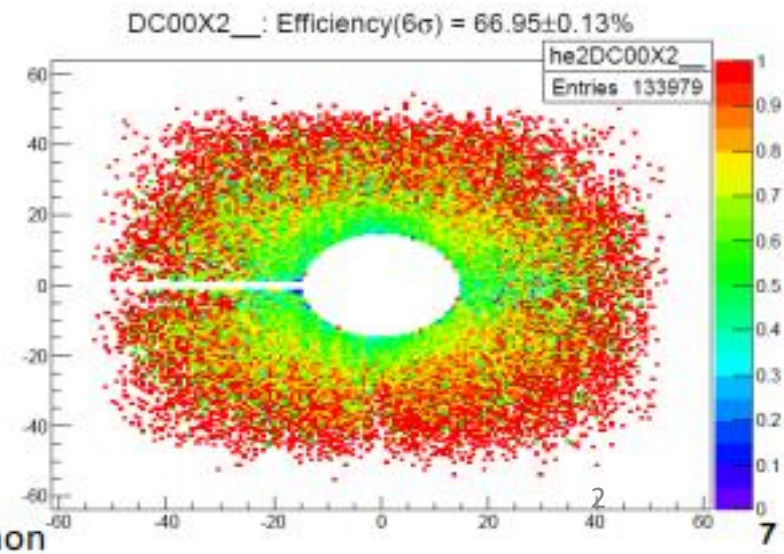
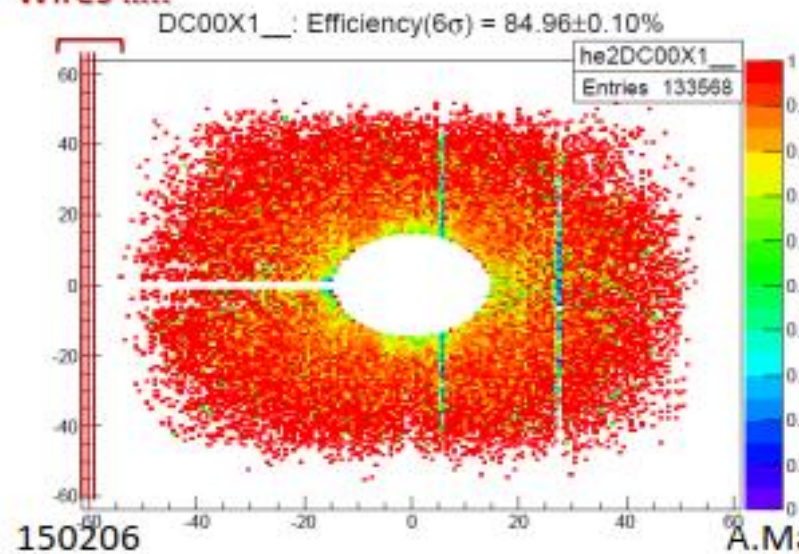
Drell Yan 2014 Run 255039 – DC00X1/X2 performances HV = 1650V

DC00X1__: Efficiency(6σ) = $84.96 \pm 0.10\%$ **85.0%/69.5%** DC00X2__: Efficiency(6σ) = $69.48 \pm 0.13\%$



Presentations (A.Magnon)
@ 150708 TB
@ 150716 CM

Wires



150206

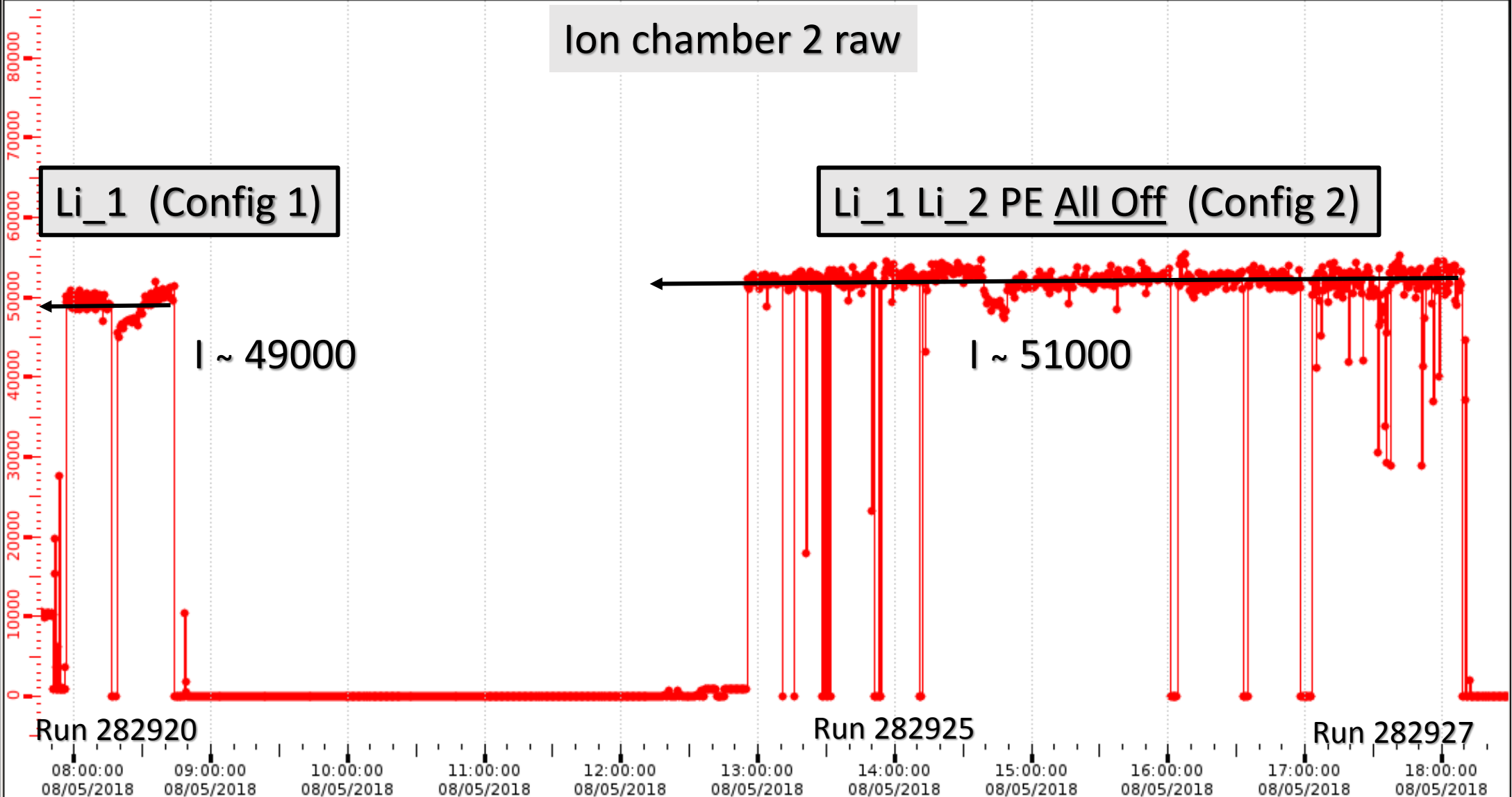
A.Magnon

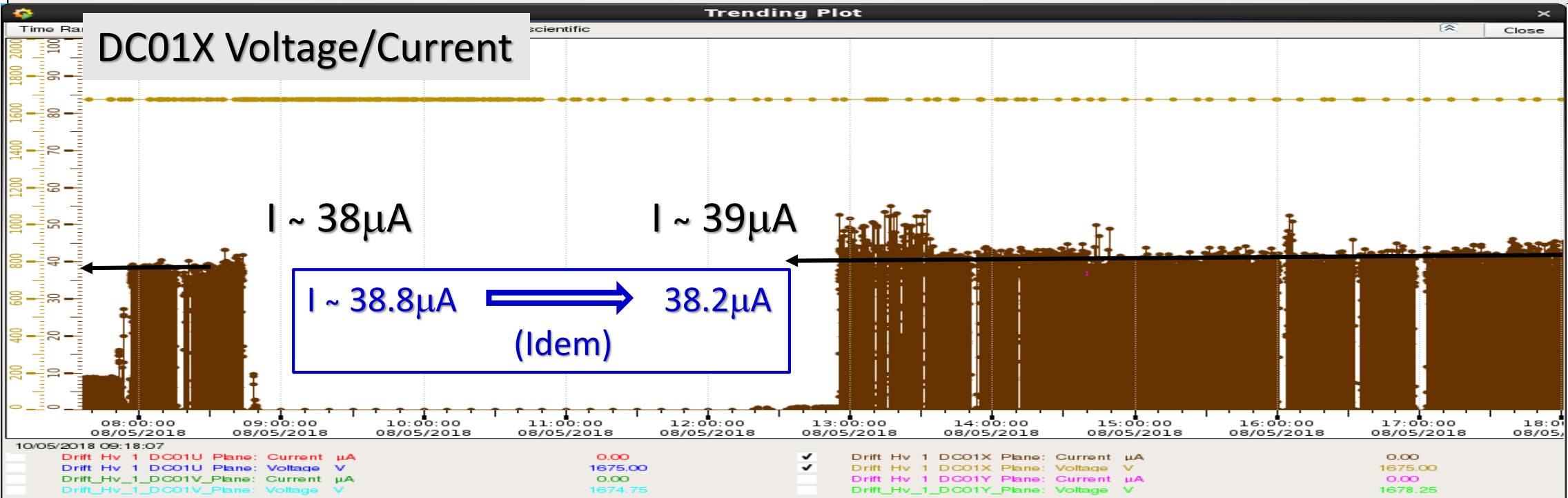
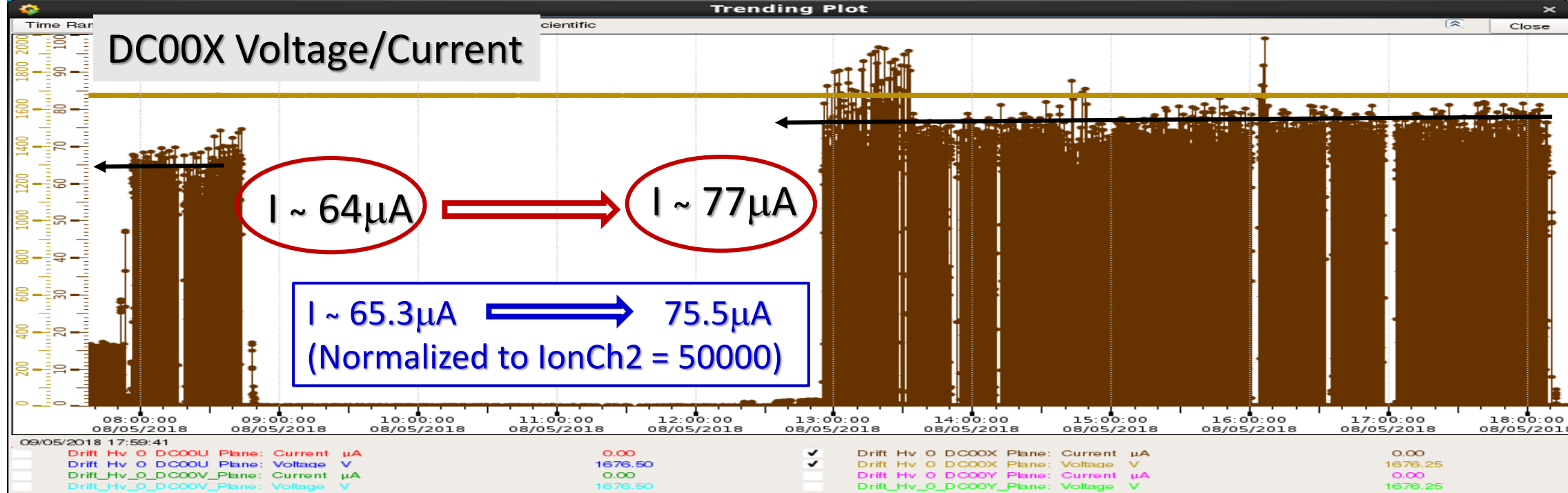
7

Ion chamber 2 raw

Li_1 (Config 1)

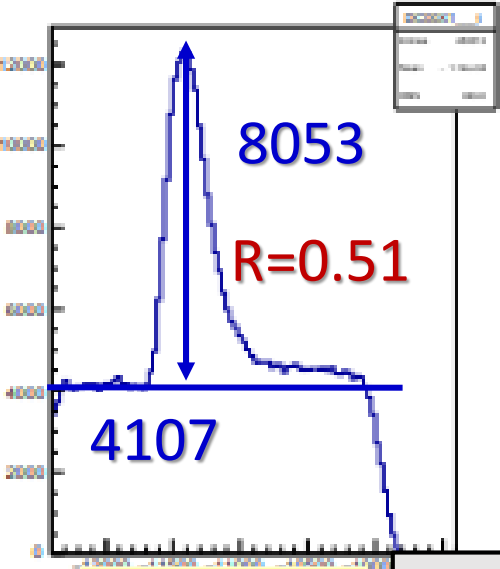
Li_1 Li_2 PE All Off (Config 2)





DC00X1/X2

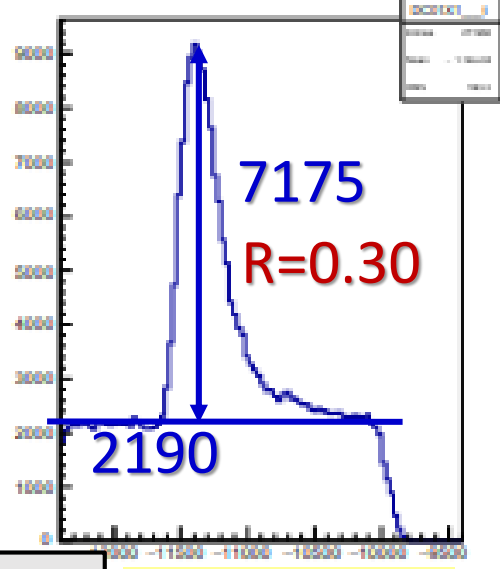
DC00X1__I_Run282920



$\langle R \rangle = 0.50$

DC01X1/X2

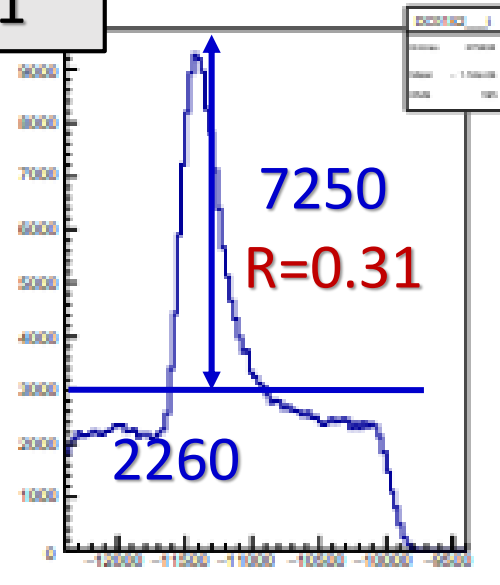
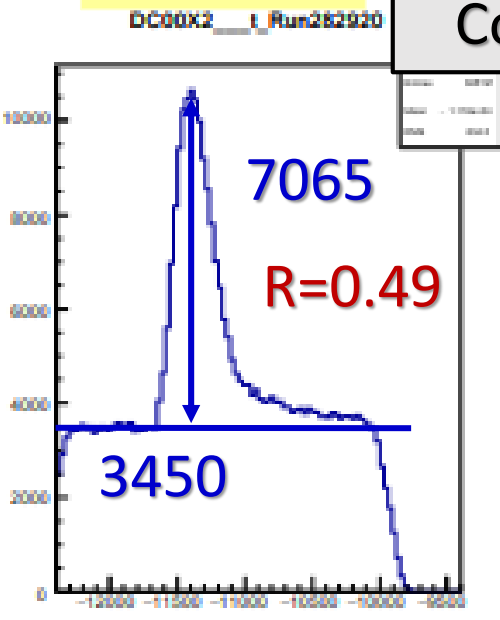
DC01X1__I_Run282920



$\langle R \rangle = 0.305$

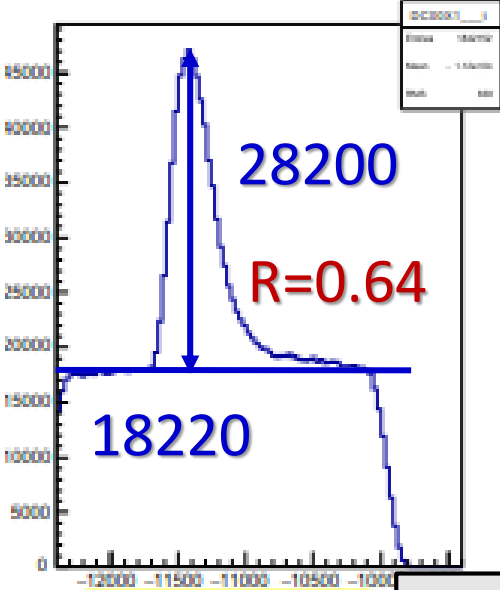
Run 282920
Config 1

R = Ratio of Uncorrelated/Correlated heights



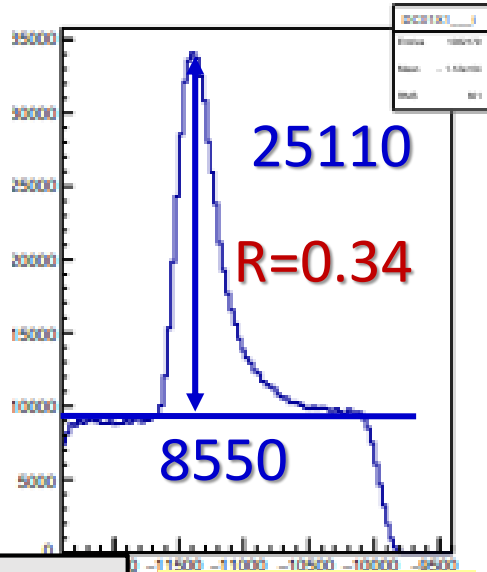
DC00X1/X2

DC00X1__t_Run282925



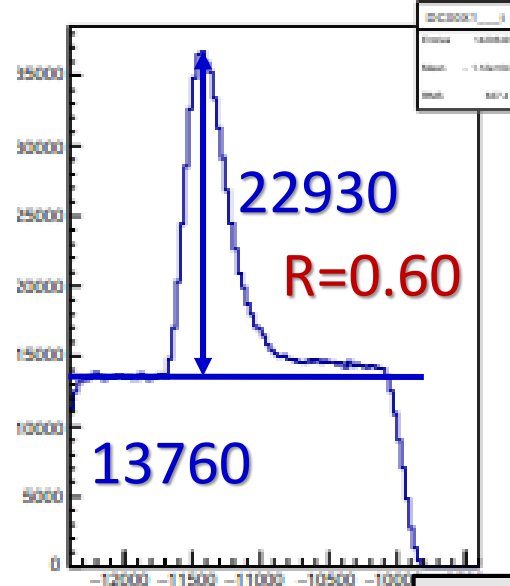
DC01X1/X2

DC01X1__t_Run282925



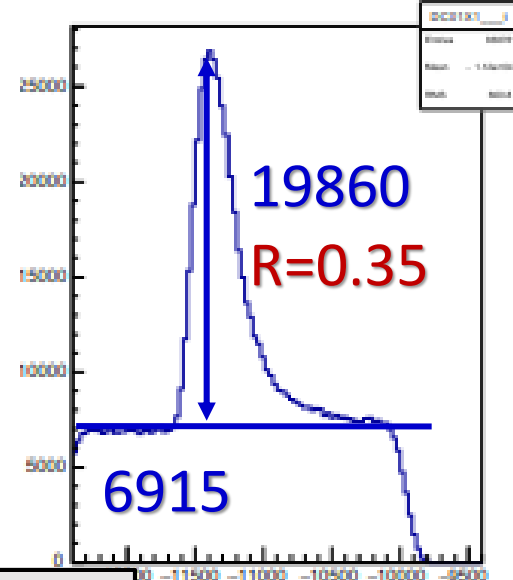
DC00X1/X2

DC00X1__t_Run282927



DC01X1/X2

DC01X1__t_Run282927



$\langle R \rangle = 0.62$

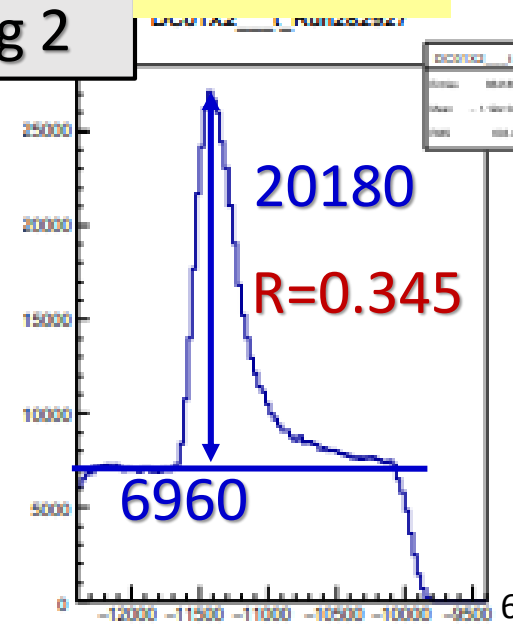
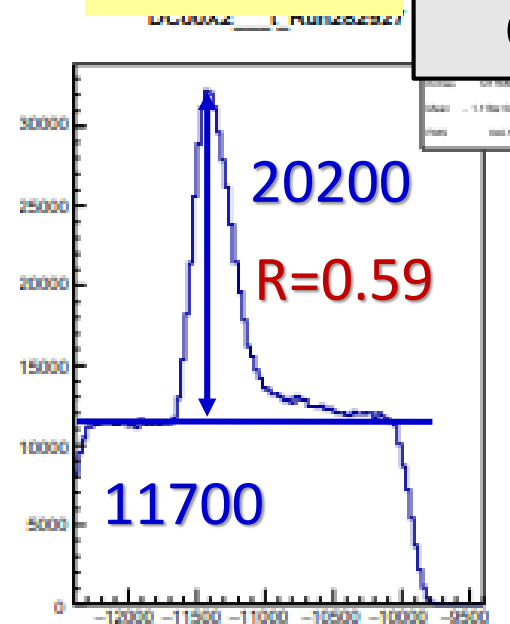
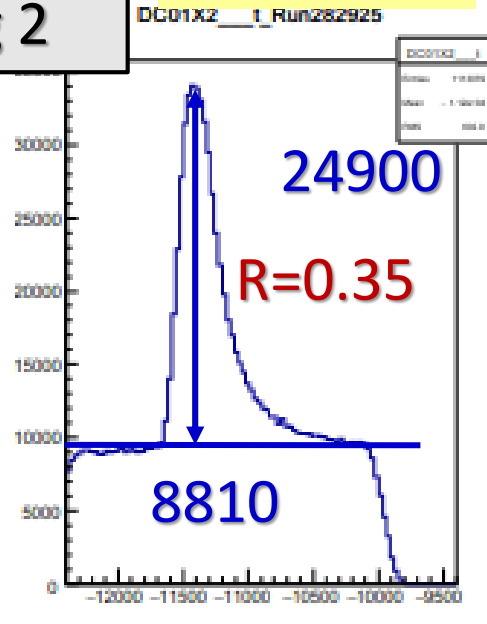
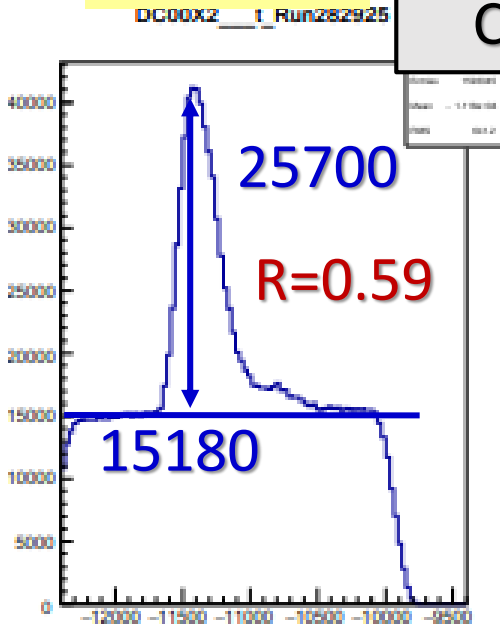
Run 282925
Config 2

$\langle R \rangle = 0.345$

$\langle R \rangle = 0.595$

Run 282927
Config 2

$\langle R \rangle = 0.347$



One ⁶Li layer

DC00X
UnCorr/Corr
= 0.50

DC01X
UnCorr/Corr
= 0.30

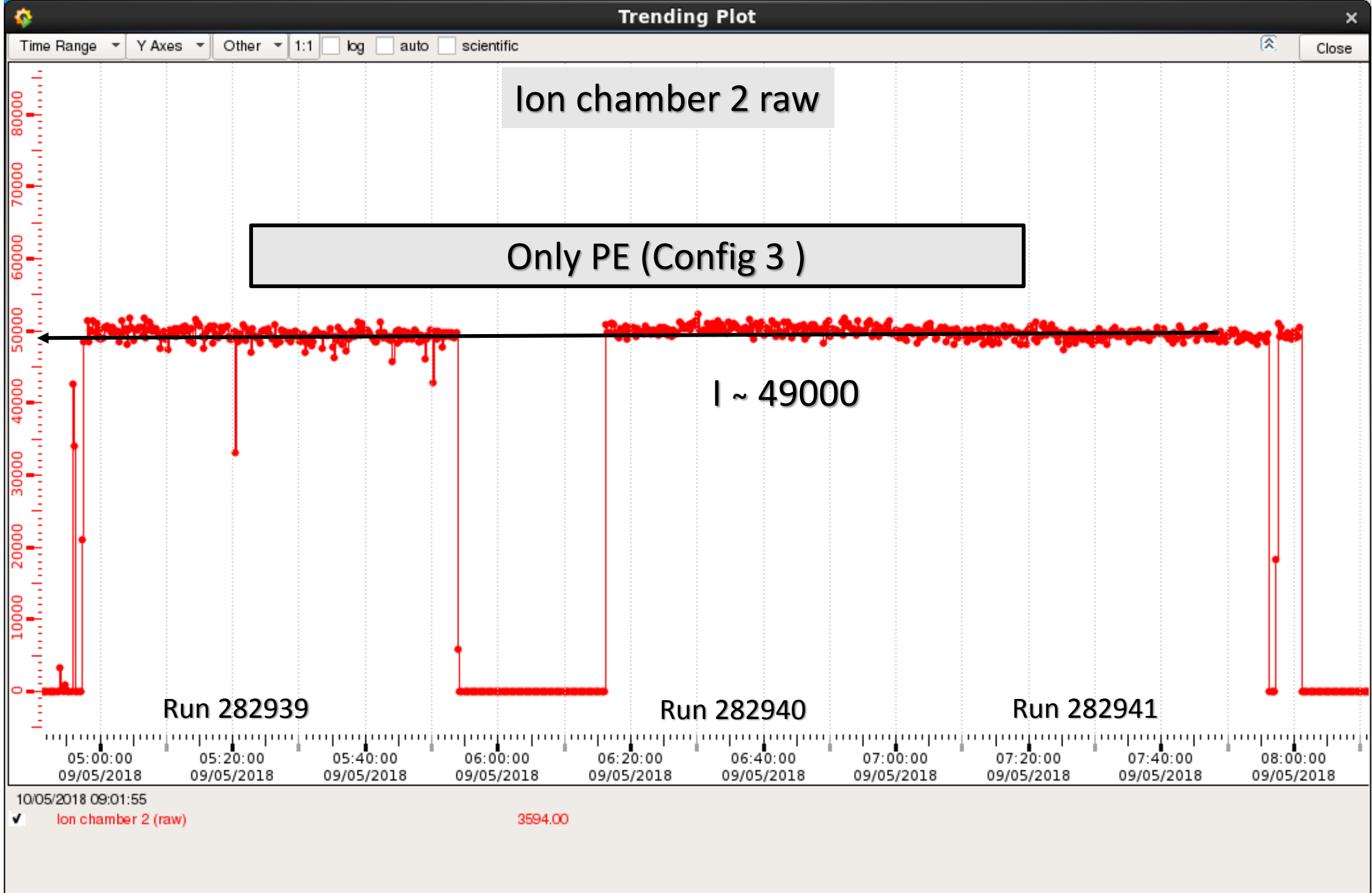
No ⁶Li layer No PE

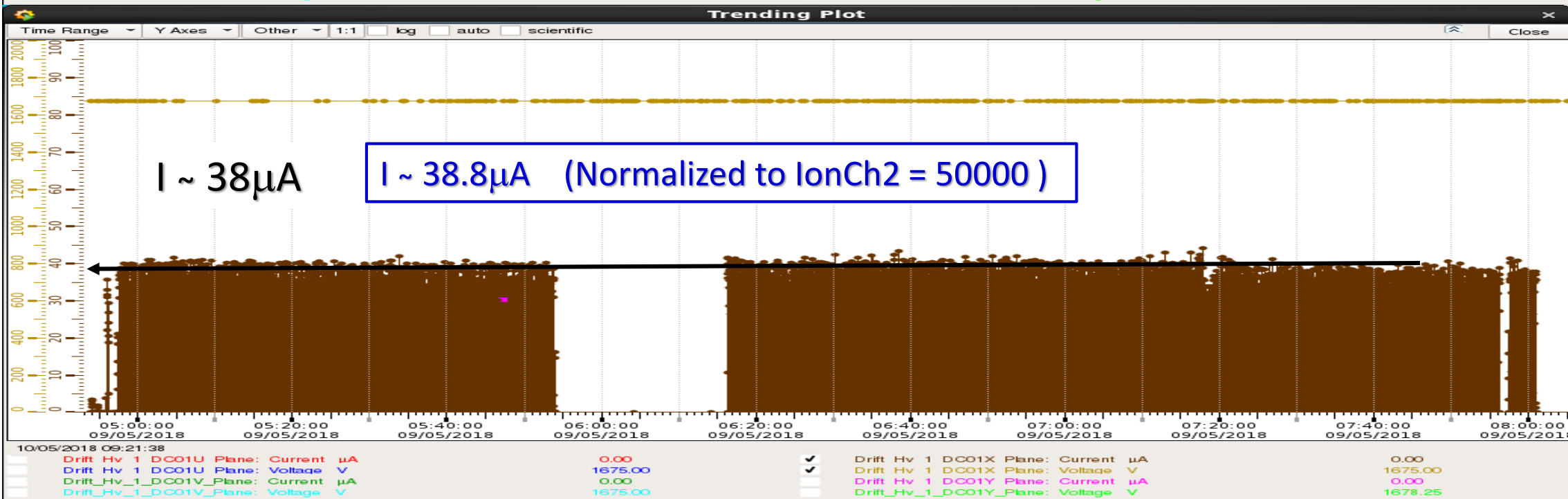
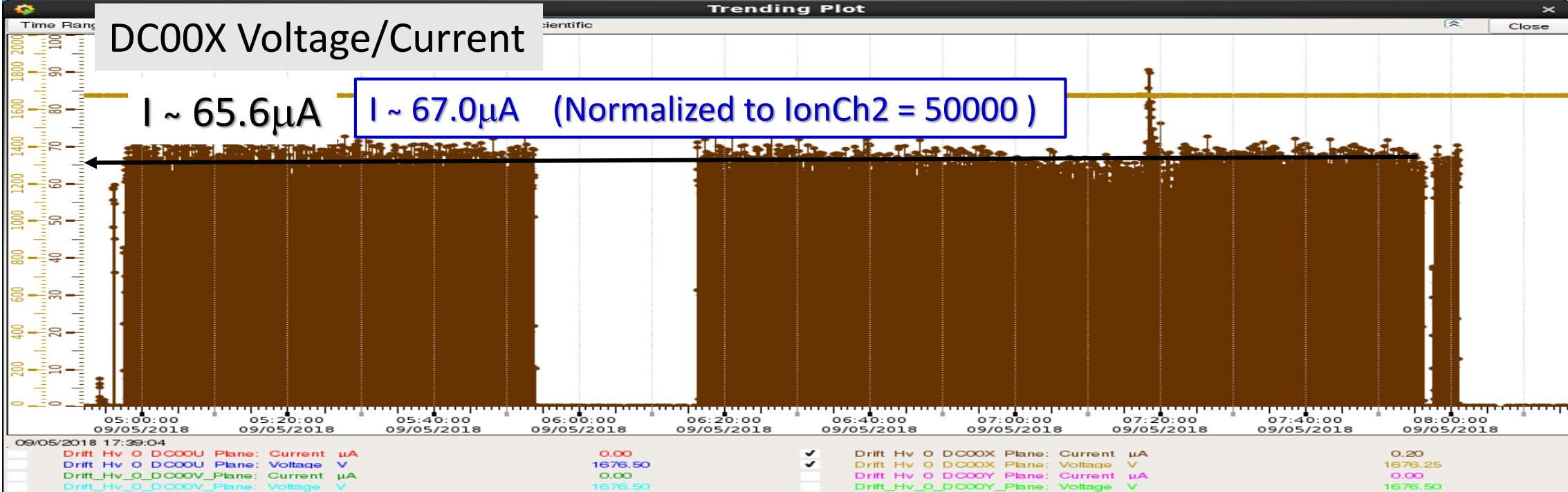
DC00X
UnCorr/Corr
= 0.61

DC01X
UnCorr/Corr
= 0.34



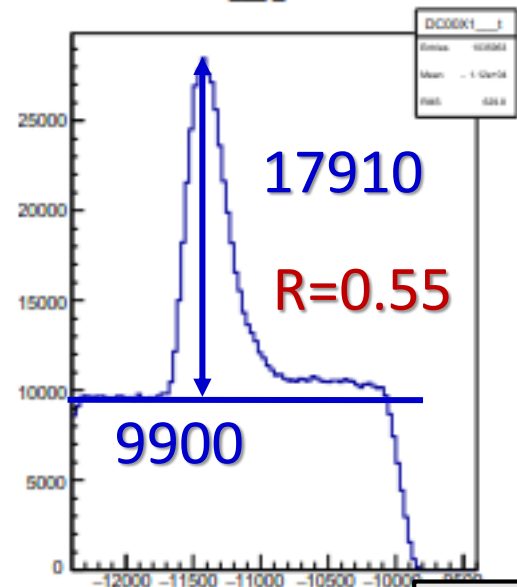
When removing the ⁶Li layer:
1/- Current seen by DC00X increases
65.3μA ==> 75.5μA
2/- DC00X ratio of Uncorr/Corr evts increases
0.50 ==> 0.61 (+22%)





DC00X1/X2

DC00X1__t_Run282939

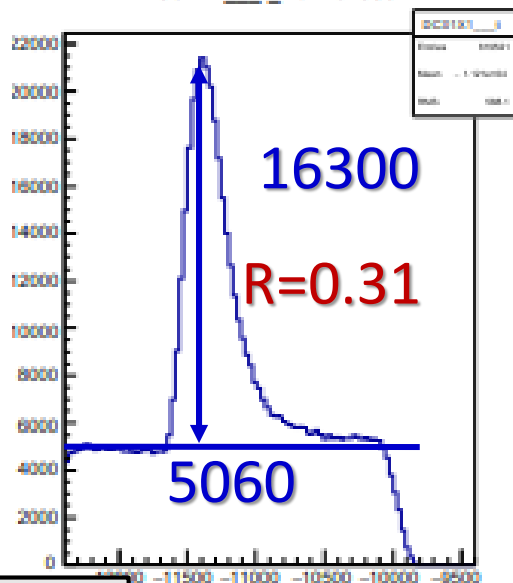


$\langle R \rangle = 0.54$

Run 282939
Config 3

DC01X1/X2

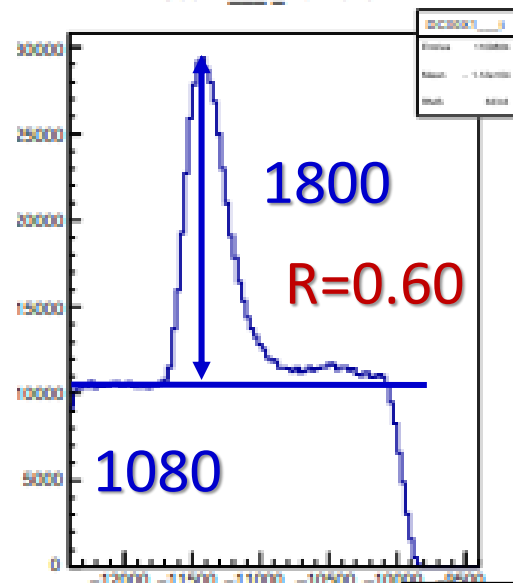
DC01X1__t_Run282939



$\langle R \rangle = 0.31$

DC00X1/X2

DC00X1__t_Run282941

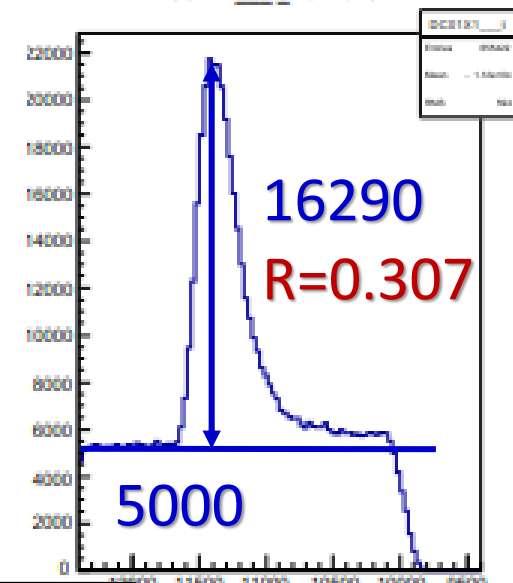


$\langle R \rangle = 0.57$

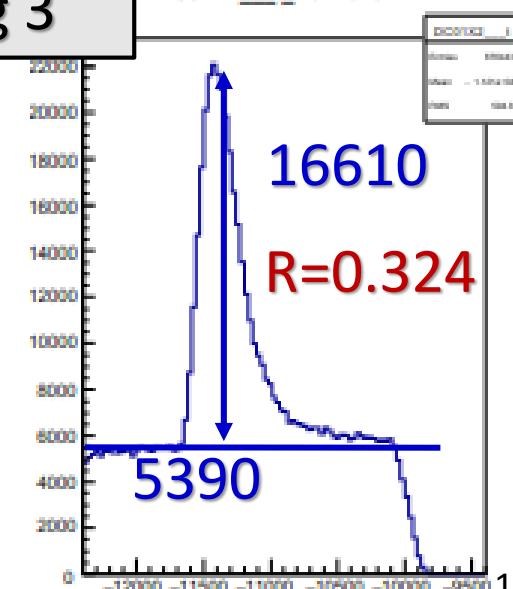
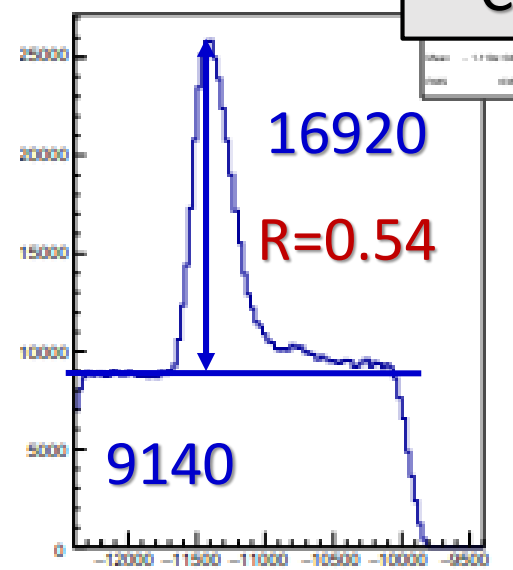
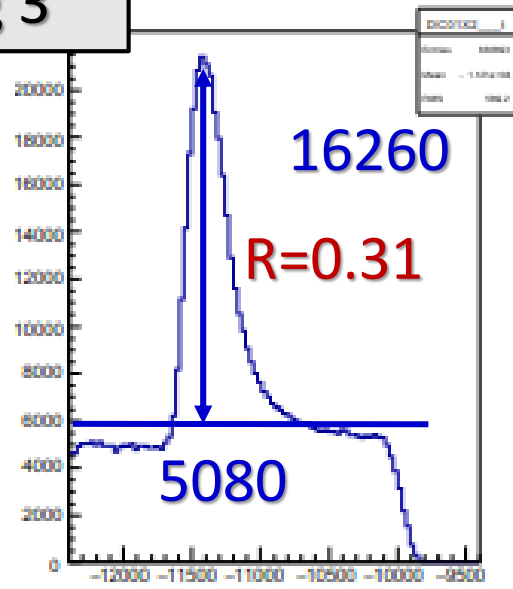
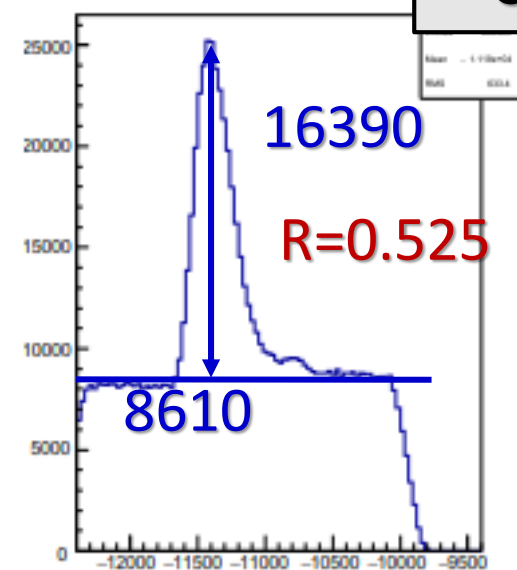
Run 282941
Config 3

DC01X1/X2

DC01X1__t_Run282941



$\langle R \rangle = 0.316$



No 6Li layer No PE

Only PE Layer

DC00X
UnCorr/Corr
= 0.61

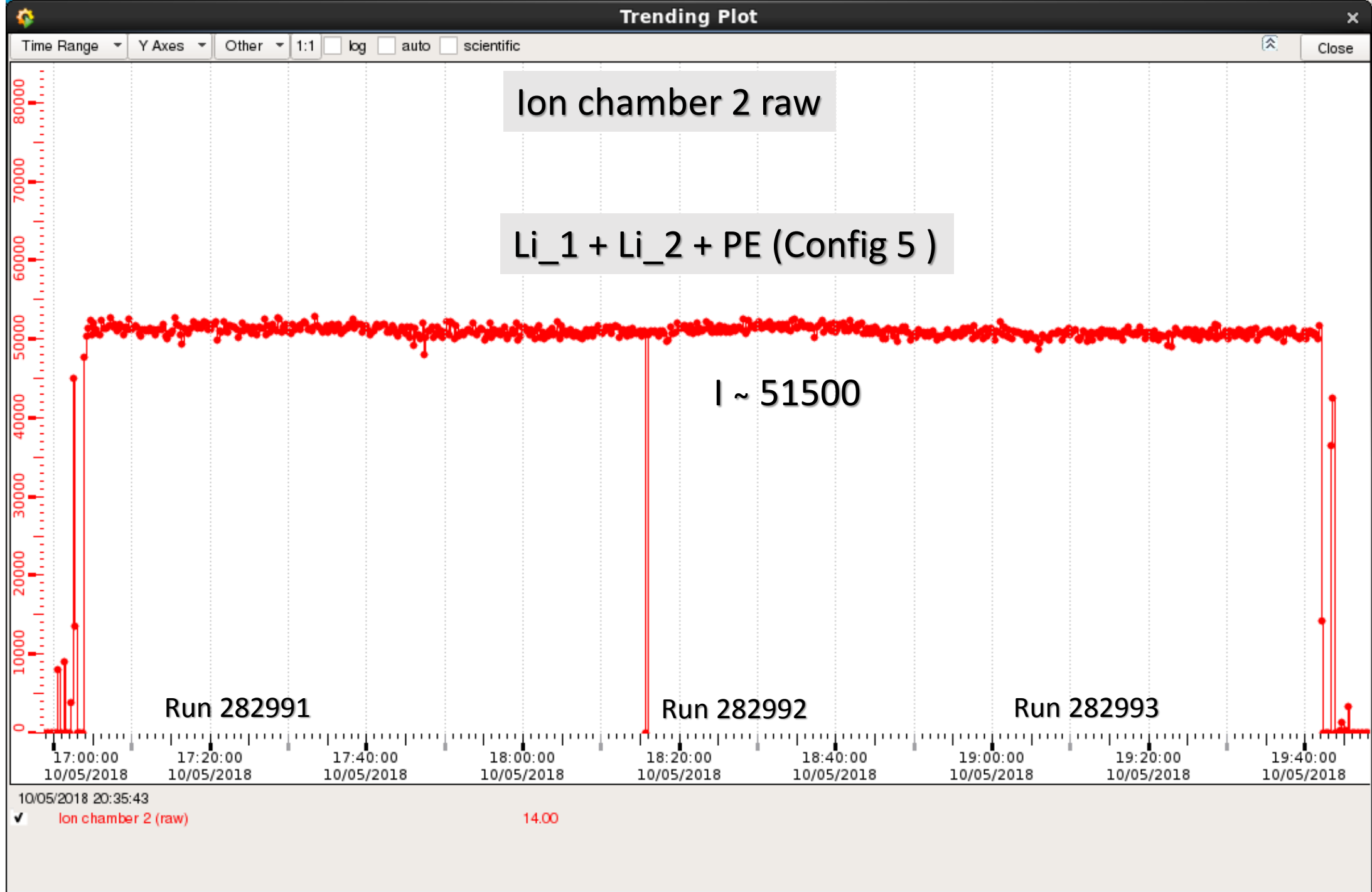
DC00X
UnCorr/Corr
= 0.55

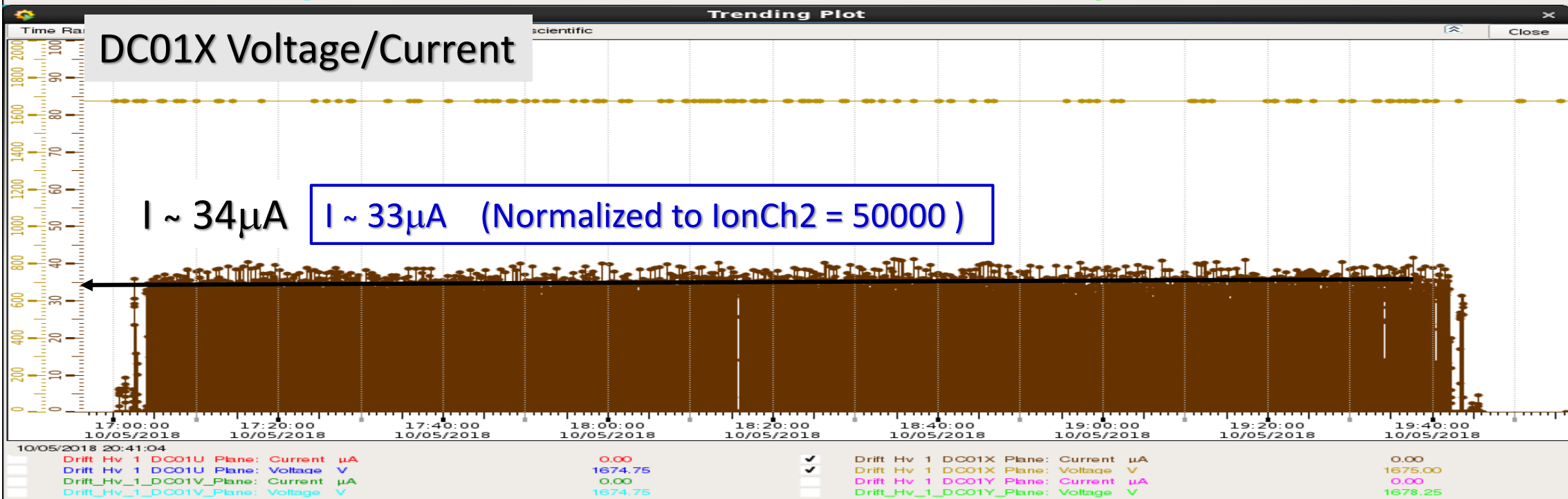
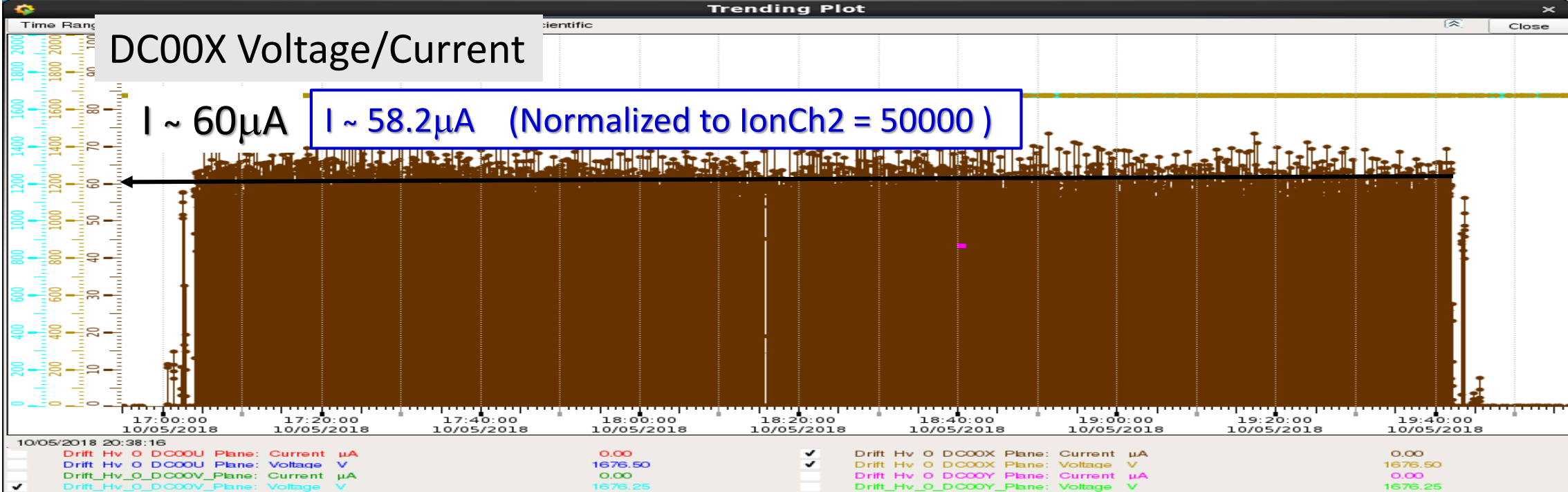
DC01X
UnCorr/Corr
= 0.34

DC01X
UnCorr/Corr
= 0.31



When putting only Polyethylene sheet:
1/- Current seen by DC00X decreases
75.5μA ==> 67μA
2/- DC00X ratio of Uncorr/Corr evts decreases
0.61 ==> 0.55 (-10%)





When adding the two 6Li layer to the PE sheet:

1/- Current seen by DC00X decreases $67\mu\text{A} \Rightarrow 58.2\mu\text{A}$

2/- Not yet calculated (comment next slide)

The DC00X current drop from Config 2 \Rightarrow Config 3 \Rightarrow Config 5 ...

... $75.5\mu\text{A} \Rightarrow 67\mu\text{A} \Rightarrow 58.2\mu\text{A}$

Confirms that both the two 6Li and the PE layers are required to reduce the Very High Low Energy background produced in the absorber

When putting the full setup: Li_1 + Li_2 + PE (Config 5) as was done in DY 2015, also trying only the PE (Config 3)

1/- Current seen by DC00X decreases significantly

75.5 μ A ==> 67 μ A ==> 58.2 μ A

2/- DC00X ratio of Uncorr/Corr evts decreases

0.61 ==> 0.55 ==> 0.XX^(*)

(*)Ratio of Uncorr/Corr evts still under calculation for Config 4/5
- May be changes in Triggers configuration ? also Beam tuning ?

Tests were SUCCESSFUL

NO REASON TO NOT USE THE SETUP (Config 5) ⁶Li + Polyethylene
for the DY 2018 data taking

Additional slide showing very high current on DC00Y

Remark by Stephane Platchkov

- 100 μA is an upper (safety) limit for the present Saclay's DCs technology.
- As show (plots below) DC00Y view exceeds this limit without ^6Li Absorber !

