Field change: Start with MT → Look @ Lab

Then ^{208}Pb → Look at the rate

^{24}Mg (30 min) → Resolution

Then ^{208}Pb data overnight.

Current field settings:

Q : -454.175 A
D1: 412.8 A
H : [redacted] -2.833 A
D2: 271.008 A
K : 2.833 A

Going to change the field to:

D1 = 418.0 A At least for now.

Q = -459.897 A
D1: 418.000 A
H : -2.869 A
D2 : 274.422 A
K : 2.869 A

Changed with the superknob

Run comment: MT. New field — K600 angle: 4 deg
Run #: 4063 — Start: 21:48 — Stop: 21:52 — Target: MT — Target angle: -1180
Current: 7.8 nA — CI Range: 20n — Collimator: 4° Mode
Trigger rate: 64 Hz — Data rate: 20 kB/s — Trigger evts: 16018 — Scaler evts: 289
K600 field: Q: [redacted] A — D1: [redacted] A — H: [redacted] A — D2: [redacted] A — K: [redacted] A
VDC efficiency: X1 93 — U1 95 — X2 89 — U2 97

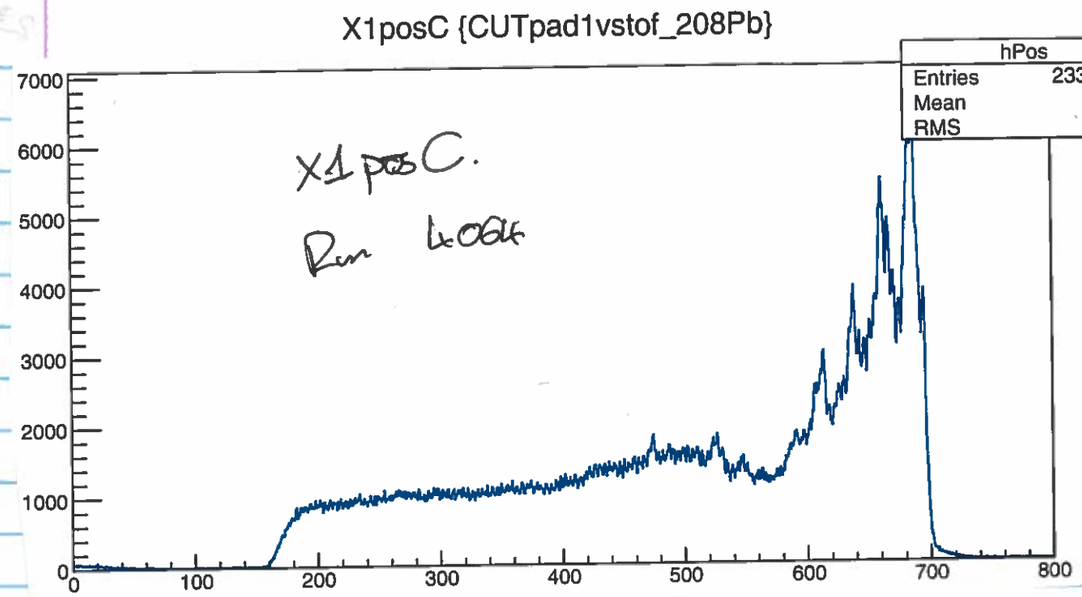
NEW FIELD

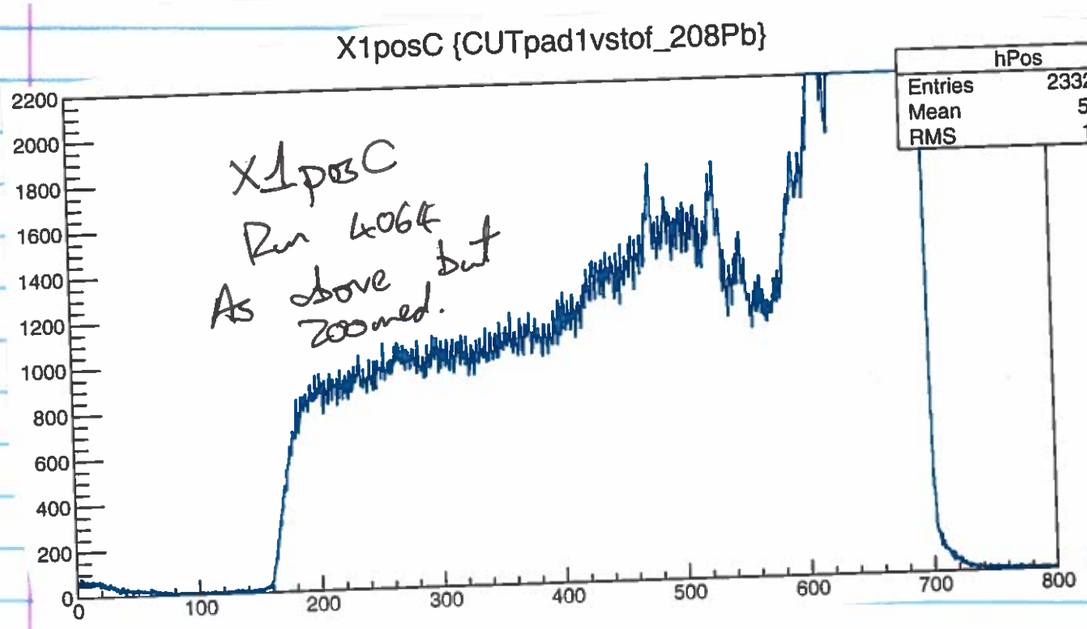
Set with Superknob

Q: -459,897
D1: 418,000 / H: -2,869
D2: 274,422 / K: 2,869

Run comment: 208Pb (First run with new fields) — K600 angle: 4 deg
Run #: 4064 — Start: 21:56 — Stop: 22:59 — Target: 208Pb — Target angle: -1180
Current: 6.5 nA — CI Range: 20nA — Collimator: 4° Mode
Trigger rate: 650 Hz — Data rate: 375 kB/s — Trigger evts: 2.943M — Scaler evts: 3639
K600 field: Q: -459.897 A — D1: 418.000 A — H: -2.869 A — D2: 274.422 A — K: 2.869 A
VDC efficiency: X1 91 — U1 94 — X2 85 — U2 86

Run comment: 24Mg — K600 angle: 4 deg
Run #: 4065 — Start: 23:03 — Stop: 23:32 — Target: [redacted] — Target angle: -1180
Current: 8.2 nA — CI Range: 20 nA — Collimator: 4° Mode
Trigger rate: ____ Hz — Data rate: ____ kB/s — Trigger evts: ____ — Scaler evts: ____
K600 field: Q: [redacted] A — D1: [redacted] A — H: [redacted] A — D2: [redacted] A — K: ____ A
VDC efficiency: X1 91.3 — U1 94.0 — X2 86.5 — U2 88.4





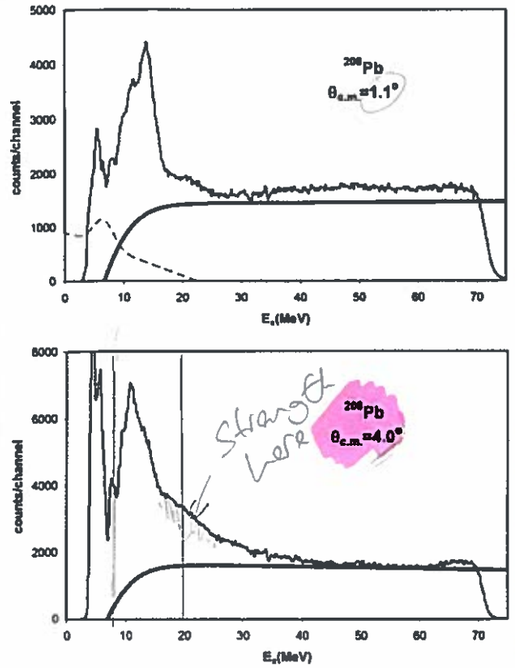


FIG. 1. Inelastic α spectra obtained at two angles for ^{208}Pb. The thick gray lines show the continuum chosen for the analysis. The dashed line below 22 MeV represents a contaminant present at some angles in the spectra taken with the spectrometer at 0°. This was subtracted before the multipole analysis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

PRC 69 034315.

↑ Should look like this one!

Looking at the spectra over on the other side, I think that we set the field too high.

Going to set D1 = 416.5 A. (with supertrob)

Field change.

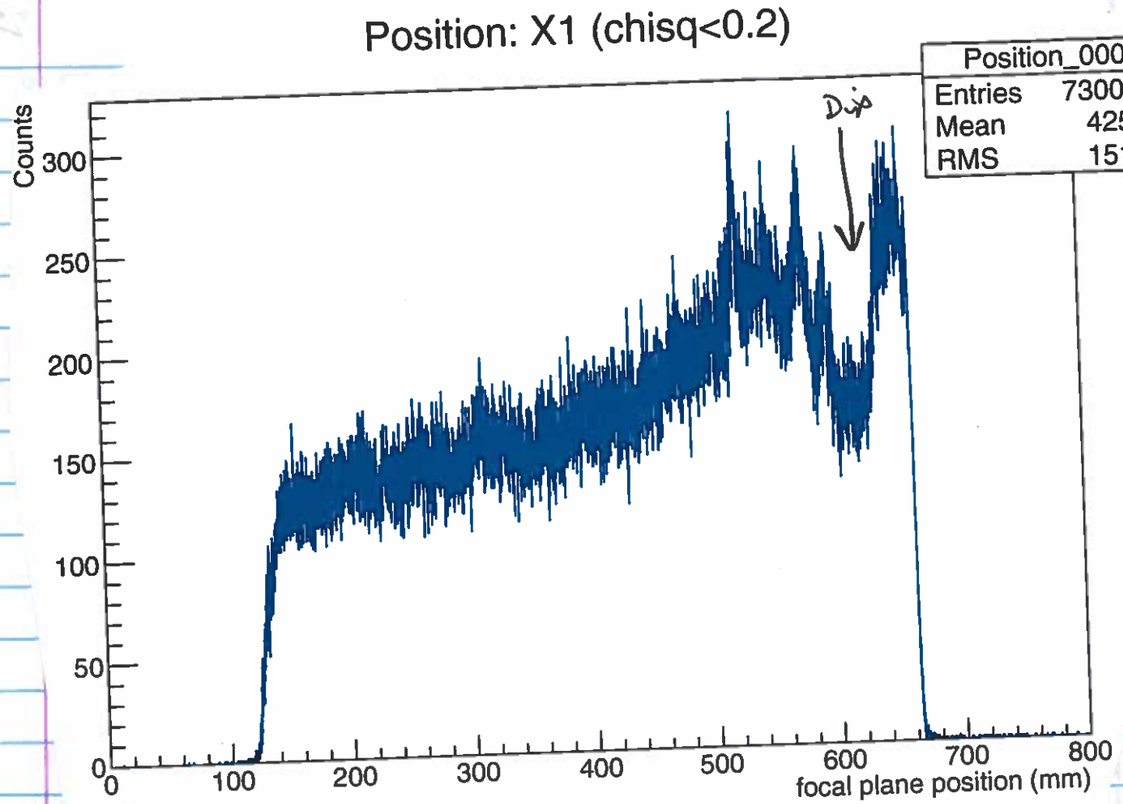
⇒ D2: 272,124
H: −2,845
K: +2,845
Q: −456,046

Run comment: 208Pb — K600 angle: 4 deg

Run #: 4066
Start: 23:49
Stop: 00:50
Target: 208Pb
Target angle: −118°
Current: 7.7 nA
CI Range: 20nA
Collimator:
Trigger rate: 556.7 Hz
Data rate: 233 kB/s
Trigger evts: 2.094 M
Scaler evts: 3562

K600 field:
Q: −456.046 A
D1: 444.5 A
H: −2,845 A
D2: 272,124 A
K: 2,845 A

VDC efficiency
X1 91.3
U1 94.2
X2 86.1
U2 86.6



^{208}Pb position spectrum.

This seems like a better position to get most/all of the resonance on the focal plane.

I've left a run-plan.

^{208}Pb	1 hr
^{24}Mg	30 min
MT	10 min
^{208}Pb	1 hr

Run ^{208}Pb for the rest of the night.

Have 8 hours on ^{58}Ni, ^{90}Zr.

Shifters tomorrow will need to think about putting ^{40}Ca into the scattering chamber. You can phone me if you want help with it.

Also, put mylar in.

Run comment: ^{208}Pb | K600 angle: 4 deg | K600 field:
Run #: 4067 | Q: A | VDC efficiency
Start: 00:52 | Current: 7-5 nA | Trigger rate: 548 Hz | D1: SA A | X1 41
Stop: 01:52 | CI Range: 20nA | Data rate: 260 kB/s | H: AA A | U1 96
Target: ^{208}Pb | Collimator: | Trigger evts: 2-1148 | D2: E A | X2 86
Target angle: -118° | Scaler evts: 3539 | K: A | U2 80

Run comment: ^{24}Mg | K600 angle: 4 deg | K600 field:
Run #: 4068 | Q: A | VDC efficiency
Start: 01:54 | Current: 7-7 nA | Trigger rate: 305 Hz | D1: SA A | X1 91.9
Stop: 02:24 | CI Range: 20nA | Data rate: 120 kB/s | H: A | U1 93.9
Target: ^{24}Mg | Collimator: | Trigger evts: 517167 | D2: ME A | X2 87.3
Target angle: -118° | Scaler evts: 1776 | K: A | U2 89.3

Run comment: MT | K600 angle: 4 deg | K600 field:
Run #: 4069 | Q: A | VDC efficiency
Start: 02:26 | Current: 7-2 nA | Trigger rate: 41 Hz | D1: SAME A | X1 0
Stop: 02:36 | CI Range: 20nA | Data rate: 15 kB/s | H: A | U1 0
Target: MT | Collimator: | Trigger evts: 24066 | D2: A | X2 84-5
Target angle: -118° | Scaler evts: 573 | K: A | U2 66-0

Run comment: ^{208}Pb | K600 angle: 4 deg | K600 field:
Run #: 4070 | Q: A | VDC efficiency
Start: 02:37 | Current: 7-2 nA | Trigger rate: 481 Hz | D1: A | X1 91.5
Stop: 03:24 | CI Range: 20nA | Data rate: 220 kB/s | H: SAME A | U1 94-2
Target: ^{208}Pb | Collimator: | Trigger evts: 1-268M | D2: A | X2 86-2
Target angle: -118° | Scaler evts: 2717 | K: A | U2 87-1

Run comment: 208 Pb
Run #: 4071
Start: 03:29 Current: 7-2 nA
Stop: 04:29 CI Range: 20nA
Target: 208 Pb Collimator:
Target angle: -118°
Trigger rate: 516 Hz
Data rate: 222 kB/s
Trigger evts: 1.913M
Scaler evts: 3508
K600 angle: 4 deg
K600 field:
Q: A
D1: A
H: SAME A
D2: A
K: A
VDC efficiency
X1 91.3
U1 94
X2 86
U2 87

Run comment: 24Mg
Run #: 4072
Start: 04:32 Current: 6.5 nA
Stop: 05:02 CI Range: 20nA
Target: 24Mg Collimator:
Target angle: -118°
Trigger rate: 266 Hz
Data rate: 111 kB/s
Trigger evts: 529789
Scaler evts: 1754
K600 angle: 4 deg
K600 field:
Q: S A
D1: A A
H: M A
D2: E A
K: A
VDC efficiency
X1 92
U1 94
X2 88
U2 89

Run comment: MT
Run #: 4073
Start: 05:05 Current: 7.5 nA
Stop: 05:15 CI Range: 20nA
Target: MT Collimator:
Target angle: -118°
Trigger rate: 42 Hz
Data rate: 14 kB/s
Trigger evts: 22003
Scaler evts: 567
K600 angle: 4 deg
K600 field:
Q: S A
D1: A A
H: M A
D2: E A
K: A
VDC efficiency
X1
U1
X2
U2

Run comment: 208Pb
Run #: 4074
Start: 05:17 Current: 7.5 nA
Stop: 06:18 CI Range: 20
Target: 208Pb Collimator:
Target angle: -118°
Trigger rate: 532 Hz
Data rate: 234 kB/s
Trigger evts: 2.092M
Scaler evts: 3511
K600 angle: 4 deg
K600 field:
Q: S A
D1: A A
H: M A
D2: A
K: E A
VDC efficiency
X1 91
U1 94
X2 86
U2 87

Run comment: 208Pb
Run #: 4075
Start: 06:18 Current: 7.7 nA
Stop: 07:18 CI Range: 20nA
Target: 208Pb Collimator:
Target angle: -118
Trigger rate: 568 Hz
Data rate: 245 kB/s
Trigger evts: 1.988 M
Scaler evts: 3528
K600 angle: 4 deg
K600 field:
Q: S A
D1: A A
H: A
D2: M A
K: E A
VDC efficiency
X1 91
U1 94
X2 86
U2 87

Run comment: 24Mg
Run #: 4076
Start: 07:21 Current: 7.3 nA
Stop: 07:51 CI Range: 20nA
Target: 24Mg Collimator:
Target angle: -118°
Trigger rate: 289 Hz
Data rate: 122 kB/s
Trigger evts: 511310
Scaler evts: 1756
K600 angle: 4 deg
K600 field:
Q: S A
D1: A A
H: M A
D2: E A
K: A
VDC efficiency
X1 92
U1 94
X2 88
U2 89

Run comment: MT
Run #: 4077
Start: 07:53 Current: 6.6 nA
Stop: 08:06 CI Range: 20nA
Target: MT Collimator:
Target angle: -118°
Trigger rate: 32 Hz
Data rate: 10 kB/s
Trigger evts: 21430
Scaler evts: 707
K600 angle: 4 deg
K600 field:
Q: S A
D1: A A
H: M A
D2: A
K: E A
VDC efficiency
X1 79
U1 73
X2 22
U2 79

Run comment: 208Pb
Run #: 4078
Start: 08:08 Current: 7.0 nA
Stop: 09:08 CI Range: 20nA
Target: 208Pb Collimator:
Target angle: -118°
Trigger rate: 490 Hz
Data rate: 203 kB/s
Trigger evts: 1.850 M
Scaler evts: 3510
K600 angle: 4 deg
K600 field:
Q: S A
D1: A A
H: M A
D2: E A
K: A
VDC efficiency
X1 91.29
U1 94.20
X2 86.05
U2 87.28

Run comment: 208 Pb
Run #: 4079
Start: 09:09 Current: 7.0 nA
Stop: 10:09 CI Range: 20 nA
Target: 208 Pb Collimator:
Target angle: -118°
Trigger rate: 467 Hz
Data rate: 213 kB/s
Trigger evts: 1.821 M
Scaler evts: 3506
K600 angle: 4 deg
K600 field:
Q: A
D1: SA A
H: A
D2: M A
K: E A
VDC efficiency
X1 91.2
U1 94.2
X2 86.1
U2 86.9

Run comment: 24Mg
Run #: 4080
Start: 10:11 Current: 7.6 nA
Stop: 10:41 CI Range: 20nA
Target: 24Mg Collimator:
Target angle: -118
Trigger rate: 276 Hz
Data rate: 117 kB/s
Trigger evts: 485543
Scaler evts: 1753
K600 angle: 4 deg
K600 field:
Q: S A
D1: A A
H: M A
D2: E A
K: A
VDC efficiency
X1 92.0
U1 94.0
X2 87.3
U2 89.2

Run comment: ~~208Pb~~ MT Halo check
Run #: 4081
Start: 10:44 Current: 7.7 nA
Stop: 10:54 CI Range: 20
Target: MT Collimator:
Target angle: -118.0
Trigger rate: 38.5 Hz
Data rate: 14 kB/s
Trigger evts: 21069
Scaler evts: 582
K600 angle: 4 deg
K600 field:
Q: A
D1: S A
H: A A
D2: M A
K: E A
VDC efficiency
X1
U1
X2
U2

10 mins

Run comment: 208Pb data
Run #: 4082 ~~+ 4083~~
Start: 10:57 Current: 6.9 nA
Stop: ~~12:08~~ 11:08 CI Range: 20nA
Target: 208Pb Collimator:
Target angle: -118°
Trigger rate: 501 Hz
Data rate: 218 kB/s
Trigger evts: 318271
Scaler evts: 629
K600 angle: 4 deg
K600 field:
Q: A
D1: E A
H: SAME A
D2: A
K: A
VDC efficiency
X1 91.5
U1 94.2
X2 85.8
U2 86.9

Run comment: 208Pb data
Run #: 4083
Start: 11:09 Current: 6.9 nA
Stop: 12:09 CI Range: 20nA
Target: 208Pb Collimator:
Target angle: -118
Trigger rate: 465 Hz
Data rate: 202 kB/s
Trigger evts: 1.866M
Scaler evts: 3504
K600 angle: 4 deg
K600 field:
Q: A
D1: E A
H: SAME A
D2: A
K: A
VDC efficiency
X1 91.4
U1 94.5
X2 86.1
U2 86.8

12:10 We want to take the ground state runs now.
Change the magnet field to the values below
D1 = 425.02
and set the fields with Superknob.
Energy settings @ 211.5 MeV Alpha beam.
D1 = 425.020, H = -2.917
D2 = 279.031, K = 2.917
Q = -467.62,

Reduced the current to 1nA, ⇒
CI Range = 6nA
Limits Lower = 0.6 nA
higher = 2.0 nA

Run 4084 208Pb, ground state at ≈600 mm fp.
the Event rates was high, now reduce the beam current to 0.5 nA during Run 4085.

start 12h21
Run 4085 24Mg ground state. @ 0.3 nA we have ≈1050 Hz'
stop:

Run comment: 24Mg ground State
Run #: 4085
Start: 12:21
Stop: 12:59
Target: 24Mg
Target angle: -11.8
Current: 0.15 nA
CI Range: 6
Collimator:
Trigger rate: Hz
Data rate: kB/s
Trigger evts: 3.132M
Scaler evts:
K600 angle: 4 deg
K600 field:
Q: -467.62 A
D1: 425.02 A
H: -2.91 A
D2: 279.031 A
K: 2.917 A
VDC efficiency
X1
U1
X2
U2

Frontend Crashed at ≈ 3.0 M events during run 4085.
Current limits set to 0.0 – 0.5 nA with high event rate.

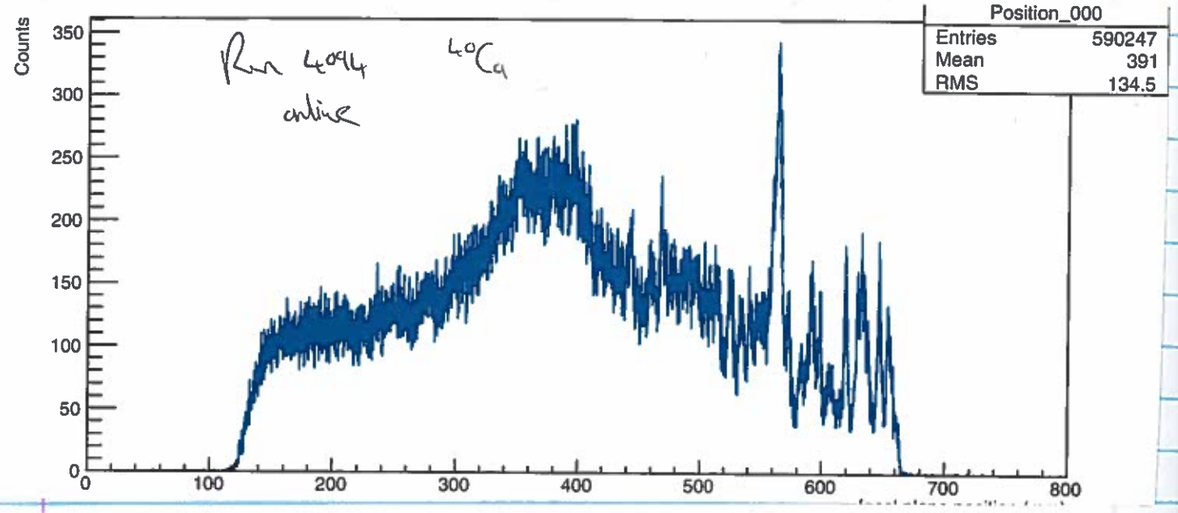
Run comment: 58Ni ground State
Run #: 4086
Start: 13:08
Stop: 13:26
Target: 58Ni
Target angle: -11.8
Current: 0.2 nA
CI Range: 6nA
Collimator:
Trigger rate: 3142 Hz
Data rate: 1.4M kB/s
Trigger evts: 2.819M
Scaler evts: 1097
K600 angle: 4 deg
K600 field:
Q: -467.62 A
D1: 425.02 A
H: -2.917 A
D2: 279.031 A
K: 2.917 A
VDC efficiency
X1 91.2
U1 93.6
X2 88.8
U2 87.3

Run comment: 90Zr ground state
Run #: 4087
Start: 13:28
Stop: 13:42
Target: 90Zr
Target angle: -11.8
Current: 0.1 nA
CI Range: 6nA
Collimator:
Trigger rate: 3810 Hz
Data rate: 1.668 MB/s
Trigger evts: 3.034M
Scaler evts: 838
K600 angle: 4 deg
K600 field:
Q: -467.62 A
D1: 425.02 A
H: -2.917 A
D2: 279.031 A
K: 2.917 A
VDC efficiency
X1 90.4
U1 93.6
X2 87.8
U2 85.8

Run 4088 – 4090 → Front-end crashed. Need to revive it.

Sunday 14:00
Changed target ladder.

Run comment: 40Ca data | K600 angle: 4 deg | K600 field:
Run #: 4094
Start: 16:22 | Current: 32 nA | Trigger rate: 326 Hz | Q: -154.173 A | VDC efficiency | X1 92
Stop: 17:13 | CI Range: 6 | Data rate: kB/s | D1: 413.8 A | U1 96
Target: 40Ca | Collimator: ±2° | Trigger evts: 628027 | H: -2.833 A | X2 88
Target angle: -118 | Scaler evts: 2455 | D2: 271.008 A | U2 89
K: 2.8337 A



Run comment: 24Mg | K600 angle: 4 deg | K600 field:
Run #: 4095
Start: 17:14 | Current: 2.7 nA | Trigger rate: 87 Hz | Q: S A | VDC efficiency
Stop: 17:29 | CI Range: 6 | Data rate: kB/s | D1: S A | X1 94
Target: 24Mg | Collimator: ±2° | Trigger evts: 69915 | H: A A | U1 74
Target angle: -118 | Scaler evts: 813 | D2: A A | X2 90
K: A | U2 93

Beam stopped to allow ACC staff to look at waterleak close to RF.

Reseated U2 preamp # 3

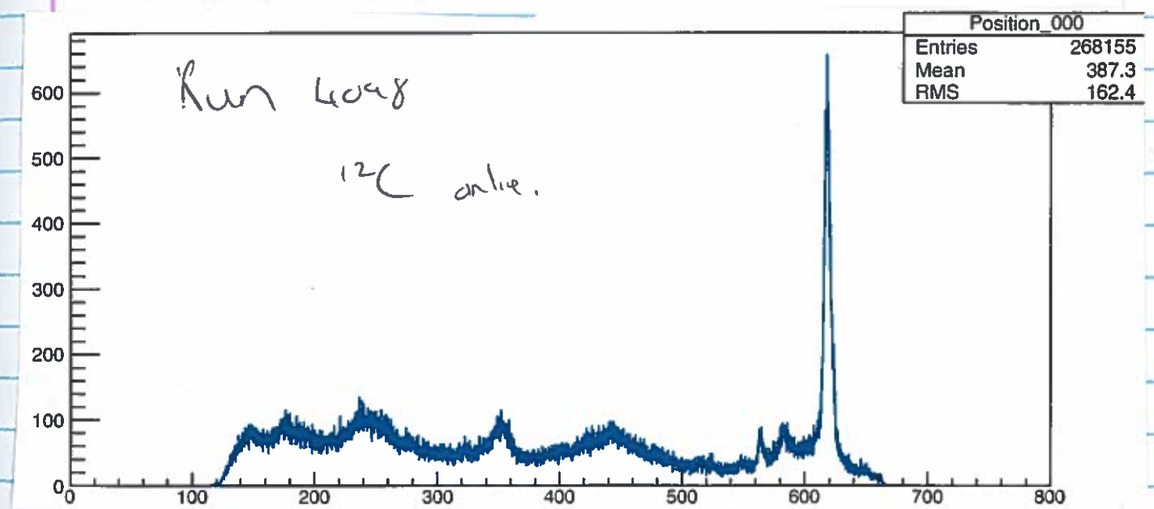
Run comment: | K600 angle: 4 deg | K600 field:
Run #: 4096
Start: 19:41 | Current: 3.0 nA | Trigger rate: 80 Hz | Q: A | VDC efficiency
Stop: | CI Range: 6 | Data rate: 32 kB/s | D1: S A | X1 92.7
Target: 24Mg | Collimator: ±2° | Trigger evts: | H: M A | U1 94.4
Target angle: -118.00 | Scaler evts: | D2: E A | X2 87.8
K: A | U2 94.7

Watch out: Run 4097 U2 eff not so good 33

Run comment: 40Ca Data | K600 angle: 4 deg | K600 field:
Run #: 4097
Start: 20:12 | Current: 2.8 nA | Trigger rate: 300 Hz | Q: S A | VDC efficiency
Stop: 21:13 | CI Range: 6 | Data rate: 125 kB/s | D1: ME A | X1 92.5
Target: 40Ca | Collimator: ±2° | Trigger evts: 1.169M | H: A | U1 94.1
Target angle: | Scaler evts: 3530 | D2: A | X2 88.3
K: A | U2 87.8

potentially bad

Run comment: 12C | K600 angle: 4 deg | K600 field:
Run #: 4098
Start: 21:16 | Current: 4.2 nA | Trigger rate: 218 Hz | Q: S A | VDC efficiency
Stop: 21:54 | CI Range: 6nA | Data rate: 88 kB/s | D1: A A | X1 92.5
Target: 12C | Collimator: | Trigger evts: | H: M A | U1 94.0
Target angle: -118° | Scaler evts: | D2: E A | X2 88.2
K: E A | U2 60.35



Run 4098 NOTE: U2 TAC # 5 is BAD
That is why the U2 eff is so bad.

Decide to reboot the VME crate.

Run comment: 24Mg | K600 angle: 4 deg | K600 field:
Run #: 4099
Start: 22:01 | Current: 3 nA | Trigger rate: 106 Hz | Q: S A | VDC efficiency
Stop: 23:14 | CI Range: 6nA | Data rate: kB/s | D1: S A | X1 93
Target: 24Mg | Collimator: ±2° | Trigger evts: 304427 | H: A A | U1 94
Target angle: -118 | Scaler evts: 4172 | D2: A | X2 89
K: A | U2 95

Run comment: 40Ca
Run #: 4100
Start: 23:15 Current: 2.2 nA Trigger rate: 220 Hz
Stop: Cl Range: Data rate: 90 kB/s
Target: Collimator: Trigger evts:
Target angle: Scaler evts:
K600 angle: 4 deg
K600 field: Q: 5 A, D1: A A, H: M A, D2: E A, K: A
VDC efficiency: X1 U1 X2 U2

Cup fell in a couple of min into the run.

Run comment: 40Ca
Run #: 4101
Start: 23:50 Current: 2-8 nA Trigger rate: 290 Hz
Stop: 00:49 Cl Range: 6n Data rate: 115 kB/s
Target: 40Ca Collimator: 4° Mode Trigger evts: 1.165M
Target angle: -118° Scaler evts: 3490
K600 angle: 4 deg
K600 field: Q: 5 A, D1: A A, H: M A, D2: E A, K: A
VDC efficiency: X1 92.3, U1 94.16, X2 87.97, U2 94.76

Run comment: EMPTY
Run #: 4102
Start: 00:54 Current: 2.5 nA Trigger rate: 15 Hz
Stop: 01:04 Cl Range: 6nA Data rate: 5 kB/s
Target: MT Collimator: ~~#3~~ (4° mode) Trigger evts: 10155
Target angle: MT -118° Scaler evts: 562
10 mins
K600 angle: 4 deg
K600 field: Q: 5 A, D1: A A, H: M A, D2: E A, K: A
VDC efficiency: X1 U1 X2 U2

Run comment: Calibration 24Mg
Run #: 4103
Start: 01:06 Current: 3.2 nA Trigger rate: 111 Hz
Stop: 01:39 Cl Range: 6nA Data rate: 45 kB/s
Target: 24Mg Collimator: #3 (4°) Trigger evts: 188825
Target angle: -118 Scaler evts: 1888
K600 angle: 4 deg
K600 field: Q: 5 A, D1: A A, H: M A, D2: E A, K: A
VDC efficiency: X1 93.03, U1 94.12, X2 89.57, U2 93.88

Run comment: nat Ca - Data
Run #: 4104
Start: 01:42 Current: 2.4 nA Trigger rate: 260 Hz
Stop: Cl Range: 6nA Data rate: 121 kB/s
Target: nat Ca Collimator: 4° Trigger evts: 1.218 M
Target angle: -118 Scaler evts: 4208
K600 angle: 4 deg
K600 field: Q: 5 A, D1: A A, H: M A, D2: E A, K: A
VDC efficiency: X1 93, U1 94, X2 89, U2 95

Run comment: Nat Ca
Run #: 4105
Start: 02:56 Current: 3.1 nA Trigger rate: 287 Hz
Stop: 03:52 Cl Range: 6nA Data rate: 117 kB/s
Target: 40Ca Collimator: 4° Trigger evts:
Target angle: -118 Scaler evts:
K600 angle: 4 deg
K600 field: Q: 5 A, D1: A A, H: M A, D2: E A, K: A
VDC efficiency: X1 92, U1 94, X2 88, U2 94

03:52: Beam gone / 04:02 Beam back
Target ladder returned an error moving from 6 to 1

Run comment: MT
Run #: 4106
Start: 04:03 Current: 3.5 nA Trigger rate: 13 Hz
Stop: 04:13 Cl Range: 6nA Data rate: 5 kB/s
Target: MT Collimator: 4° mode Trigger evts:
Target angle: -118 Scaler evts:
K600 angle: 4 deg
K600 field: Q: 5 A, D1: A A, H: M A, D2: E A, K: A
VDC efficiency: X1 0, U1 0, X2 0, U2 0

Run comment: 24Mg Data
Run #: 4107
Start: 04:15 Current: 3.5 nA Trigger rate: 120 Hz
Stop: 04:46 Cl Range: 6nA Data rate: 51 kB/s
Target: 24Mg Collimator: 4° mode Trigger evts: 186359
Target angle: -118 Scaler evts: 1827
K600 angle: 4 deg
K600 field: Q: 5 A, D1: A A, H: M A, D2: E A, K: A
VDC efficiency: X1 93, U1 94, X2 89, U2 95

Run comment: 40Ca
Run #: 4108
Start: 04:48 Current: 3.4 nA Trigger rate: 245 Hz
Stop: 05:48 Cl Range: 6nA Data rate: 121 kB/s
Target: 40Ca Collimator: 4° mode Trigger evts: 1.092 M
Target angle: -118 Scaler evts: 3509
K600 angle: 4 deg
K600 field: Q: 5 A, D1: A A, H: M A, D2: E A, K: A
VDC efficiency: X1 92, U1 94, X2 87, U2 95

Last run stopped @ 5:48 AM.
Field values:

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

VDC1 -2.95 (in vault)
VDC2 -2.94 (in vault)
Pad 1 hi -1300
1 low -1350
Pad 2 hi -1200
2 low -1100

GW -500 all

Thresholds : max all