Run comment: Mylar | K600 angle: 0 deg | K600 field: Q: 5 A, D1: A A, H: A A, D2: Mp A, K: A

Run #: 2080 | Start: 22:50 | Stop: 23:13 | Target: Mylar #6 | Target angle: −116
Current: 2 nA | CI Range: 6 | Collimator: #3
Trigger rate: 140 Hz | Data rate: kB/s | Trigger evts: 209954 | Scaler evts: 1344

VDC efficiency: X1 97.8 | U1 96.1 | X2 87.9 | U2 94.6

Run comment: Mg | K600 angle: 0 deg | K600 field: Q: 5 A, D1: A A, H: A A, D2: Mp A, K: A

Run #: 2081 | Start: 23:15 | Stop: 23:29 | Target: ^{26}Mg | Target angle: −116
Current: 2.4 nA | CI Range: 6 | Collimator: #3
Trigger rate: 268 Hz | Data rate: kB/s | Trigger evts: 216506 | Scaler evts: 826

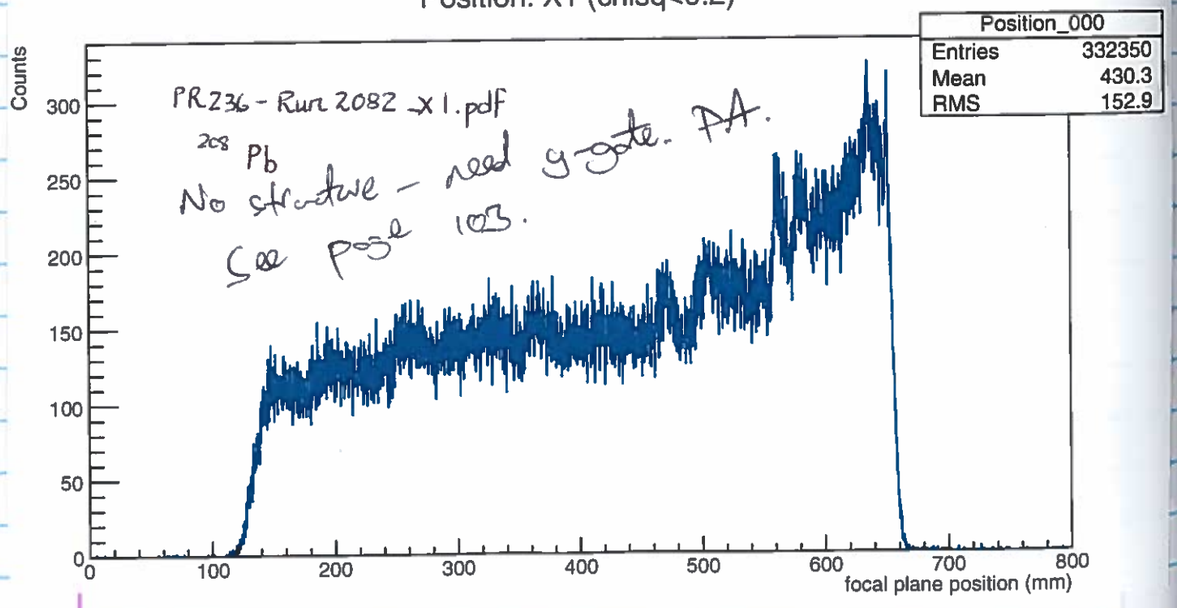
VDC efficiency: X1 93.8 | U1 91.0 | X2 86 | U2 91.5

Run comment: Pb | K600 angle: 0 deg | K600 field: Q: 5 A, D1: A A, H: A A, D2: ME A, K: A

Run #: 2087 | Start: 23:32 | Stop: 00:34 | Target: Pb | Target angle: −118
Current: 2.5 nA | CI Range: 6 | Collimator: #3
Trigger rate: 283 Hz | Data rate: 105 kB/s | Trigger evts: | Scaler evts:

VDC efficiency: X1 93.92 | U1 94.46 | X2 85.4996 | U2 94.72

Position: X1 (chisq<0.2)

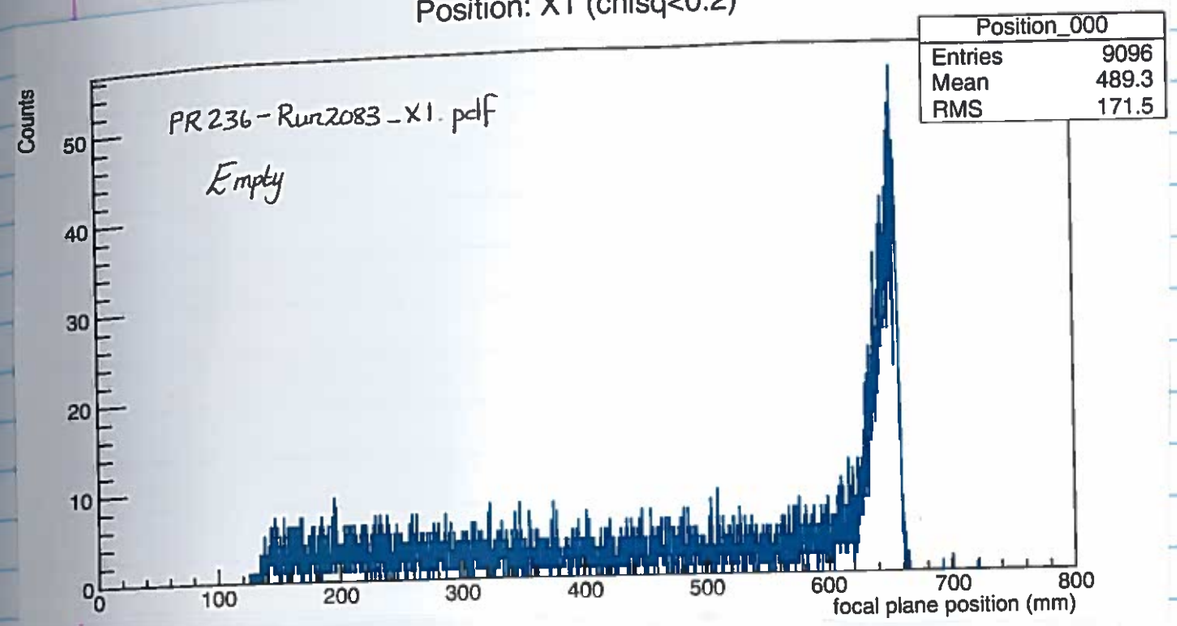


Run comment: Empty | K600 angle: 0 deg | K600 field: Q: 5 A, D1: A A, H: M A, D2: E A, K: A

Run #: 2083 | Start: 00:36 | Stop: 00:47 | Target: Empty | Target angle: −118°
Current: 2.3 nA | CI Range: 6 | Collimator: 3
Trigger rate: 51 Hz | Data rate: 22 kB/s | Trigger evts: 38001 | Scaler evts: 658

VDC efficiency: X1 93.74 | U1 95.57 | X2 85.75 | U2 93.93

Position: X1 (chisq<0.2)



Run comment: ^{26}Mg | K600 angle: 0 deg | K600 field: Q: 5 A, D1: A A, H: M A, D2: E A, K: A

Run #: 2084 | Start: 00:49 | Stop: 01:20 | Target: ^{26}Mg | Target angle: −118
Current: 2.3 nA | CI Range: 6 | Collimator: 3
Trigger rate: 266 Hz | Data rate: 101 kB/s | Trigger evts: 390682 | Scaler evts: 1821

VDC efficiency: X1 93.62 | U1 94.05 | X2 86.97 | U2 94.61

Run comment: ^{208}Pb | K600 angle: 0 deg | K600 field: Q: 5 A, D1: A A, H: M A, D2: E A, K: A

Run #: 2085 | Start: 01:21 | Stop: 02:21 | Target: ^{208}Pb | Target angle: −118
Current: 2.0 nA | CI Range: 6 | Collimator: 3
Trigger rate: 206 Hz | Data rate: 84 kB/s | Trigger evts: 607797 | Scaler evts: 3540

VDC efficiency: X1 93.96 | U1 94.35 | X2 86.17 | U2 94.64

Run comment: ^{40}Ca | K600 angle: 0 deg | K600 field: Q: 5 A, D1: A A, H: M A, D2: E A, K: A

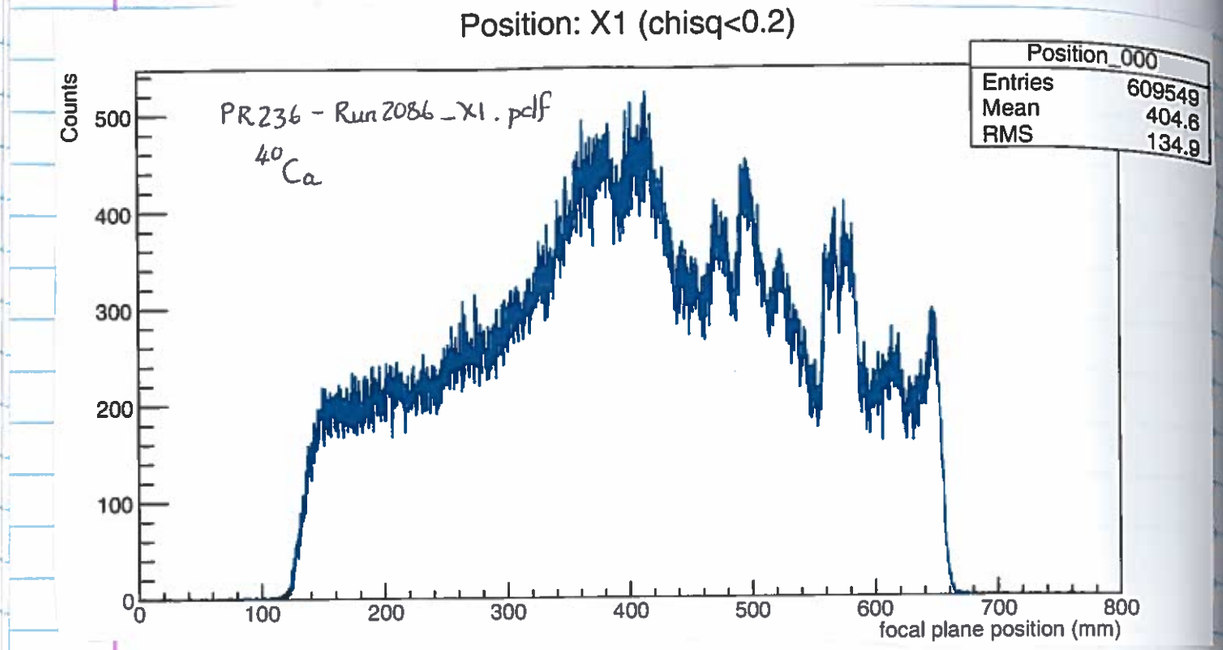
Run #: 2086 | Start: 02:23 | Stop: 03:26 | Target: ^{40}Ca | Target angle: −118
Current: 1.4 nA | CI Range: 6 | Collimator: 3
Trigger rate: 272 Hz | Data rate: 115 kB/s | Trigger evts: 1.006 M | Scaler evts: 3705

VDC efficiency: X1 93.74 | U1 94.22 | X2 86.09 | U2 94.68

Run comment: Empty | K600 angle: 0 deg | K600 field: Q: 5 A, D1: A A, H: M A, D2: E A, K: A

Run #: 2087 | Start: 03:28 | Stop: 03:38 | Target: Empty | Target angle: −118
Current: 1.2 nA | CI Range: 6 | Collimator: 3
Trigger rate: 28 Hz | Data rate: 12 kB/s | Trigger evts: 19553 | Scaler evts: 594

VDC efficiency: X1 93.46 | U1 94.04 | X2 86.83 | U2 94.15



03h45 The RF tripped just after run 2087 and when it came back up, we tried to continue as normal but when we pulled the cup to start a run, both VDCs tripped as well as pad 1 HiP, pad 1 LoP and pad 2 LoP (i.e ch 0, 1 and 3). Turn these back on and attempt to start the ^{26}Mg data again ... all seems ok.

Run comment: ^{26}Mg — K600 angle: 0 deg — K600 field:
Run #: 2088
Start: 03h47 — Current: 1.2 nA — Trigger rate: 128 Hz — Q: 5 A — VDC efficiency
Stop: 04h18 — CI Range: 6 — Data rate: 56 kB/s — D1: A A — X1 94.03
Target: ^{26}Mg — Collimator: 3 — Trigger evts: 250597 — H: M A — U1 94.14
Target angle: −118 — Scaler evts: 1820 — D2: E A — X2 88.21
K: A — U2 94.76

Beam gone briefly 22 minutes into run 2088

Run comment: ^{208}Pb — K600 angle: 0 deg — K600 field:
Run #: 2089
Start: 04:20 — Current: 1.3 nA — Trigger rate: 174 Hz — Q: 5 A — VDC efficiency
Stop: 05:20 — CI Range: 6 — Data rate: 66 kB/s — D1: A A — X1 93.75
Target: ^{208}Pb — Collimator: 3 — Trigger evts: 675378 — H: M A — U1 94.40
Target angle: −118 — Scaler evts: 3518 — D2: E A — X2 86.36
K: A — U2 94.66

Run comment: ^{40}Ca — K600 angle: 0 deg — K600 field:
Run #: 2090
Start: 05:21 — Current: 1.6 nA — Trigger rate: 299 Hz — Q: 5 A — VDC efficiency
Stop: 06:21 — CI Range: 6 — Data rate: 119 kB/s — D1: A A — X1 93.51
Target: ^{40}Ca — Collimator: 3 — Trigger evts: 1.099 M — H: M A — U1 94.31
Target angle: −118 — Scaler evts: 3505 — D2: E A — X2 85.56
K: A — U2 94.61

Run comment: Empty — K600 angle: 0 deg — K600 field:
Run #: 2091
Start: 06:23 — Current: 1.5 nA — Trigger rate: 27 Hz — Q: 5 A — VDC efficiency
Stop: 06:35 — CI Range: 6 — Data rate: 12 kB/s — D1: A A — X1 93.92
Target: Empty — Collimator: 3 — Trigger evts: 17877 — H: M A — U1 94.14
Target angle: −118 — Scaler evts: 635 — D2: E A — X2 95.22
K: A — U2 95.35

Run comment: ^{26}Mg — K600 angle: 0 deg — K600 field:
Run #: 2092
Start: 06:35 — Current: 1.8 nA — Trigger rate: 171 Hz — Q: 5 A — VDC efficiency
Stop: 07:07 — CI Range: 6 — Data rate: 70 kB/s — D1: A A — X1 93.82
Target: ^{26}Mg — Collimator: 3 — Trigger evts: 304230 — H: M A — U1 94.22
Target angle: −118 — Scaler evts: 1841 — D2: E A — X2 87.54
K: A — U2 94.66

Run comment: ^{208}Pb — K600 angle: 0 deg — K600 field:
Run #: 2093
Start: 07:08 — Current: 1.9 nA — Trigger rate: 185 Hz — Q: 5 A — VDC efficiency
Stop: 08:14 — CI Range: 6 — Data rate: 81 kB/s — D1: A A — X1 94
Target: ^{208}Pb — Collimator: 3 — Trigger evts: 891841 — H: M A — U1 94.49
Target angle: −118 — Scaler evts: 3832 — D2: E A — X2 85.8
K: A — U2 94.7

Run comment: 40Ca Data — K600 angle: 0 deg — K600 field:
Run #: 2094
Start: 08:16 — Current: 2.4 nA — Trigger rate: 473 Hz — Q: 5 A — VDC efficiency
Stop: 9:17 — CI Range: 6 — Data rate: 203 kB/s — D1: A A — X1 93.6
Target: 40Ca — Collimator: #3 — Trigger evts: 1.4M — H: M A — U1 94.2
Target angle: −118 — Scaler evts: 3550 — D2: E A — X2 84.8
K: A — U2 94.7

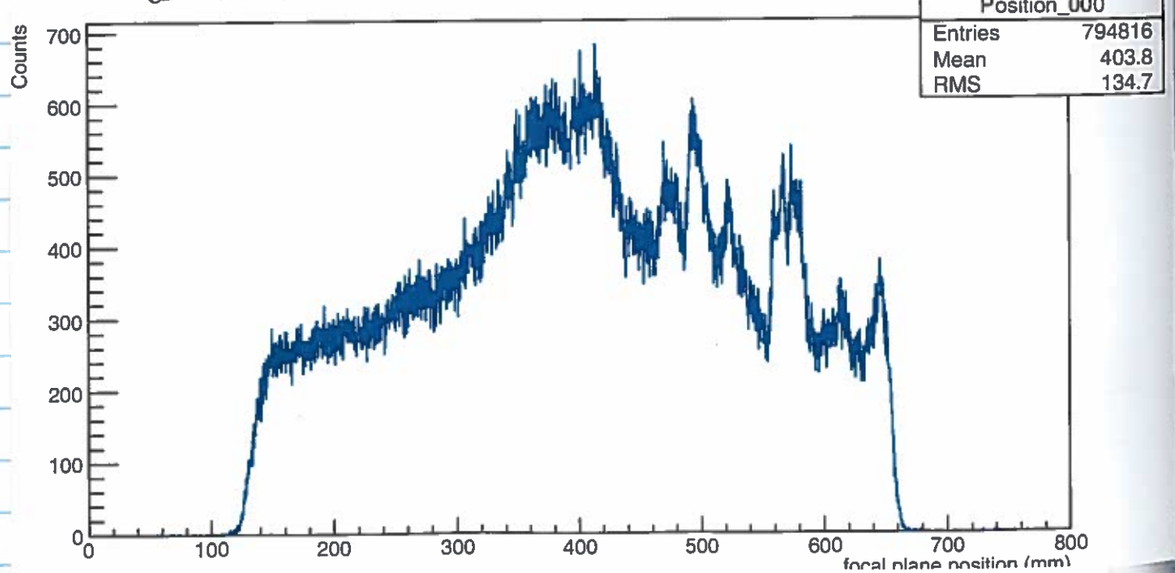
Run comment: Empty — K600 angle: 0 deg — K600 field:
Run #: 2095
Start: 9:20 — Current: 1.5 nA — Trigger rate: 30 Hz — Q: 5 A — VDC efficiency
Stop: 9:30 — CI Range: 6 — Data rate: 12 kB/s — D1: A A — X1
Target: EMPTY #1 — Collimator: 3 — Trigger evts: 16819 — H: A A — U1
Target angle: −118° — Scaler evts: 559 — D2: M A — X2
K: E A — U2

Run comment: ^{26}Mg | K600 angle: 0 deg | K600 field: Q: S A, D1: A A, H: A A, D2: M A, K: E A
Run #: 2096
Start: 9h34 | Current: 1.3 nA | Trigger rate: 122 Hz | VDC efficiency X1:
Stop: 9h45 | CI Range: 6 | Data rate: 53 kB/s | U1:
Target: ^{26}Mg | Collimator: #3 | Trigger evts: 100645 | X2:
Target angle: -118.0 | Scaler evts: 627 | U2:

Run comment: ^{208}Pb Data | K600 angle: 0 deg | K600 field: Q: S A, D1: A A, H: A A, D2: M A, K: E A
Run #: 2097
Start: 9h48 | Current: 2.4 nA | Trigger rate: 270 Hz | VDC efficiency X1: 93.9
Stop: 10h18 | CI Range: 6 | Data rate: 105 kB/s | U1: 94.6
Target: ^{208}Pb | Collimator: #3 | Trigger evts: 804505 | X2: 85.8
Target angle: -118.0 | Scaler evts: 3501 | U2: 94.9

Run comment: ^{40}Ca | K600 angle: 0 deg | K600 field: Q: S A, D1: A A, H: M A, D2: A, K: E A
Run #: 2098
Start: 10h52 | Current: 2.7 nA | Trigger rate: 551 Hz | VDC efficiency X1: 93.5
Stop: 11h57 | CI Range: 6 | Data rate: 228 kB/s | U1: 94.2
Target: ^{40}Ca | Collimator: #3 | Trigger evts: 1.431M | X2: 85.1
Target angle: -118.0 | Scaler evts: 3574 | U2: 94.7

^{40}Ca Run # 2098 Position: X1 (chisq<0.2)



Run comment: EMPTY | K600 angle: 0 deg | K600 field: Q: S A, D1: A A, H: M A, D2: E A, K: A
Run #: 2099
Start: 11:57 | Current: 1.8 nA | Trigger rate: 50 Hz | VDC efficiency X1:
Stop: 12:07 | CI Range: 6 | Data rate: 20 kB/s | U1:
Target: EMPTY #1 | Collimator: #3 | Trigger evts: 29726 | X2:
Target angle: -118° | Scaler evts: 589 | U2:

Run comment: ^{26}Mg | K600 angle: 0 deg | K600 field: Q: S A, D1: A A, H: A A, D2: M A, K: E A
Run #: 2100
Start: 12h09 | Current: 2.3 nA | Trigger rate: 237 Hz | VDC efficiency X1: 93.9
Stop: | CI Range: 6 | Data rate: 108 kB/s | U1: 94.2
Target: ^{26}Mg | Collimator: #3 | Trigger evts: 430403 | X2: 86.2
Target angle: -118.0 | Scaler evts: 1759 | U2: 94.7

Run comment: ^{208}Pb | K600 angle: 0 deg | K600 field: Q: S A, D1: A A, H: A A, D2: M A, K: E A
Run #: 2101
Start: 12h41 | Current: 2.3 nA | Trigger rate: 249 Hz | VDC efficiency X1: 93.7
Stop: 13h43 | CI Range: 6 | Data rate: 107 kB/s | U1: 94.5
Target: ^{208}Pb | Collimator: #3 | Trigger evts: 948278 | X2: 85.3
Target angle: -118.0 | Scaler evts: 3590 | U2: 894.8

Run comment: ^{40}Ca | K600 angle: 0 deg | K600 field: Q: S A, D1: A A, H: M A, D2: A, K: E A
Run #: 2102
Start: 13h44 | Current: 2.0 nA | Trigger rate: 410 Hz | VDC efficiency X1: 93.7
Stop: 14h44 | CI Range: 6 | Data rate: 171 kB/s | U1: 94.3
Target: ^{40}Ca | Collimator: #3 | Trigger evts: 1.323M | X2: 85.0
Target angle: -118.0 | Scaler evts: 3507 | U2: 94.7

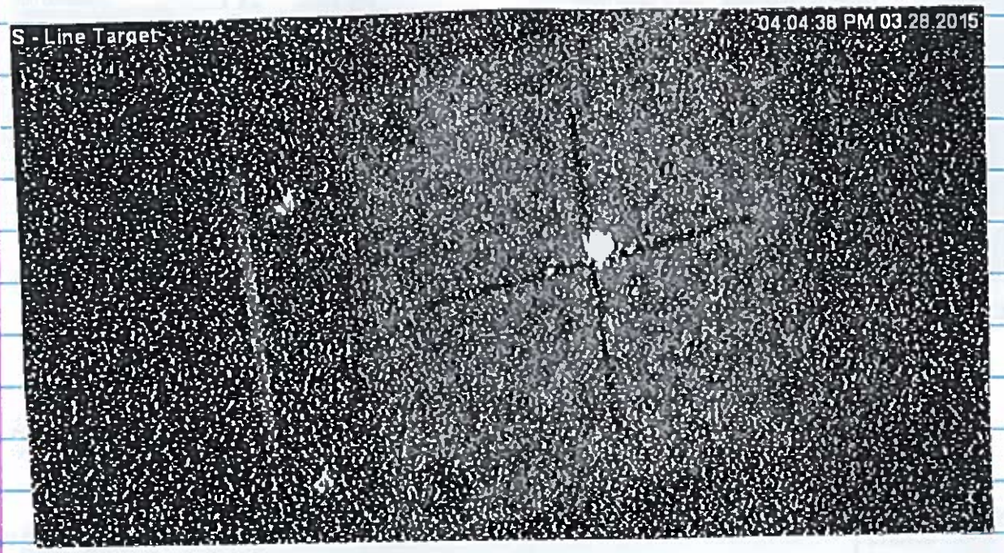
Run comment: MT | K600 angle: 0 deg | K600 field: Q: S A, D1: A A, H: M A, D2: E A, K: A
Run #: 2103
Start: 14h46 | Current: 1.7 nA | Trigger rate: 31.5 Hz | VDC efficiency X1:
Stop: 14h57 | CI Range: 6 | Data rate: 11 kB/s | U1:
Target: MT | Collimator: #3 | Trigger evts: 22192 | X2:
Target angle: -118.0 | Scaler evts: 582 | U2:

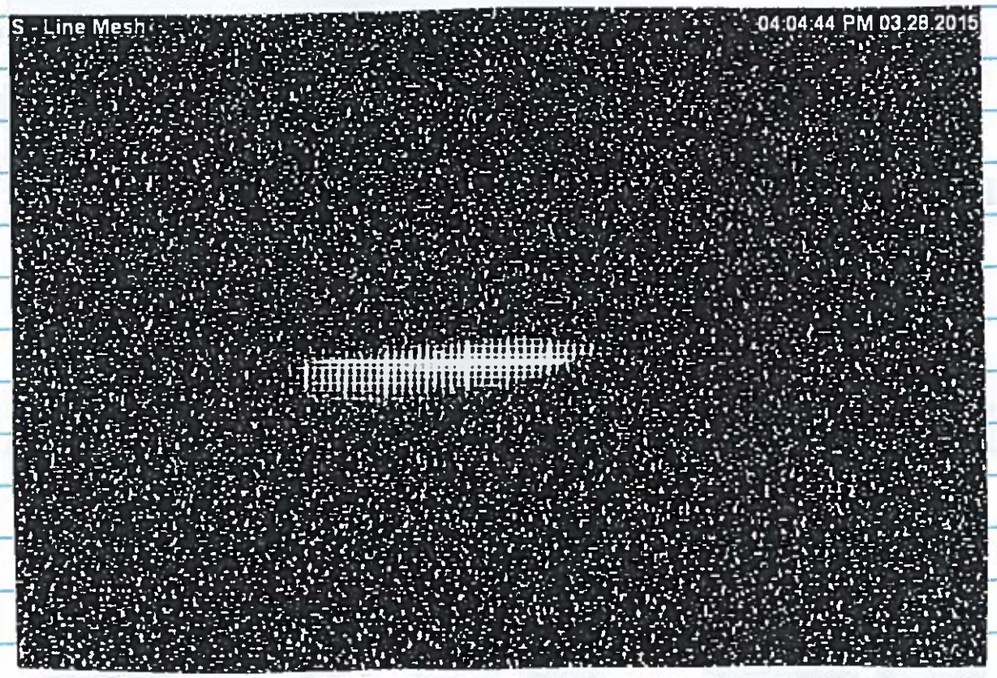
Run comment: ^{26}Mg | K600 angle: 0 deg | K600 field: Q: S A, D1: A A, H: M A, D2: E A, K: A
Run #: 2104
Start: 14h59 | Current: 1.8 nA | Trigger rate: 204 Hz | VDC efficiency X1: 93.8
Stop: 15h29 | CI Range: 6 | Data rate: 84 kB/s | U1: 94.7
Target: ^{26}Mg | Collimator: #3 | Trigger evts: 487290 | X2: 86.6
Target angle: -118.0 | Scaler evts: 1755 | U2: 94.7

Run comment: ^{208}Pb | K600 angle: 0 deg | K600 field: Q: S A, D1: A A, H: M A, D2: E A, K: A
Run #: 2105
Start: 15h31 | Current: 2.7 nA | Trigger rate: 345 Hz | VDC efficiency X1: 94
Stop: 16h11 | CI Range: 6 | Data rate: 137 kB/s | U1: 94.5
Target: ^{208}Pb | Collimator: #3 | Trigger evts: 744089 | X2: 85
Target angle: -118.0 | Scaler evts: 2310 | U2: 94.7

Sat
10:00 Decide to look at viewer, and try focus mode

Beam was high and to the left on Hatachaka.
And centre on target.
Modified that to this:





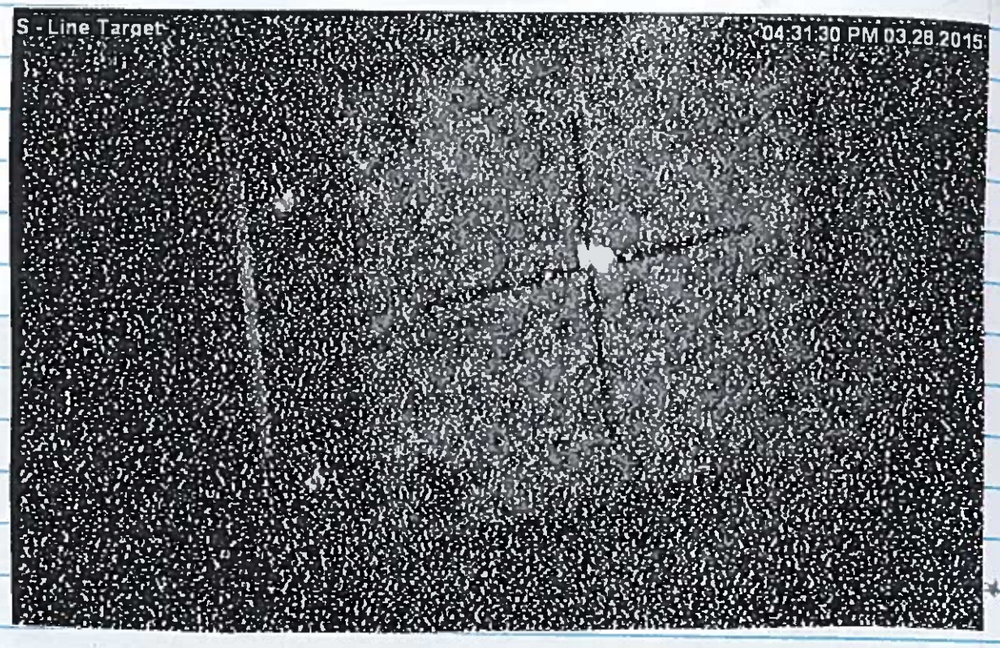
* Based on off line analysis it seems off-focus mode has worse energy resolution. Go back to focus mode

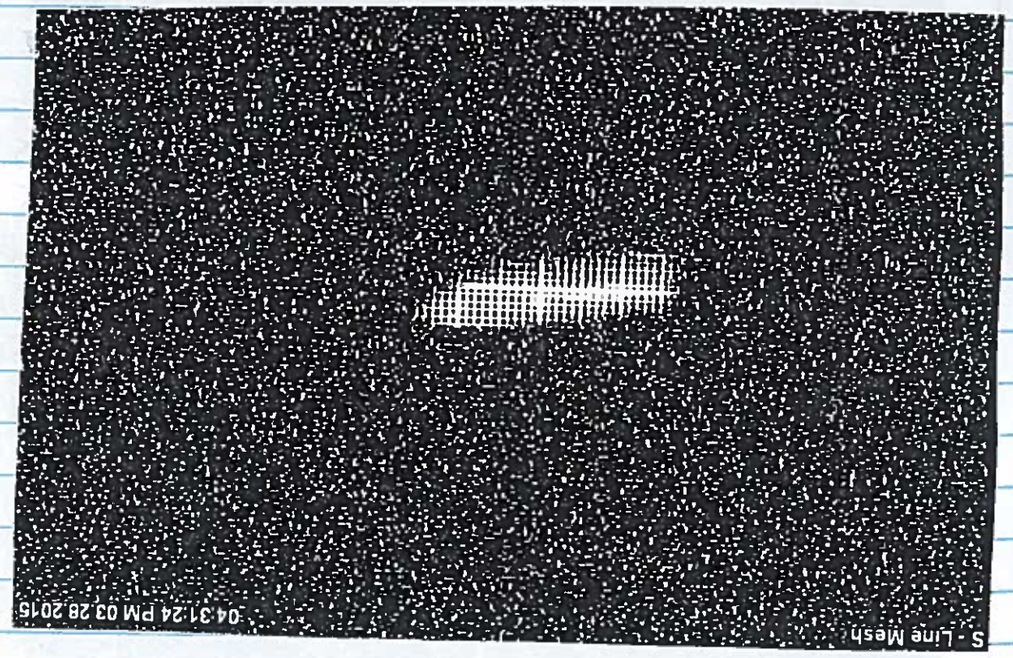
Change SP Q superkarly : from -0.9274
to -0.9089

Change to faint beam. DI = 437.24

Run 2106	Q6S = 35.3		σ = 0.53
2107	= 35.6		σ = 0.50
2108	= 35.8		σ = 0.50
2109	= 36.0		σ = 0.57
2110	= 35.6	Q2P = 28.2	σ = 0.5
2111		= 28.4	σ = 0.52
2112		= 28.0	σ = 0.49
2113		27.8	σ = 0.48
2114		27.6	σ = 0.46
2115		27.4	= 0.45
2116		27.2	= 0.45
2117		27.0	= 0.44
2118		26.5	= 0.43
2119		26.0	= 0.45
2120		27.0	= 0.44

Change back to normal mode.
DI = 412.8





Run 2121 Halo scan.

78 Hz @ 2nA

this is with beamstop viewer in

With viewer out it is 40 Hz @ 2nA

~7min run.

Run comment: Mylar

Run #: 2122

Start: 17:01

Stop: 17:16

Target: Mylar #6

Target angle: -11.6

Current: 2.2 nA

CI Range: 6

Collimator: #3

K600 angle: 0 deg

Trigger rate: 141 Hz

Data rate: 53 kB/s

Trigger evts: 127374

Scaler evts: 857

K600 field:

Q: -454.175 A

D1: 442.800 A

H: -2.833 A

D2: 271.008 A

K: 2.833 A

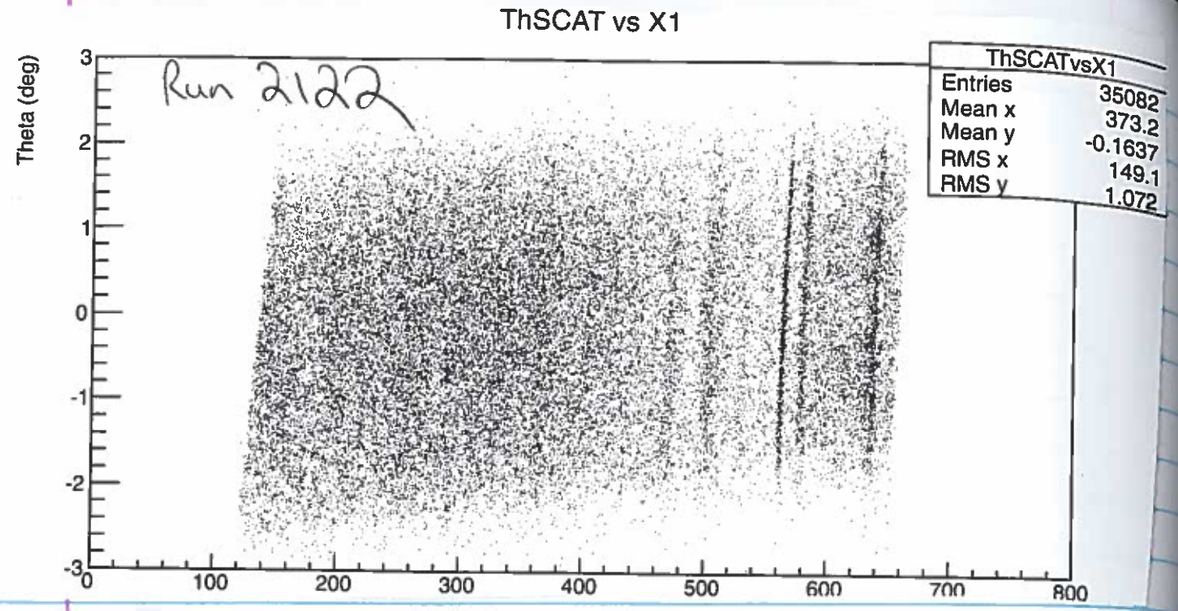
VDC efficiency

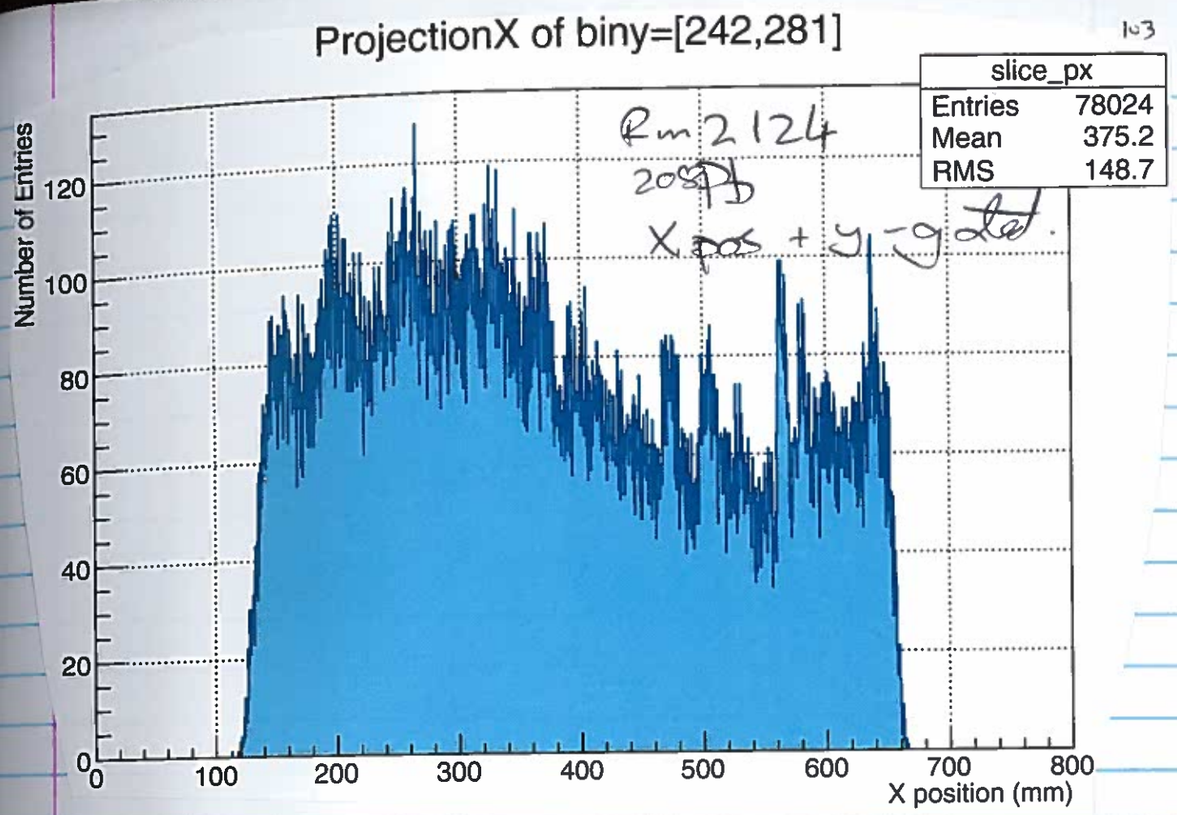
X1 94

U1 94

X2 88.7

U2 96.5





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Run comment: 26Mg
Run #: 2123
Start: 17:18
Stop: 17:53
Target: Mg
Target angle: -48
Current: 2.7 nA
CI Range: 6
Collimator: 3
Trigger rate: 264 Hz
Data rate: kB/s
Trigger evts: 44780
Scaler evts: 1984
K600 angle: 0 deg
K600 field:
Q: 5 A
D1: A
H: A
D2: E
K: E
VDC efficiency
X1 94
U1 94
X2 88
U2 95

Run comment: 208Pb
Run #: 2124
Start: 17:54
Stop: 18:55
Target: 208Pb
Target angle: -118
Current: 2 nA
CI Range: 6
Collimator: 3
Trigger rate: 140 Hz
Data rate: 60 kB/s
Trigger evts: 1.404M
Scaler evts: 3548
K600 angle: 0 deg
K600 field:
Q: 5 A
D1: A
H: E
D2: E
K: E
VDC efficiency
X1 94
U1 94
X2 86
U2 94

WARNING

See the note on Page 105
The last few min of this run
should not be used!

From PRC 55 2811 (Youngblood)

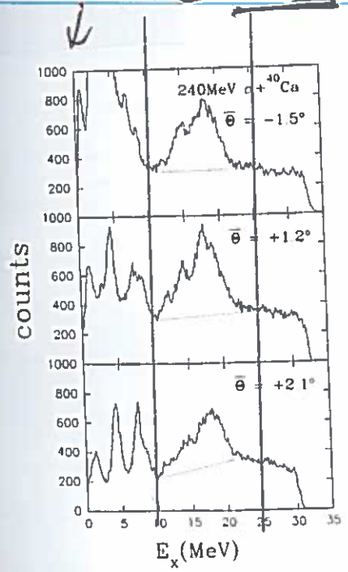


FIG. 2. Spectra obtained for Ca(α,α') at $E_\alpha = 240$ MeV with $\theta_{spec} = 0°$ for three different angle gates. The top spectrum is from the left side of center, the middle spectrum near center, and the bottom spectrum from the right side of center. The angles shown are average angles obtained as described in the text. The dotted lines show the "background" assumed to get the peak yields.

D. H. YOUNGBLOOD *et al.*

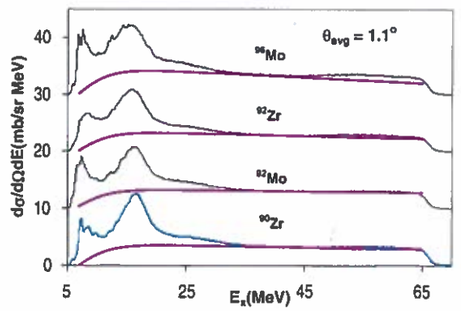


FIG. 1. (Color online) Inelastic α spectra obtained with the spectrometer at 0° for ^{90}Zr, ^{92}Mo (offset 10 units), ^{92}Zr (offset 20 units), and ^{96}Mo (offset 30 units). The thick lines show continua chosen for the analysis.

PRC 88 021301(R)

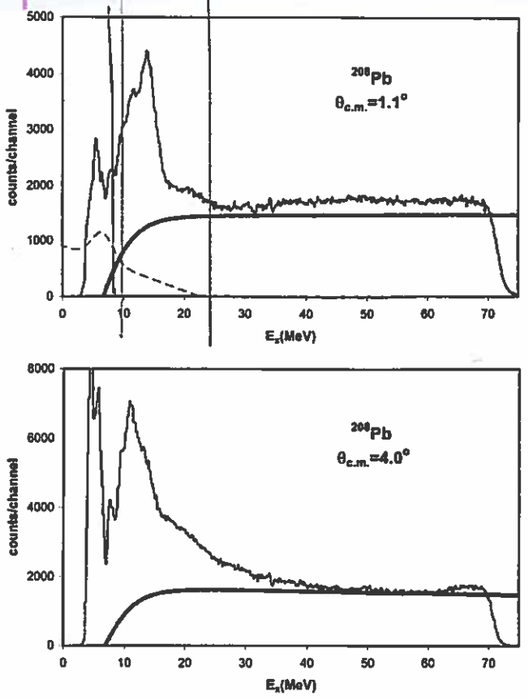


FIG. 1. Inelastic α spectra obtained at two angles for ^{208}Pb. The thick gray lines show the continuum chosen for the analysis. The dashed line below 22 MeV represents a contaminant present at some angles in the spectra taken with the spectrometer at 0°. This was subtracted before the multipole analysis was done.

PRC 69 034315
208Pb

PRC 73 (2006) 014314

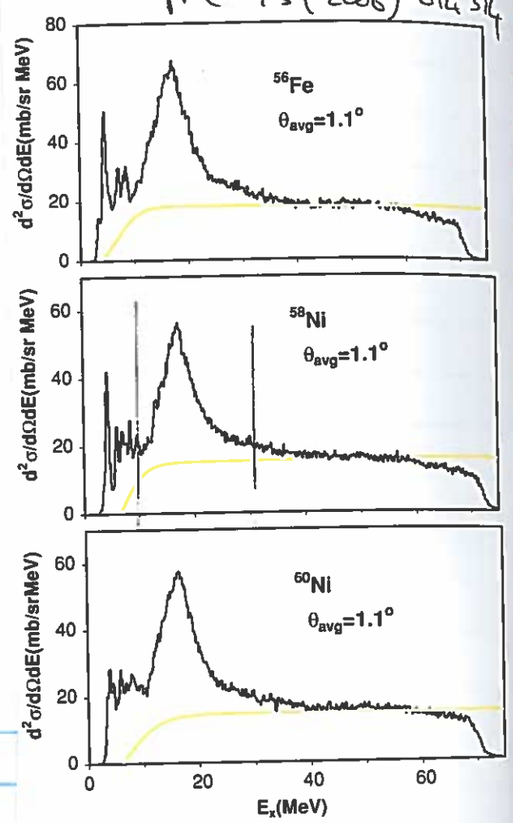
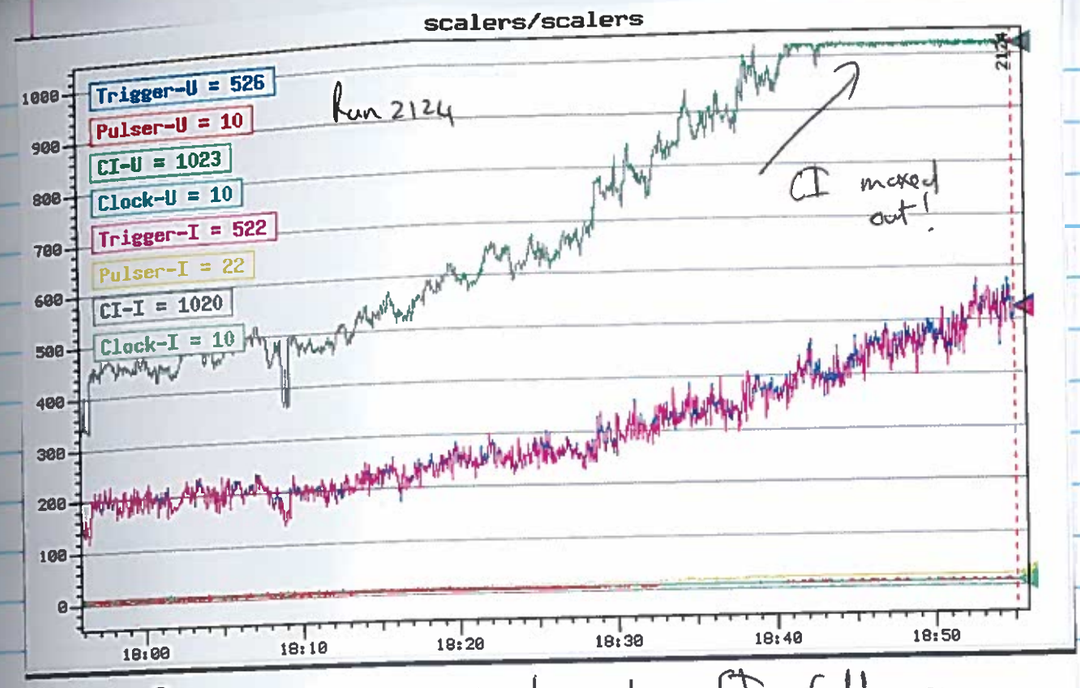


FIG. 1. (Color online) Inelastic α spectra obtained for ^{56}Fe, ^{58}Ni, and ^{60}Ni. The thick gray lines show the continuum chosen for analysis.

Comparison of the above with that on page 105 shows that they're entirely different. Um. What?



Beam intensity went beyond CI full range. CI alarm was mistakenly at 40 nA upper limit.

Run comment: 40Ca Data — K600 angle: 0 deg — K600 field:
Run #: 2125 — Start: 19:01 — Stop: 19:43 — Target: #5 40Ca — Target angle: -18
Current: 1.7 nA — CI Range: 6n — Collimator: #3
Trigger rate: 225 Hz — Data rate: 90 kB/s — Trigger evts: 758980 — Scaler evts: 2695
Q: 5 A — D1: A A — H: M A — D2: E A — K: A
VDC efficiency: X1 — U1 — X2 — U2

Beam went above 6nA range for last few seconds
CHECK WHEN DOING ANALYSIS!!

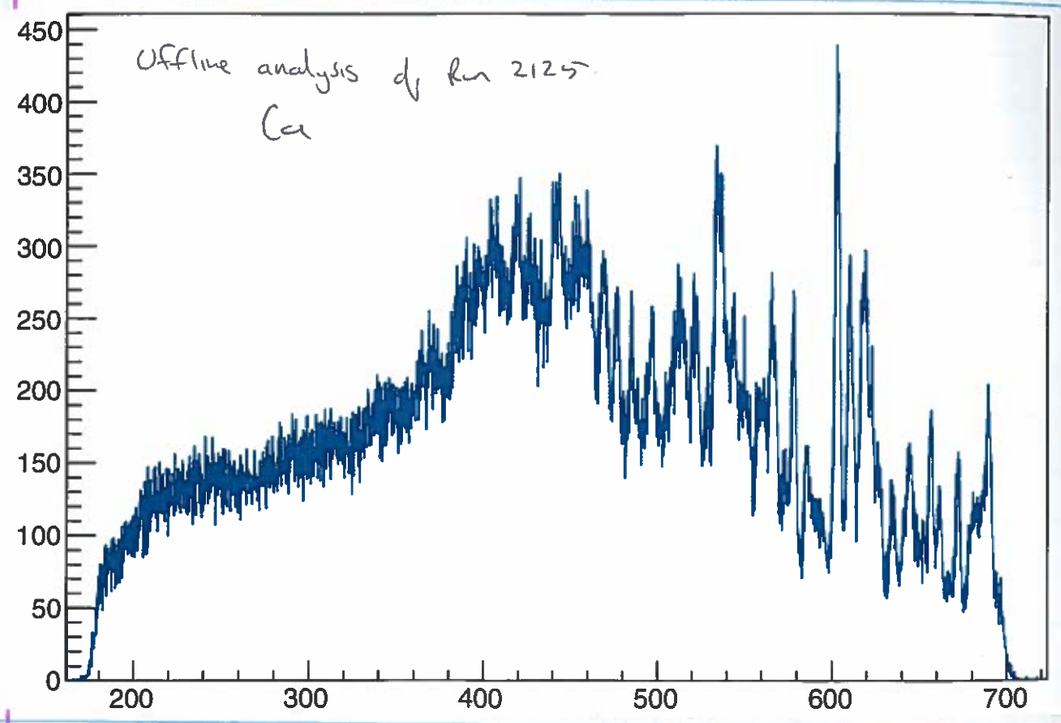
Run comment: 40Ca Data — K600 angle: 0 deg — K600 field:
Run #: 2126 — Start: 19:45 — Stop: 19:50 — Target: 0C — Target angle: -18
Current: 2.5 nA — CI Range: 6 — Collimator: #3
Trigger rate: 1,26 Hz — Data rate: 166 kB/s — Trigger evts: 102420 — Scaler evts: 272
Q: 5 A — D1: 5 A — H: A A — D2: M A — K: E A
VDC efficiency: X1 — U1 — X2 — U2

Again, CI > 6 nA.
Beam instabilities during Runs 2125, 2126, due to diverting instabilities from SPS

Run comment: Mylar MT
Run #: 2127
Start: 19:54
Stop: 20:10
Target: ~~Mylar #5~~ MT
Target angle: -118
Current: 2.5 nA
CI Range: 6n
Collimator: #3
Trigger rate: 60 Hz
Data rate: 30 kB/s
Trigger evts: 39434
Scaler evts: 8854
K600 angle: 0 deg
K600 field:
Q: S A
D1: A A
H: A
D2: M A
K: E A
VDC efficiency
X1
U1
X2
U2

Empty Holo check.

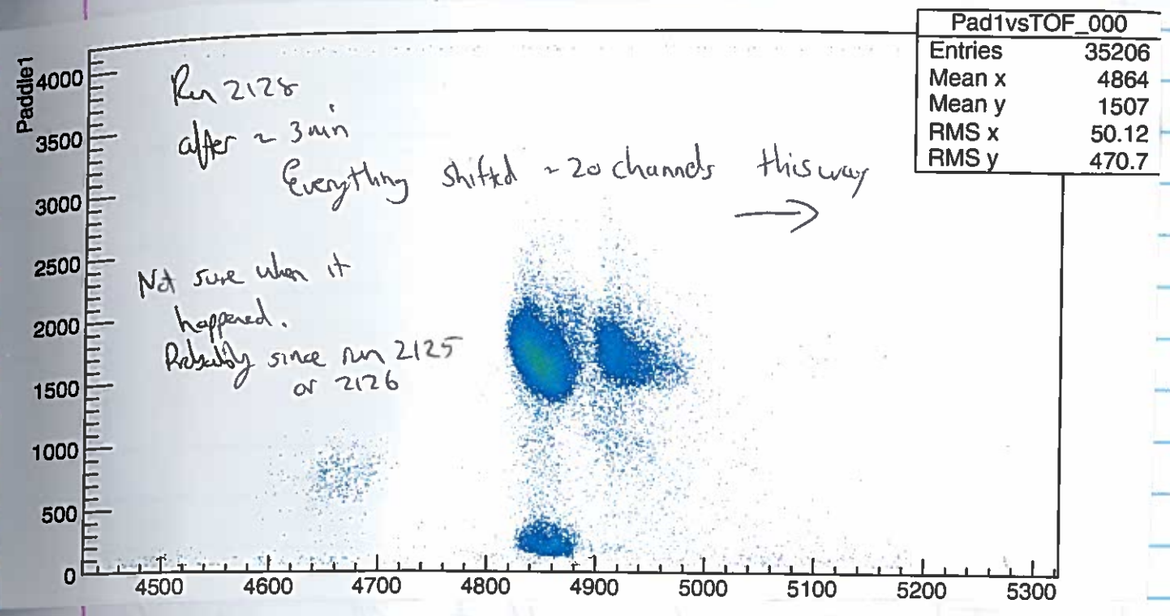
60 Hz @ 2-5 nA.



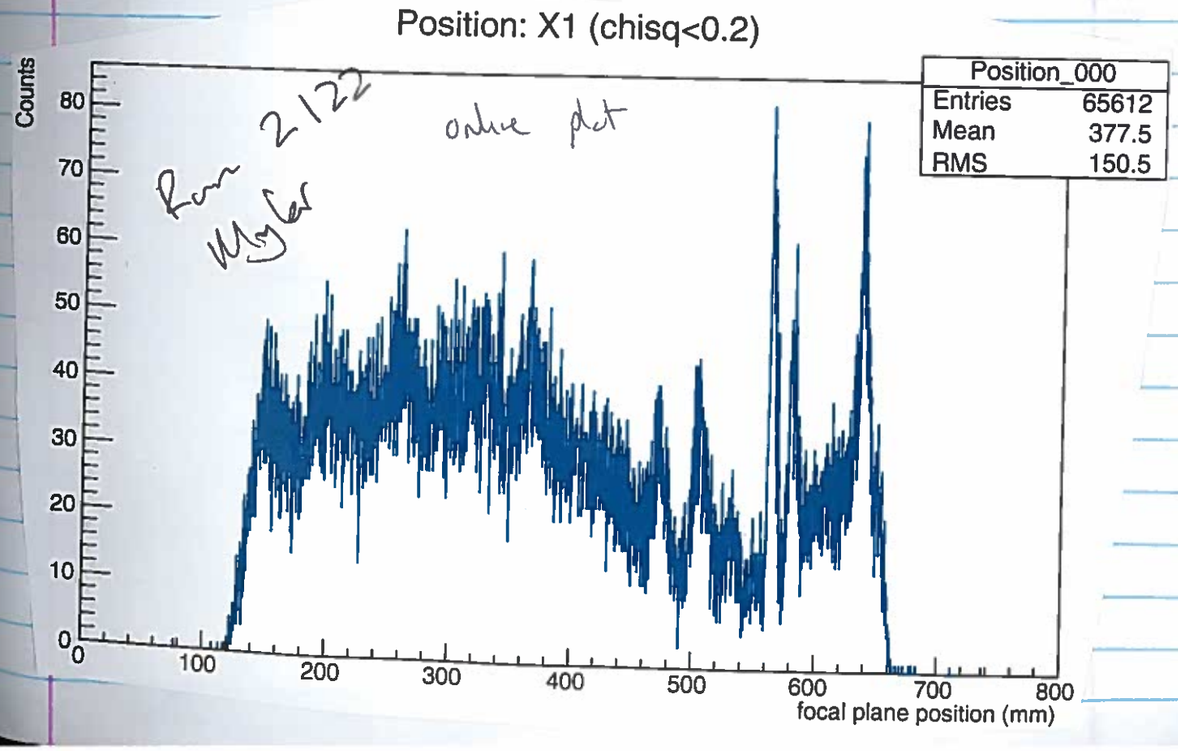
Run comment: Mg
Run #: 2128
Start: 20:13
Stop: 20:35
Target: Mg 26
Target angle:
Current: 1.1 nA
CI Range: 6
Collimator: #3
Trigger rate: 130 Hz
Data rate: kB/s
Trigger evts: 335710
Scaler evts: 1361
K600 angle: 0 deg
K600 field:
Q: A
D1: S A
H: A A
D2: A A
K:
VDC efficiency
X1 93.7
U1 94.1
X2 87
U2 94.7

I notice a 2ns shift in the tof of the PID

Keep this in mind when doing analysis!



Run comment: Pb data
Run #: 2129
Start: 20:37
Stop: 20:58
Target: Pb #4
Target angle: -116
Current: 2 nA
CI Range: 6
Collimator: #3
Trigger rate: 161 Hz
Data rate: kB/s
Trigger evts: 147003
Scaler evts: 1157
K600 angle: 0 deg
K600 field:
Q: C A
D1:) A
H: A A
D2: M A
K: A
VDC efficiency
X1 94
U1 96
X2 87
U2 94.



PA+RN

So. We looked at the 208Pb data in more detail after noting on page 104 that our 208Pb is different to the Youngblood 208Pb (PRC 69 034315).

Compare the "208Pb" to the mylar plot on page 107.

It is clear that the spectra are very similar if not identical.

We are going to have A Look.

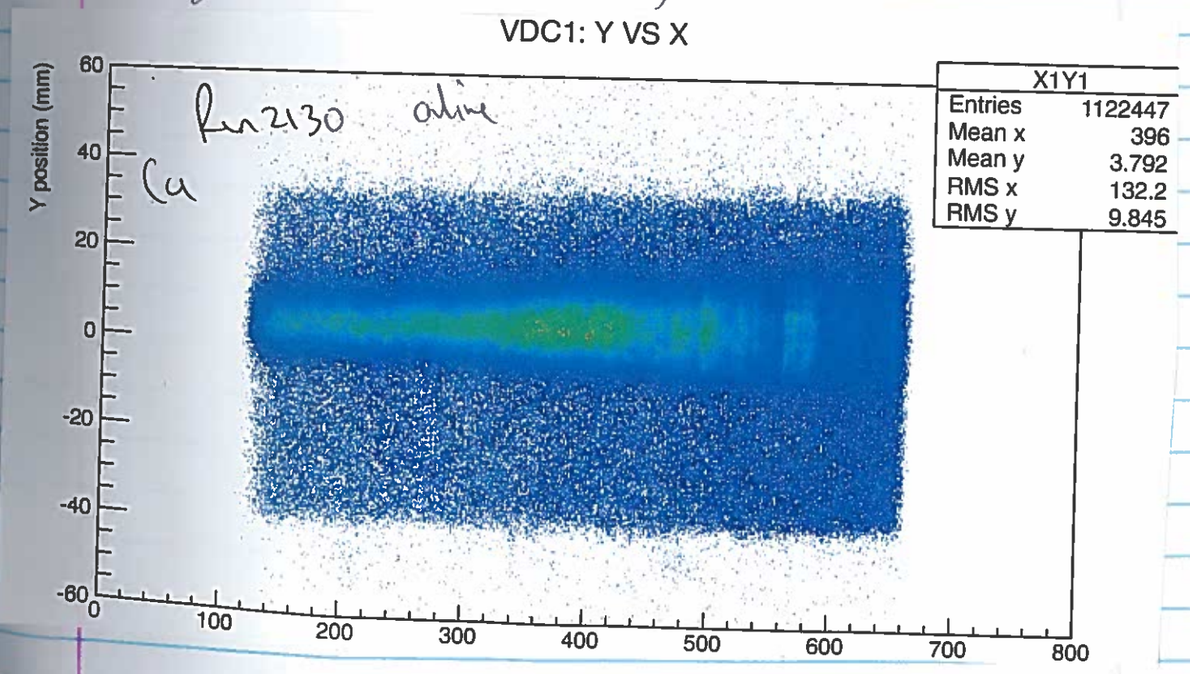
This is the 208Pb target. It does not look so well...

Conclusion: the latest runs on Pb only yield "plastic" data.
Decide to spend the night taking data on Ca.
Tomorrow at some point we should put in other targets.

Run comment: 40Ca data
Run #: 2130
Start: 21:16
Stop: 22:26
Target: 40Ca
Target angle: -118
Current: 1-4 nA
CI Range: 6
Collimator: #3
Trigger rate: 250 Hz
Data rate: 100 kB/s
Trigger evts: 1912 M
Scaler evts: 4103
K600 angle: 0 deg
K600 field:
Q: S A
D1: A A
H: M A
D2: E A
K: A
VDC efficiency
X1 94
U1 94
X2 86
U2 96

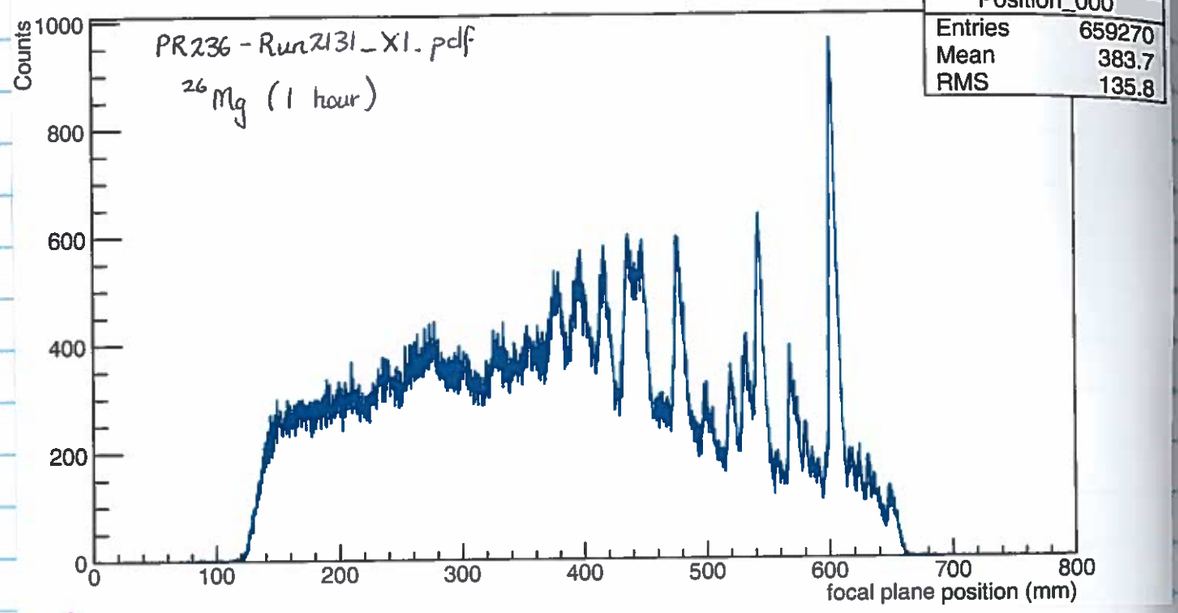
Ca target matters:
If we take the night and Sunday day on Ca, then from 16:00 on Sunday we can take all
Ca, Pb, Mylar
and put on
^{24}Mg, melamine, ^{13}C
↳ or ^{12}C diamond, or Si_3O

The idea is to use the 2.2 mg cm^{-2} Pb target from Khan (PR121) next weekend along with maybe 2x (for more stats)



Run comment: Mg
Run #: 2131
Start: 22:28 Current: 3 nA Trigger rate: 287 Hz
Stop: 23:29 CI Range: 6 Data rate: 115 kB/s
Target: Mg 26 Collimator: #3 Trigger evts: 1.025M
Target angle: -118 Scaler evts: 3546
K600 angle: 0 deg
K600 field: Q: C A, D1: S A, H: A A, D2: MP A, K: A
VDC efficiency: X1 93.62, U1 94.08, X2 87.19, U2 94.54

Position: X1 (chisq<0.2)



Position_000	
Entries	659270
Mean	383.7
RMS	135.8

Run comment: Mylar
Run #: 2132
Start: 23:30 Current: 2.3 nA Trigger rate: 117 Hz
Stop: 23:51 CI Range: 6 Data rate: 45 kB/s
Target: Mylar Collimator: 3 Trigger evts: 168212
Target angle: -118 Scaler evts: 1243
K600 angle: 0 deg
K600 field: Q: S A, D1: A A, H: M A, D2: E A, K: A
VDC efficiency: X1 93.96, U1 94.08, X2 88.7, U2 94.5

Run comment: Empty
Run #: 2133
Start: 23:53 Current: 3.2 nA Trigger rate: 67 Hz
Stop: 00:05 CI Range: 6 Data rate: 24 kB/s
Target: Empty Collimator: 3 Trigger evts: 35832
Target angle: -118 Scaler evts: 671
K600 angle: 0 deg
K600 field: Q: S A, D1: A A, H: M A, D2: E A, K: A
VDC efficiency: X1 94.7, U1 94.85, X2 87.03, U2 95.03

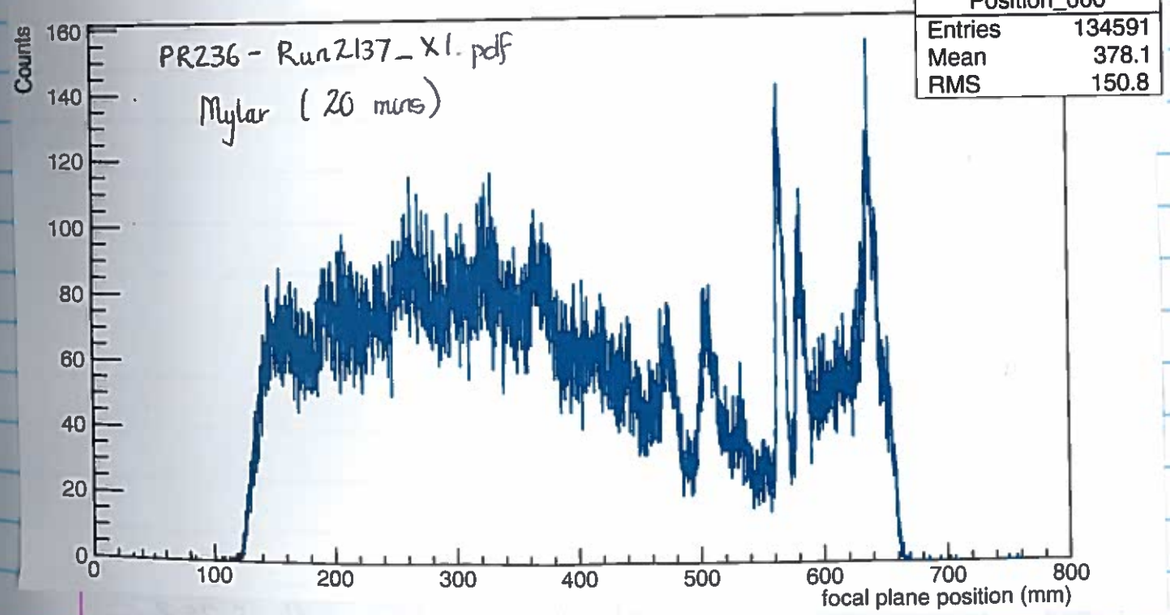
Run comment: 40Ca
Run #: 2134
Start: 00:06 Current: 3.3 nA Trigger rate: 449 Hz
Stop: 01:07 CI Range: 6 Data rate: 186 kB/s
Target: 40Ca Collimator: 3 Trigger evts: 1.326M
Target angle: -118 Scaler evts: 3556
K600 angle: 0 deg
K600 field: Q: S A, D1: A A, H: M A, D2: E A, K: A
VDC efficiency: X1 93.27, U1 93.99, X2 85.83, U2 94.54

Run comment: 40Ca
Run #: 2135
Start: 01:08 Current: 2.2 nA Trigger rate: 406 Hz
Stop: 02:10 CI Range: 6 Data rate: 169 kB/s
Target: 40Ca Collimator: 3 Trigger evts: 1.392M
Target angle: -118 Scaler evts: 3600
K600 angle: 0 deg
K600 field: Q: S A, D1: A A, H: M A, D2: E A, K: A
VDC efficiency: X1 93.33, U1 94.17, X2 85.92, U2 94.6

Run comment: 26Mg
Run #: 2136
Start: 02:11 Current: 2.8 nA Trigger rate: 290 Hz
Stop: 03:11 CI Range: 6 Data rate: 120 kB/s
Target: 26Mg Collimator: 3 Trigger evts: 1.044M
Target angle: -118 Scaler evts: 3509
K600 angle: 0 deg
K600 field: Q: S A, D1: A A, H: M A, D2: E A, K: A
VDC efficiency: X1 93.53, U1 94.08, X2 86.74, U2 94.67

Run comment: Mylar
Run #: 2137
Start: 03:13 Current: 2 nA Trigger rate: 133 Hz
Stop: 03:43 CI Range: 6 Data rate: 52 kB/s
Target: Mylar Collimator: 3 Trigger evts: 276310
Target angle: -118 Scaler evts: 1771
K600 angle: 0 deg
K600 field: Q: S A, D1: A A, H: M A, D2: E A, K: A
VDC efficiency: X1 93.87, U1 94.18, X2 88.17, U2 94.73

Position: X1 (chisq<0.2)



Position_000	
Entries	134591
Mean	378.1
RMS	150.8

Run comment: Empty
Run #: 2138
Start: 03:45 Current: 2.2 nA Trigger rate: 47 Hz
Stop: 03:55 CI Range: 6 Data rate: 19 kB/s
Target: Empty Collimator: 3 Trigger evts: 32016
Target angle: -118 Scaler evts: 593
K600 angle: 0 deg
K600 field: Q: S A, D1: A A, H: M A, D2: E A, K: A
VDC efficiency: X1 93.74, U1 94.22, X2 87.22, U2 94.02

Run comment: ^{40}Ca — K600 angle: 0 deg — K600 field:

Run #: 2139 — Q: S A — VDC efficiency

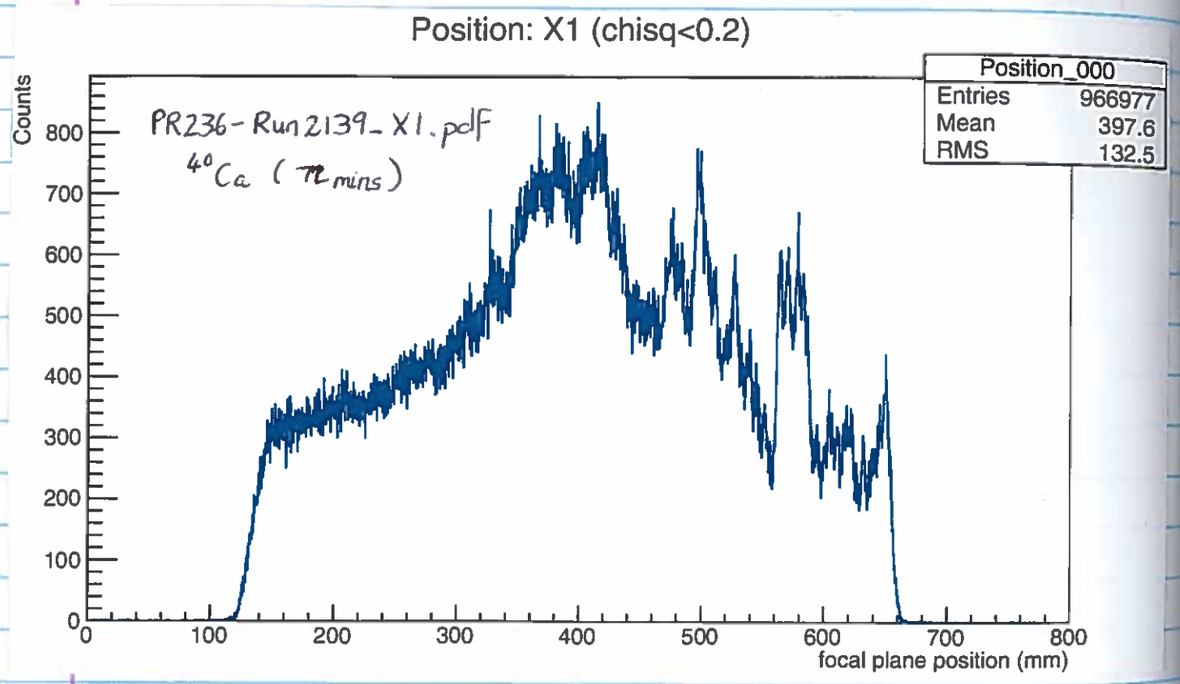
Start: 03:57 — Current: 2.5 nA — Trigger rate: 370 Hz — D1: A A — X1 93.29

Stop: 05:09 — CI Range: 6 — Data rate: 154 kB/s — H: M A — U1 94.05

Target: ^{40}Ca — Collimator: 3 — Trigger evts: 1.495 M — D2: E A — X2 86.17

Target angle: −118 — Scaler evts: 4160 — K: A — U2 94.60

Note that the beam was unstable during run2139 - fluctuation between 0.8 nA and 2.0 nA.



Run comment: ^{40}Ca — K600 angle: 0 deg — K600 field:

Run #: 2140 — Q: S A — VDC efficiency

Start: 05:10 — Current: 1.2 nA — Trigger rate: 261 Hz — D1: A A — X1 93.45

Stop: 06:22 — CI Range: 6 — Data rate: 108 kB/s — H: M A — U1 94.13

Target: ^{40}Ca — Collimator: 3 — Trigger evts: 1.425 M — D2: E A — X2 86.41

Target angle: −118 — Scaler evts: 4195 — K: A — U2 94.63

Again, fluctuations in beam intensity - problems with SPC2.

Run comment: ^{26}Mg — K600 angle: 0 deg — K600 field:

Run #: 2141 — Q: S A — VDC efficiency

Start: 06:23 — Current: 1.8 nA — Trigger rate: 193 Hz — D1: A A — X1 93.62

Stop: 07:23 — CI Range: 6 — Data rate: 79 kB/s — H: M A — U1 94.12

Target: ^{26}Mg — Collimator: 3 — Trigger evts: 762400 — D2: E A — X2 87.80

Target angle: −118 — Scaler evts: 3510 — K: A — U2 94.70

Run comment: Mylar — K600 angle: 0 deg — K600 field:

Run #: 2142 — Q: S A — VDC efficiency

Start: 07h25 — Current: 2.2 nA — Trigger rate: 108 Hz — D1: A A — X1 93.91

Stop: 07h45 — CI Range: 6 — Data rate: 44 kB/s — H: M A — U1 93.98

Target: Mylar — Collimator: 3 — Trigger evts: 144377 — D2: E A — X2 88.34

Target angle: −118 — Scaler evts: 1178 — K: A — U2 94.61

Run comment: Empty — K600 angle: 0 deg — K600 field:

Run #: 2143 — Q: S A — VDC efficiency

Start: 07h47 — Current: 1.9 nA — Trigger rate: 31 Hz — D1: A A — X1 94.24

Stop: 07h58 — CI Range: 6 — Data rate: 11 kB/s — H: M A — U1 93.76

Target: Empty — Collimator: 3 — Trigger evts: 18619 — D2: E A — X2 86.21

Target angle: −118 — Scaler evts: 617 — K: A — U2 94.25

Run comment: ^{40}Ca — K600 angle: 0 deg — K600 field:

Run #: 2144 — Q: S A — VDC efficiency

Start: 08:00 — Current: 1.7 nA — Trigger rate: 277 Hz — D1: A A — X1 93.6

Stop: 9:06 — CI Range: 6 — Data rate: 114 kB/s — H: M A — U1 94.2

Target: ^{40}Ca — Collimator: 3 — Trigger evts: 1.324M — D2: E A — X2 86.5

Target angle: −118 — Scaler evts: 3840 — K: A — U2 94.6

Run comment: ^{40}Ca — K600 angle: 0 deg — K600 field:

Run #: 2145 — Q: S A — VDC efficiency

Start: 9h07 — Current: 2.4 nA — Trigger rate: 348 Hz — D1: A — X1 93.527

Stop: 10:08 — CI Range: 6 — Data rate: 142 kB/s — H: M — U1 94.130

Target: ^{40}Ca — Collimator: #3 — Trigger evts: 1.330 M — D2: M — X2 86.151

Target angle: −118 — Scaler evts: 3530 — K: E A — U2 94.062

Run comment: ^{26}Mg — K600 angle: 0 deg — K600 field:

Run #: 2146 — Q: S A — VDC efficiency

Start: 10:12 — Current: 2.1 nA — Trigger rate: 221 Hz — D1: A A — X1 93.7

Stop: 11:12 — CI Range: 6 — Data rate: 86 kB/s — H: M A — U1 94.1

Target: ^{26}Mg — Collimator: #3 — Trigger evts: 694823 — D2: E A — X2 87.7

Target angle: −118° — Scaler evts: 3498 — K: A — U2 94.7

Run comment: Mylar — K600 angle: 0 deg — K600 field:

Run #: 2147 — Q: S A — VDC efficiency

Start: 11:14 — Current: 2.4 nA — Trigger rate: 165 Hz — D1: A A — X1

Stop: 11:35 — CI Range: 6 — Data rate: 67 kB/s — H: M A — U1

Target: Mylar — Collimator: #3 — Trigger evts: 229047 — D2: E A — X2

Target angle: 118 — Scaler evts: 1173 — K: A — U2

Run comment: ?? MT — K600 angle: 0 deg — K600 field:

Run #: 2148 — Q: S A — VDC efficiency

Start: 11h38 — Current: 3.4 nA — Trigger rate: 98 Hz — D1: A A — X1

Stop: 11h48 — CI Range: 6 — Data rate: 47 kB/s — H: M A — U1

Target: MT — Collimator: #3 — Trigger evts: 64026 — D2: E A — X2

Target angle: −118.0 — Scaler evts: 611 — K: A — U2

Run comment: ^{40}Ca — K600 angle: 0 deg — K600 field:

Run #: 2149

Start: 11h51 — Current: 3.1 nA — Trigger rate: 570 / 528 Hz — Q: S A — VDC efficiency

Stop: 12h51 — CI Range: ~~#6~~ nA — Data rate: 236 kB/s — D1: A A — X1 93.4

Target: ^{40}Ca — Collimator: #3 — Trigger evts: 2.24M — H: A — U1 94.1

Target angle: −118.0 — Scaler evts: 3500 — D2: M A — X2 85.0

K: E A — U2 94.6

Run comment: ^{40}Ca — K600 angle: 0 deg — K600 field:

Run #: 2150

Start: ~~23~~ 12h52 — Current: 3.4 nA — Trigger rate: 610 Hz — Q: S A — VDC efficiency

Stop: 13h54 — CI Range: 6 — Data rate: 236 kB/s — D1: A A — X1 93.4

Target: ^{40}Ca — Collimator: #3 — Trigger evts: 2179M — H: A — U1 94.1

Target angle: −118.0 — Scaler evts: 3586 — D2: M A — X2 84.9

K: E A — U2 94.6

Interlocks needed to be reset during the run 2150

Run comment: ^{26}Mg — K600 angle: 0 deg — K600 field:

Run #: 2151

Start: 13h57 — Current: 3.9 nA — Trigger rate: 421 Hz — Q: S A — VDC efficiency

Stop: 14h59 — CI Range: 6 — Data rate: 185 kB/s — D1: A A — X1 93.5

Target: ^{26}Mg — Collimator: #3 — Trigger evts: 1.772M — H: A — U1 94.1

Target angle: −118.0 — Scaler evts: 3602 — D2: M A — X2 85.1

K: E A — U2 94.7

Run comment: Mylar — K600 angle: 0 deg — K600 field:

Run #: 2152

Start: 15h03 — Current: 3.1 nA — Trigger rate: 194 Hz — Q: S A — VDC efficiency

Stop: 15h24 — CI Range: 6 — Data rate: 79 kB/s — D1: A A — X1 93.8

Target: Mylar — Collimator: #3 — Trigger evts: 257544 — H: A — U1 94.2

Target angle: −118.0 — Scaler evts: 1186 — D2: M A — X2 86.9

K: E A — U2 94.6

Run comment: EMPTY — K600 angle: 0 deg — K600 field:

Run #: 2153

Start: 15:27 — Current: 3.4 nA — Trigger rate: 77 Hz — Q: S A — VDC efficiency

Stop: 15:37 — CI Range: 6 — Data rate: 30 kB/s — D1: A A — X1

Target: EMPTY — Collimator: #3 — Trigger evts: 40007 — H: M A — U1

Target angle: −118 — Scaler evts: 580 — D2: A — X2

K: E A — U2

Run comment: ^{40}Ca — K600 angle: 0 deg — K600 field:

Run #: 2154

Start: 15h40 — Current: 3.3 nA — Trigger rate: 533 Hz — Q: S A — VDC efficiency

Stop: 16:20 — CI Range: 6 — Data rate: 225 kB/s — D1: A A — X1 93

Target: ^{40}Ca — Collimator: #3 — Trigger evts: 1.192M — H: A — U1 94

Target angle: −118.0 — Scaler evts: 2289 — D2: M A — X2 85

K: E A — U2 95

Going to change targets. @ 16:20

Sunday 16:20 Change target ladder

Was: empty, viewer, ^{26}Mg, ^{208}Pb, ^{40}Ca, Mylar → Now: empty ← new frame size, viewer, ^{26}Mg, melamine, ^{24}Mg, ^{90}Zr

We left the Ca and Pb (what is left of it) inside the vacuum chamber.

Current ladder

← new empty frame. Bigger than before. Same size as all tgts except Zr.

← viewer

^{26}Mg

Melamine

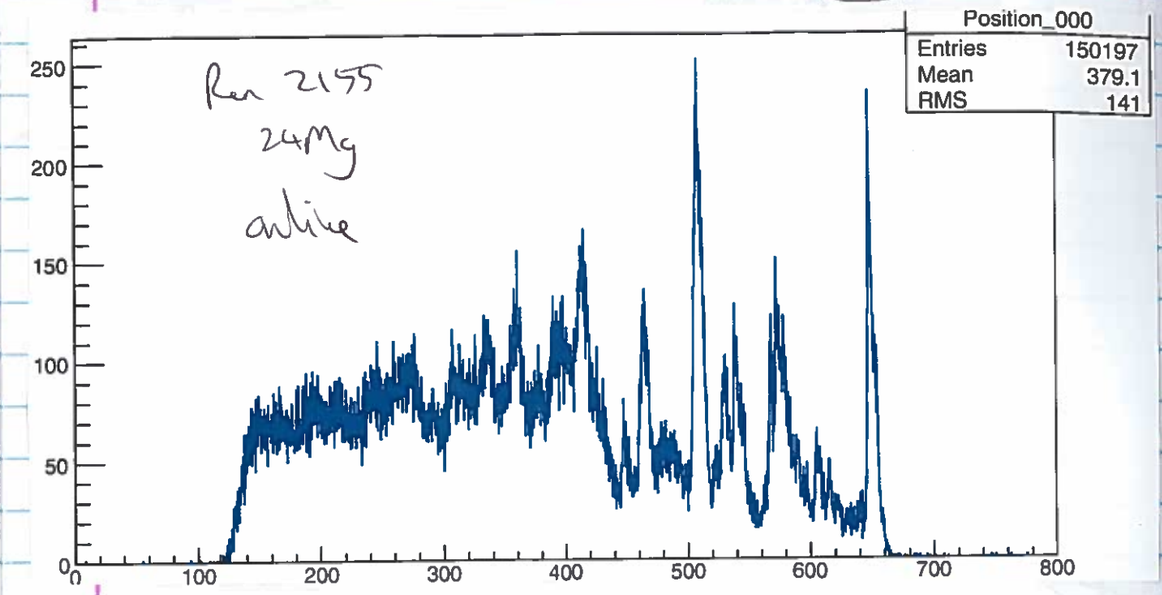
^{24}Mg

^{90}Zr

Other targets to try: SiO_2, ^{12}C diamond, ^{13}C + thicker Pb

Run comment: 24Mg | K600 angle: 0 deg | K600 field: Q: -7454.175 A, D1: 142.8 A, H: -2.833 A, D2: 271.008 A, K: 2.833 A (SAME) | VDC efficiency: X1 93.8, U1 94.1, X2 87.7, U2 94.7

Run #: 2155 | Start: 17:23 | Stop: 18:07 | Target: 24Mg | Target angle: -11°
Current: 28 nA | CI Range: 6 | Collimator: #3
Trigger rate: 160 Hz | Data rate: kB/s | Trigger evts: 44,9138 | Scaler evts: 2980



There are a lot of ADC errors: Struct size mismatch for [Equipment/Scaler/Veto]

Decide to reboot Labview

On xiafe in ~/scripts issue cmd start_daq_labvpc236.sh

Run comment: 26Mg | K600 angle: 0 deg | K600 field: Q: S A, D1: S A, H: A A, D2: M A, K: E A | VDC efficiency: X1, U1, X2, U2

Run #: 2156 | Start: 18:13 | Stop: 18:35 | Target: 26Mg | Target angle: -11°
Current: 2 nA | CI Range: 6 | Collimator: #3
Trigger rate: 216 Hz | Data rate: 84 kB/s | Trigger evts: 518745 | Scaler evts: 2464

Beam instabilities

Operator change beam intensity too aggressively.

Causes detectors to trip, plus current goes above CI range.

beam exceeded 6nA!

Run comment: Melanie | K600 angle: 0 deg | K600 field: Q: S A, D1: S A, H: A A, D2: M A, K: E A | VDC efficiency: X1 93.6, U1 93.9, X2 85, U2 94.5

Run #: 2157 | Start: 16:58 | Stop: 20:04 | Target: Melanie | Target angle: -11°
Current: 19 nA | CI Range: 6 | Collimator: #3
Trigger rate: 600 Hz | Data rate: kB/s | Trigger evts: 2.82e+06 | Scaler evts: 3686

Run comment: 90Zr Data | K600 angle: 0 deg | K600 field: Q: S A, D1: A A, H: M A, D2: E A, K: A | VDC efficiency: X1, U1, X2, U2

Run #: 2158 | Start: 20:04 | Stop: 21:04 | Target: 90Zr #6 | Target angle: -11°
Current: 1.7 nA | CI Range: 6n | Collimator: #3
Trigger rate: 150 Hz | Data rate: 70 kB/s | Trigger evts: | Scaler evts:

Foot.

NB.

There was a 26 in the debug modes was one of 26 not 0. Was an entry in the wrong box (i.e., 26 for 26Mg not entered into the GUI box). RN has inspected affected runs and thinks that they're fine.

Runs 2157, 2164-57 analysed offline. Seems fine.

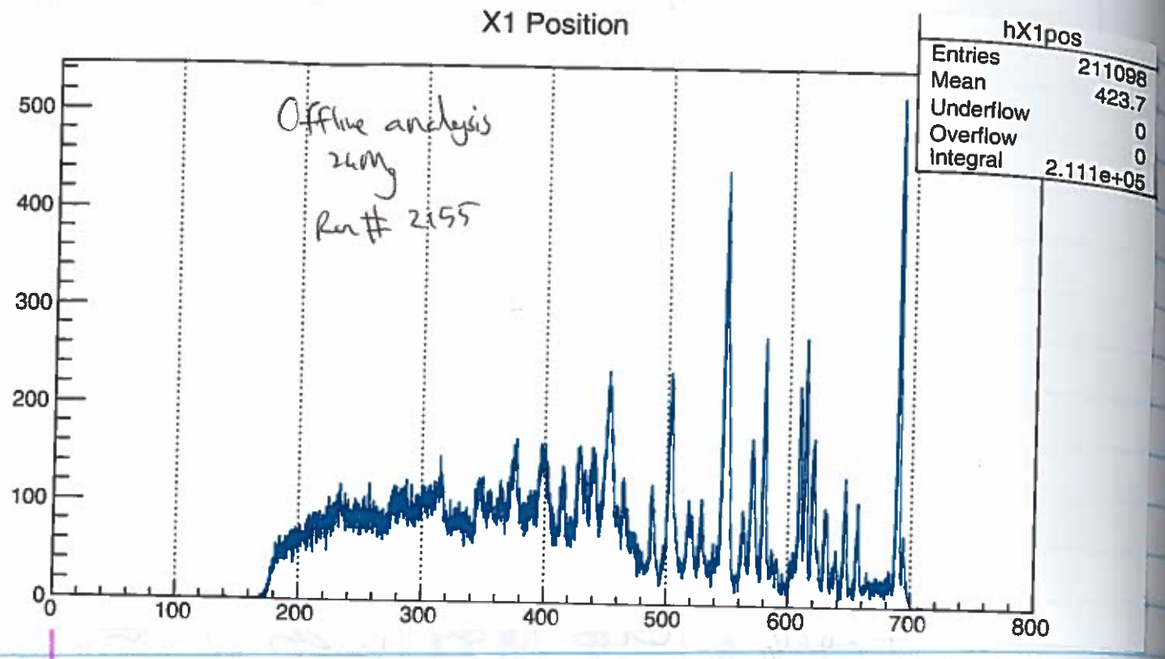
Run comment: MT Hdb Check | K600 angle: 0 deg | K600 field: Q: S A, D1: A A, H: M A, D2: E A, K: A | VDC efficiency: X1 94, U1 95, X2 86, U2 94

Run #: 2159 | Start: 21.07 | Stop: 21.23 | Target: #1 MT | Target angle: -11°
Current: 3.5 nA | CI Range: 6n | Collimator: #3
Trigger rate: 60 Hz | Data rate: 30 kB/s | Trigger evts: 58720 | Scaler evts: 923

Was Debug ADC RB

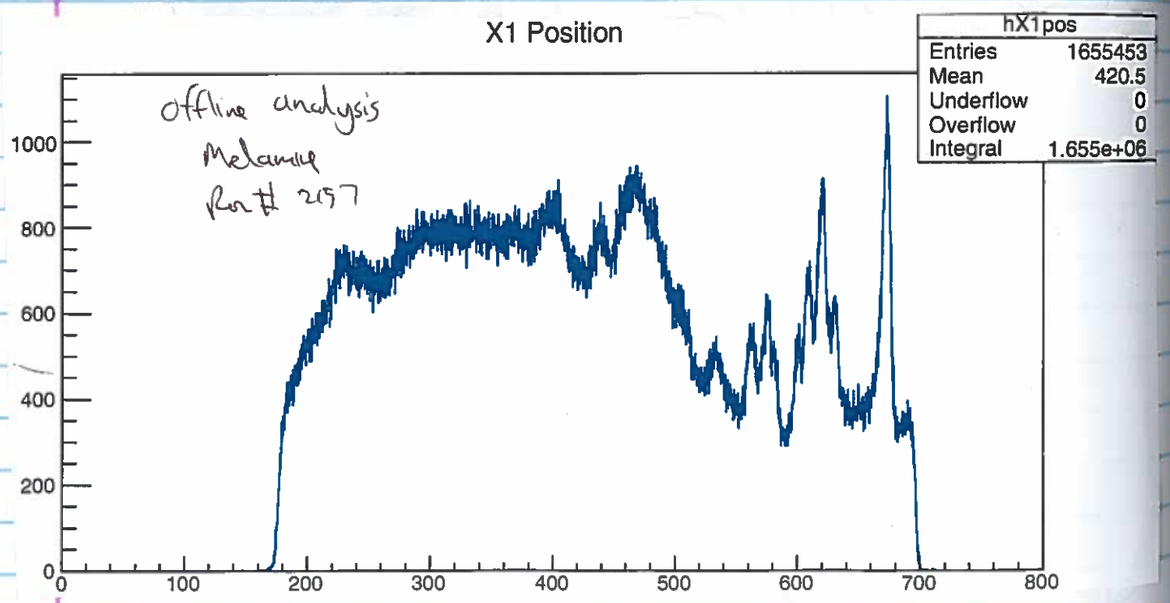
I = 3.5 nA. Triggers: 60Hz.

Not bad...



Run comment: 26Mg
Run #: 2161
Start: 22:26
Stop: 22:47
Target: 26Mg
Target angle: −118
Current: 2-9 nA
CI Range: 6n
Collimator: #3
Trigger rate: 270 Hz
Data rate: 115 kB/s
Trigger evts: 312 955
Scaler evts: 1218
K600 angle: 0 deg
K600 field:
Q: S A
D1: A A
H: M A
D2: E A
K: A
VDC efficiency
X1 93.7
U1 93.9
X2 87.4
U2 96.6

NOTE: tdy seem slightly shifted, keep this in mind during analysis!
* 2nsec shift to right.



Run comment: 90Zr Data
Run #: 2160
Start: 21:25
Stop: 22:25
Target: 90Zr #6
Target angle: −118
Current: 3.4 nA
CI Range: 6n
Collimator: #3
Trigger rate: 330 Hz
Data rate: 140 kB/s
Trigger evts: 919737
Scaler evts: 3466
K600 angle: 0 deg
K600 field:
Q: S A
D1: A A
H: A A
D2: M A
K: E A
VDC efficiency
X1 94
U1 94
X2 86
U2 94

Run comment: Melamine
Run #: 2162
Start: 23:53
Stop: 00:52
Target: Melamine #4
Target angle: −118
Current: 3-0 nA
CI Range: 6n
Collimator: #3
Trigger rate: 1000 Hz
Data rate: 400 kB/s
Trigger evts: 3.3 10^6
Scaler evts: 3518
K600 angle: 0 deg
K600 field:
Q: S A
D1: A A
H: M A
D2: E A
K: A
VDC efficiency
X1 93
U1 94
X2 85
U2 95

Run comment: MT (H2O check)
Run #: 2164
Start: 00:54
Stop: 01:16
Target: MT
Target angle: −118
Current: 2.0 nA
CI Range: 6 nA
Collimator: #3
Trigger rate: 33.7 Hz
Data rate: 14 kB/s
Trigger evts:
Scaler evts:
K600 angle: 0 deg
K600 field:
Q: S A
D1: A A
H: M A
D2: E A
K: A
VDC efficiency
X1 95
U1 96
X2 88
U2 94

Run comment: 24Mg
Run #: 2165
Start: 01:18
Stop: 01:38
Target: 24Mg
Target angle: −118
Current: 1.5 nA
CI Range: 6nA
Collimator: #3
Trigger rate: 45 Hz
Data rate: 18 kB/s
Trigger evts: 50847
Scaler evts: 1143
K600 angle: 0 deg
K600 field:
Q: S A
D1: A A
H: M A
D2: E A
K: A
VDC efficiency
X1 96
U1 93
X2 86
U2 94

Run comment: 90Zr (Data)
Run #: 2166
Start: 01:41
Stop: 02:41
Target: 90Zr
Target angle: −118
Current: 1.5 nA
CI Range: 6
Collimator: #3
Trigger rate: 129 Hz
Data rate: 53 kB/s
Trigger evts: 624257
Scaler evts: 3490
K600 angle: 0 deg
K600 field:
Q: S A
D1: A A
H: M A
D2: E A
K: A
VDC efficiency
X1 94
U1 94
X2 87
U2 94

Run comment: 26Mg Data K600 angle: 0 deg
Run #: 2167
Start: 02:43 Current: 2.5 nA Trigger rate: 340 Hz
Stop: 03:06 CI Range: 6nA Data rate: 150 kB/s
Target: 26Mg Collimator: #3 Trigger evts:
Target angle: -118 Scaler evts:

K600 field:
Q: 9 A
D1: A A
H: M A
D2: E A
K: A

VDC efficiency
X1 94
U1 94
X2 87
U2 95

Run comment: 90Zr data K600 angle: 0 deg
Run #: 2168
Start: 03:08 Current: 2.5 nA Trigger rate: 250 Hz
Stop: 03:42 CI Range: 6nA Data rate: 100 kB/s
Target: 90Zr Collimator: #3 Trigger evts: 457532
Target angle: -118 Scaler evts: 2029

34 mins

K600 field:
Q: 9 A
D1: A A
H: M A
D2: E A
K: A

VDC efficiency
X1 94
U1 94
X2 85
U2 95

Beam loss 34 min into the run.
Run stopped @ 03:42 AM
Brought back within a min.

Run comment: DATA 90Zr K600 angle: 0 deg
Run #: 2169
Start: 03:45 Current: 1.3 nA Trigger rate: 122 Hz
Stop: 04:51 CI Range: 6 Data rate: 50 kB/s
Target: 90Zr Collimator: #3 Trigger evts: 710788
Target angle: -118 Scaler evts: 3821

K600 field:
Q: 5 A
D1: A A
H: M A
D2: E A
K: A

VDC efficiency
X1 93.8
U1 93.9
X2 87.2
U2 93.9

Run comment: Melamine K600 angle: 0 deg
Run #: 2170
Start: 04:55 Current: 4.2 nA Trigger rate: 1256 Hz
Stop: 05:56 CI Range: 6nA Data rate: 522 kB/s
Target: Melamine Collimator: #3 Trigger evts: 3.7M
Target angle: -118 Scaler evts: 3628

K600 field:
Q: 5 A
D1: A A
H: M A
D2: E A
K: A

VDC efficiency
X1 93
U1 94
X2 85
U2 95

Beam taking @ ~6:00 AM

Q = -454.175
D1 = 412.800
D2 = 271.008
H = -2.833
K = 2.833

END WE 2

Date	03/04/2015
Weekend #	3

Targets	**#**	**Material**	**Thickness**	**Thickness measurement method**
	1	EMPTY		
	2	VIEWER		
	3	^{24}Mg	~0.23 mg/cm^2	
	4	^{208}Pb	~1 mg/cm^2	
	5	^{13}C	100 µg/cm^2	
	6	^{58}Ni	0.7 mg/cm^2	
	Target perpendicular to beam [°]		-118°	
	Target perpendicular to camera [°]		-138°	

Additional Notes:

Beam	**Energy [MeV[**	195.4	
	Pulse selection (yes/no)	no	
	Injector (SPC1 or SPC2)	SPC2	
	SSC Transmission	**FC 19J**	
		FC 1X	
		FC 11X	
		FC 4P	
		FC 4S	
		FC Target	

Additional Notes:

Scattering chamber beamstop	**In beam position**	2051
	Out of beam position	2500

Additional Notes: