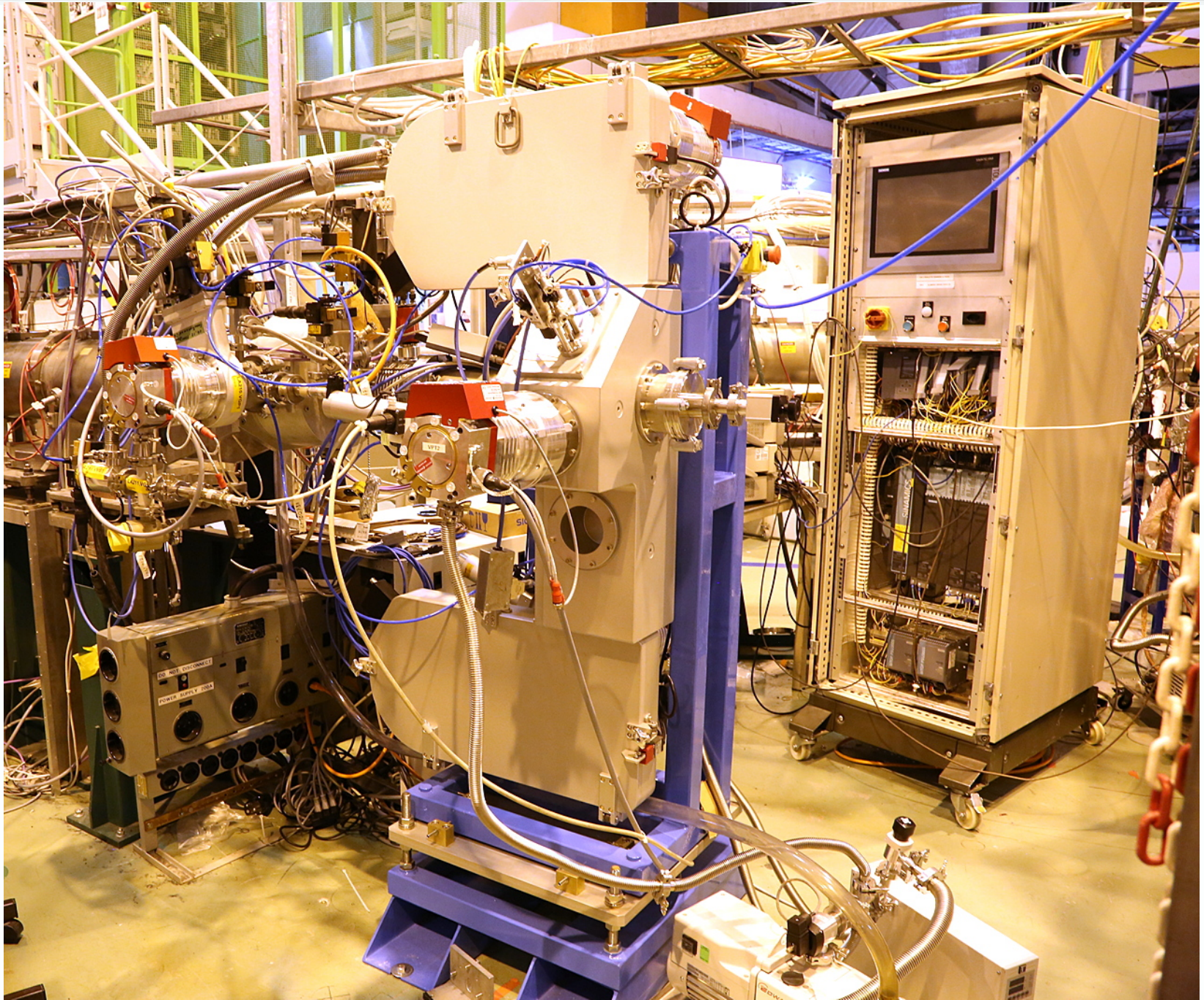
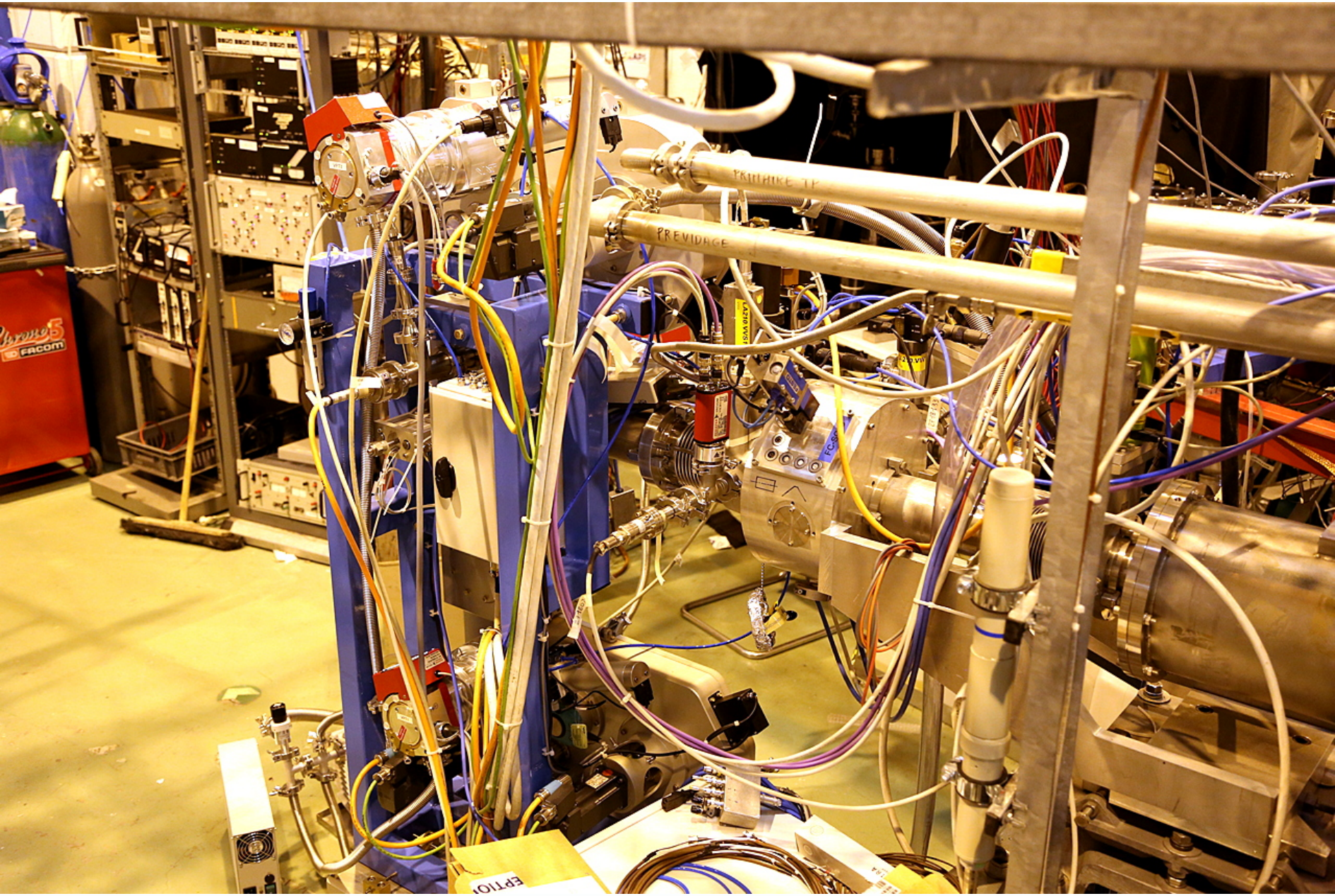
ISOLDE Fast Tapestation

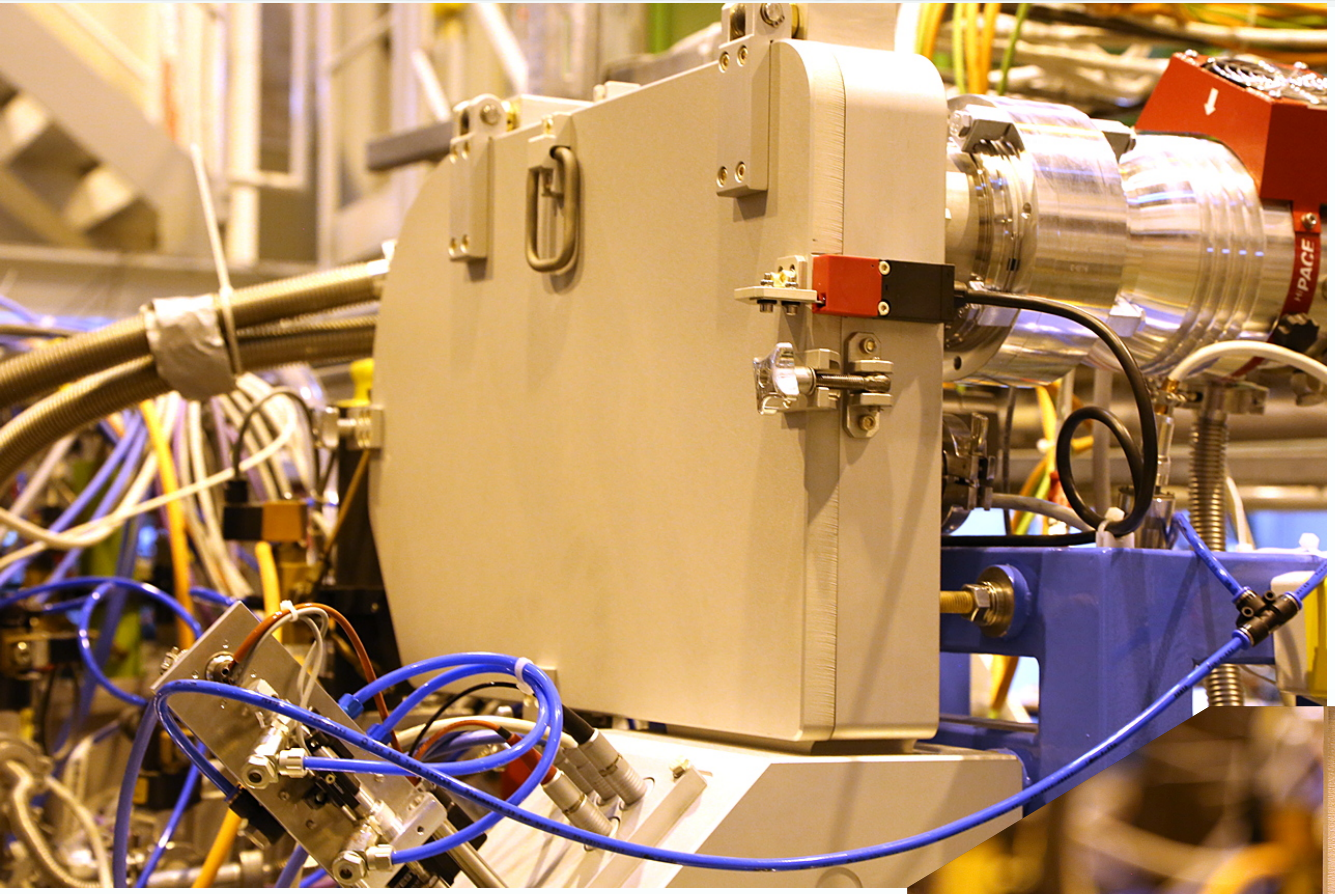
Mechanics

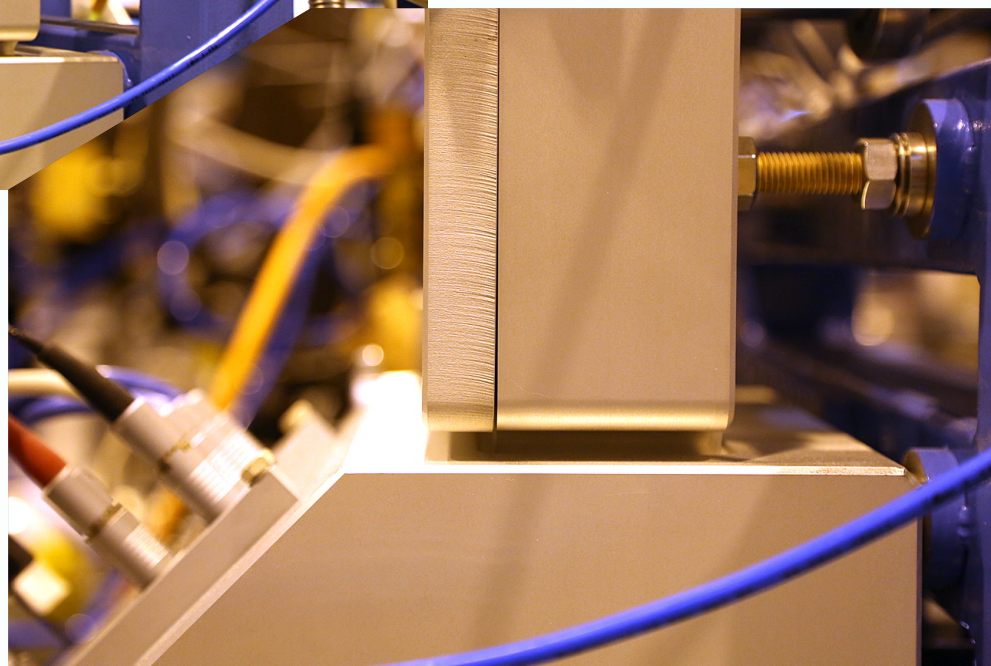


Mechanics

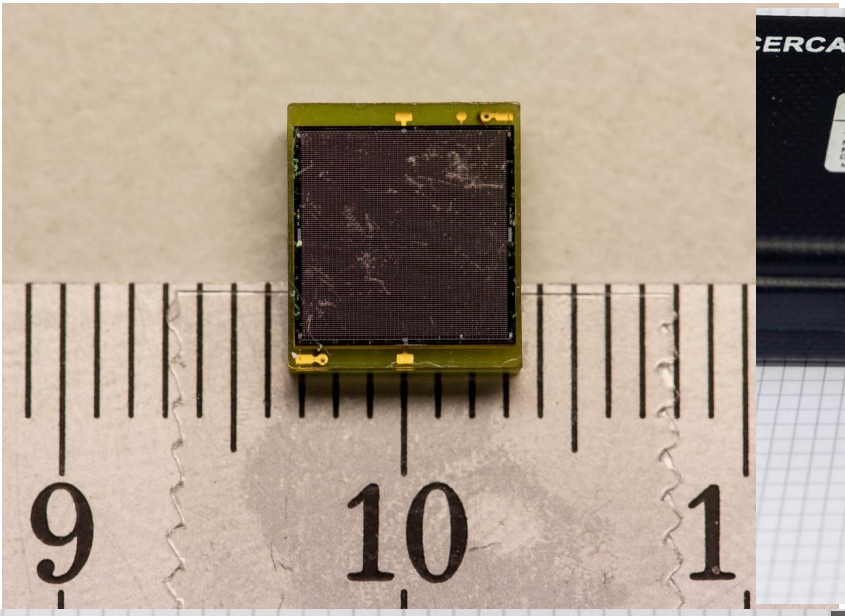


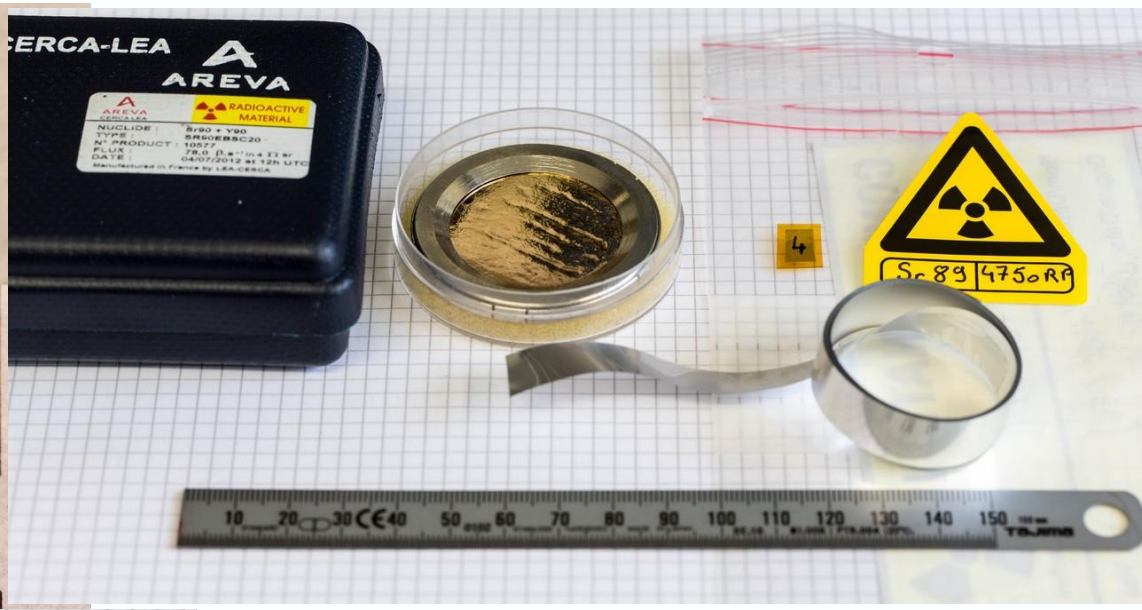
Mechanics

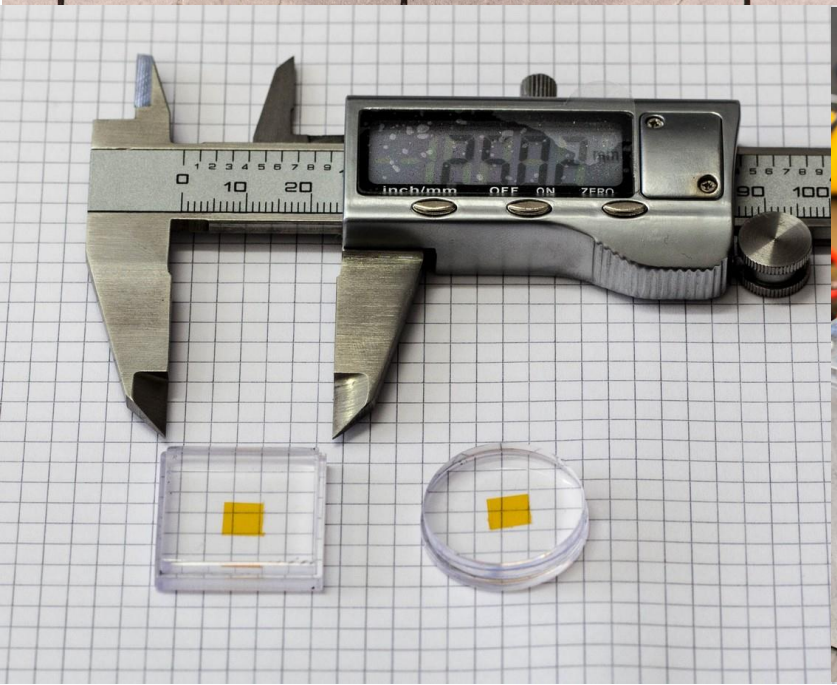


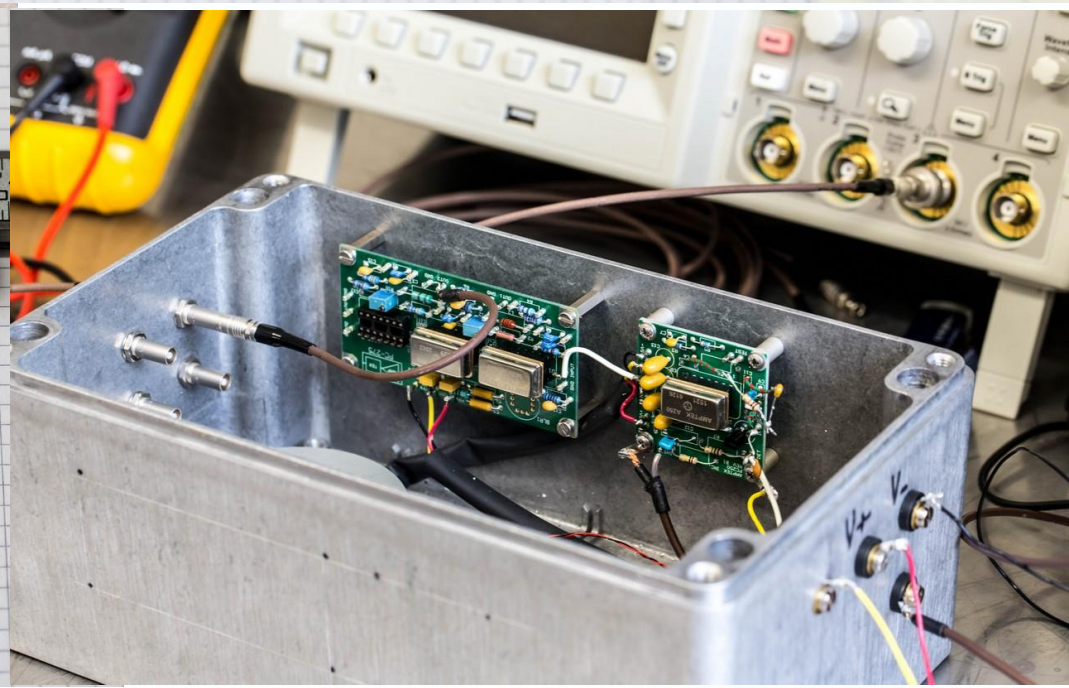


Detectors

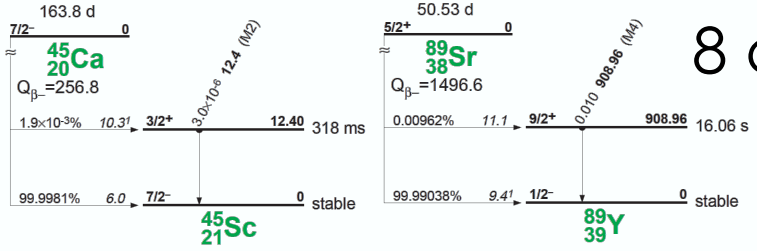

9
10
1


CERCA-LEA
AREVA
RADIOACTIVE MATERIAL
Sr90 + Y90
SR60EBSC20
10577
04/07/2012 at 12h UTC
Sc 89 | 4750 RA
4
10 20 30 40 50 60 70 80 90 100 110 120 130 140 150


inch/mm
OFF
ON
ZERO

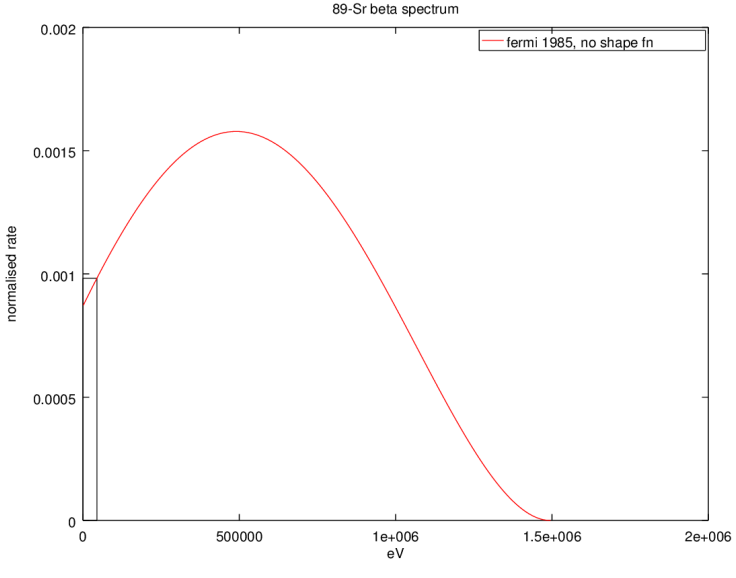


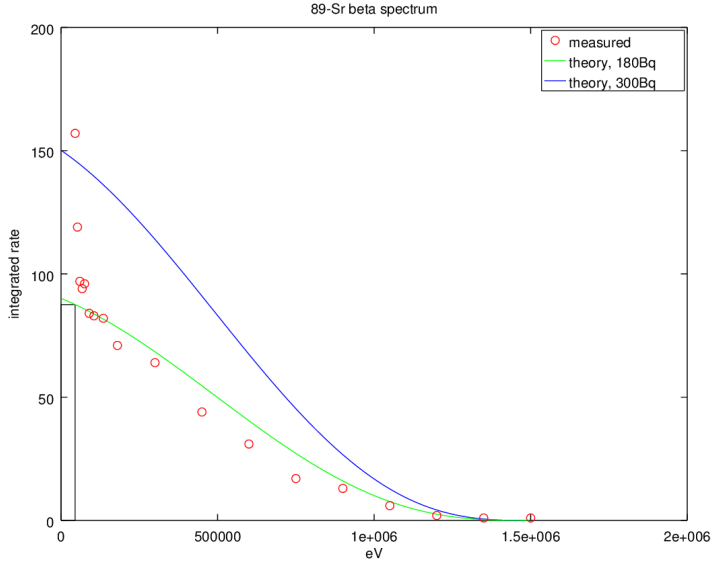
Detectors



8 calibration sources made at Isolde

89-Sr results:

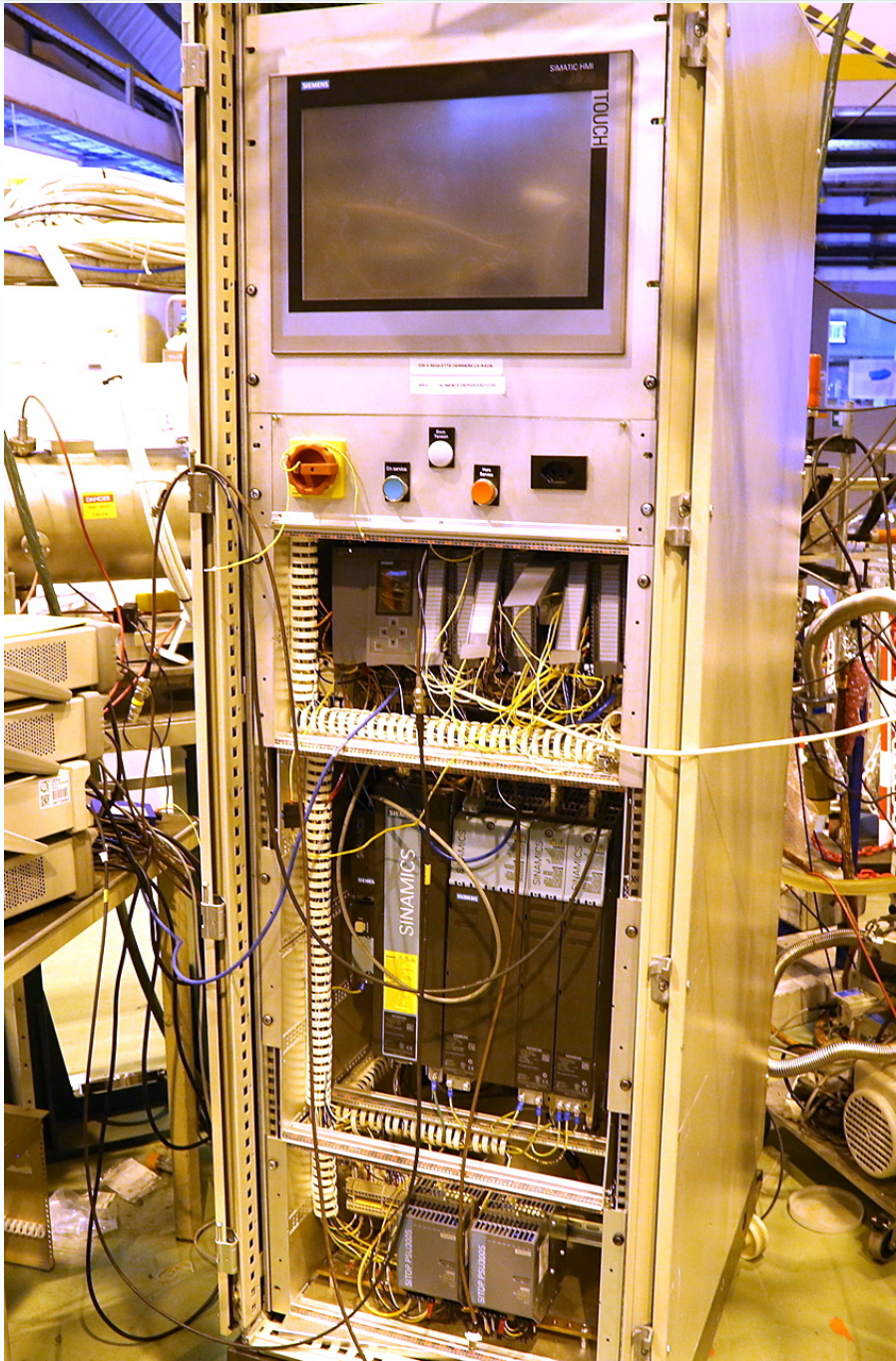




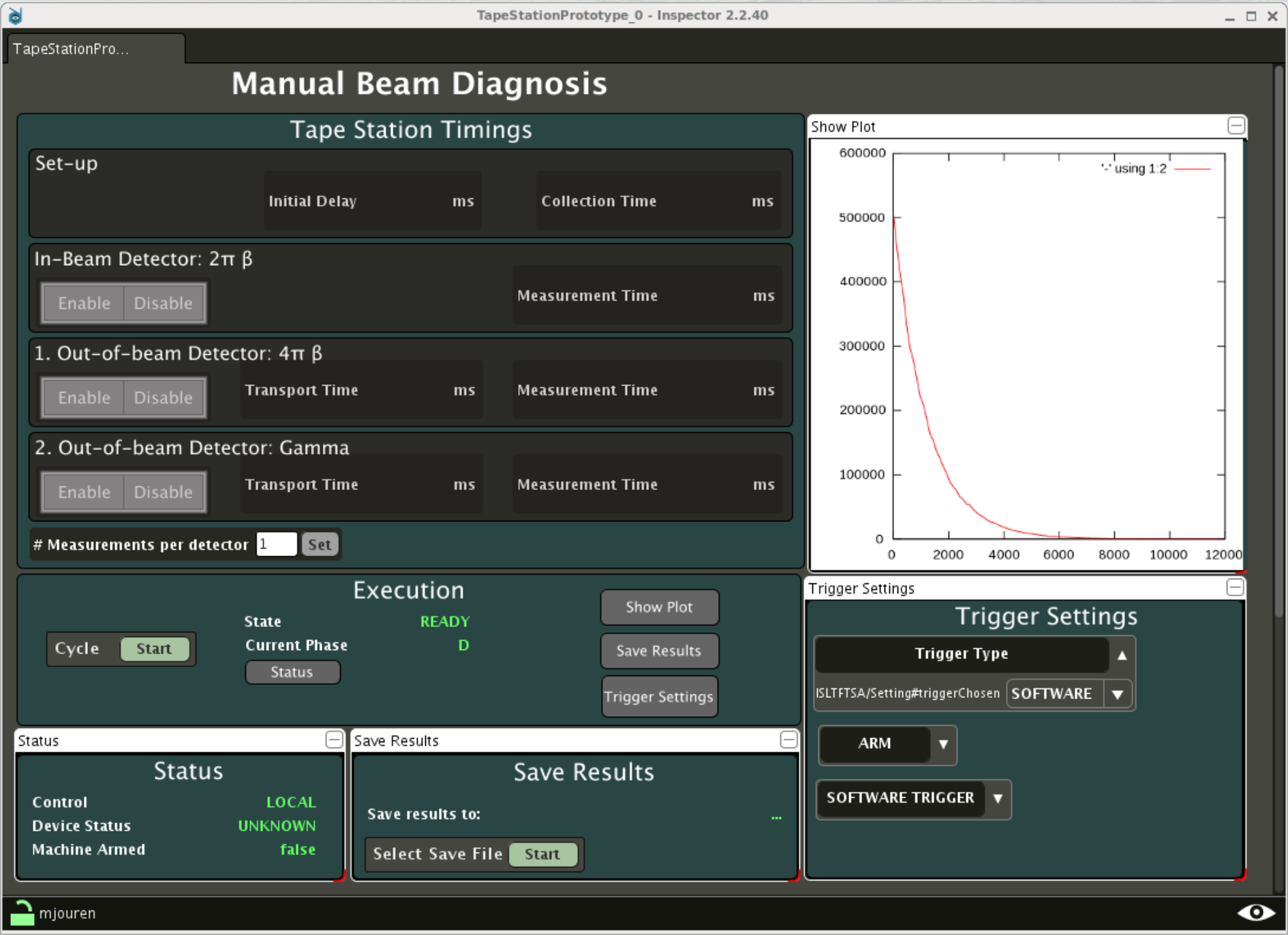
Threshold = 45 keV

Efficiency = 97% (Qbeta = 1.5MeV)

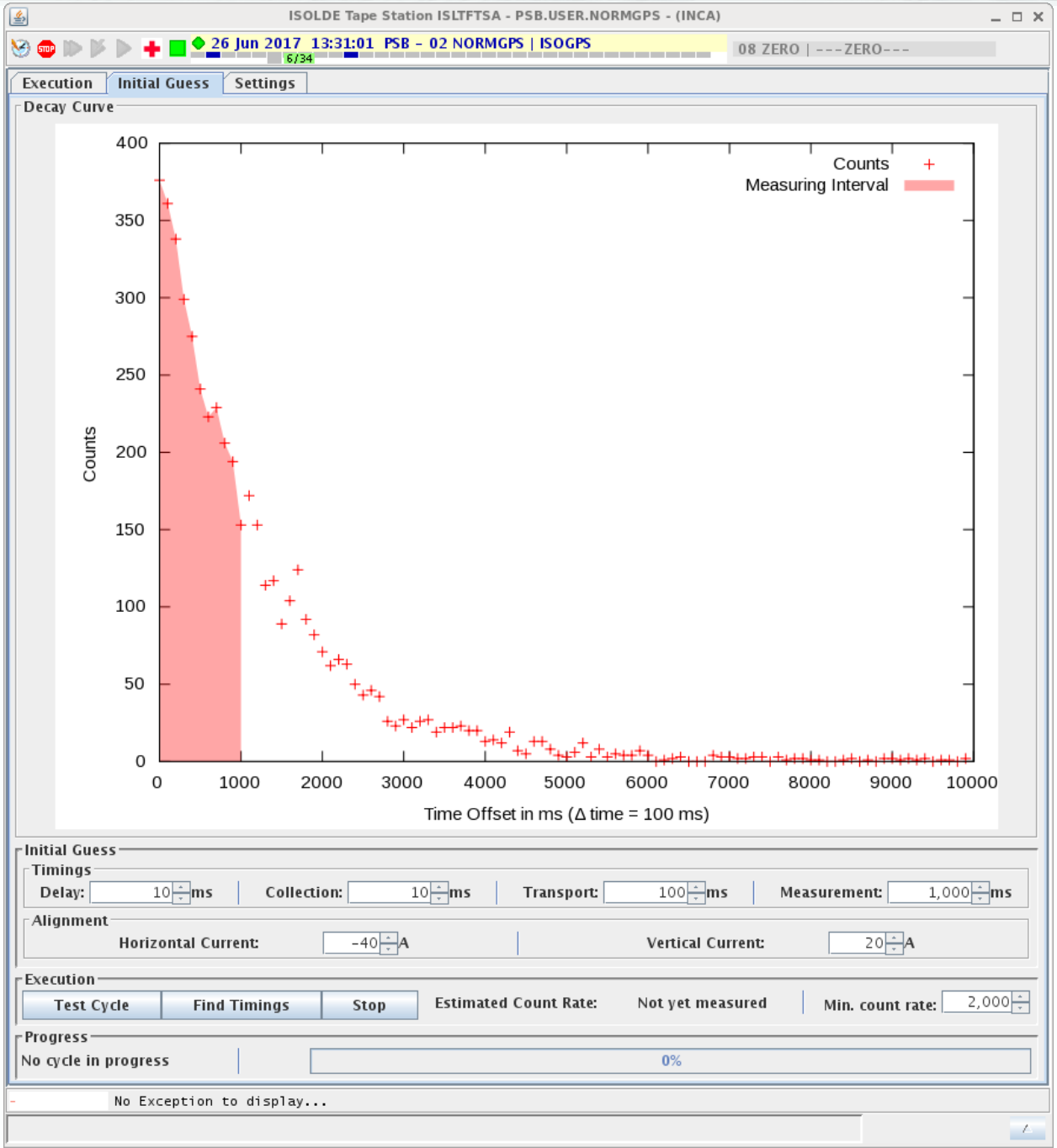
Low-Level Controls



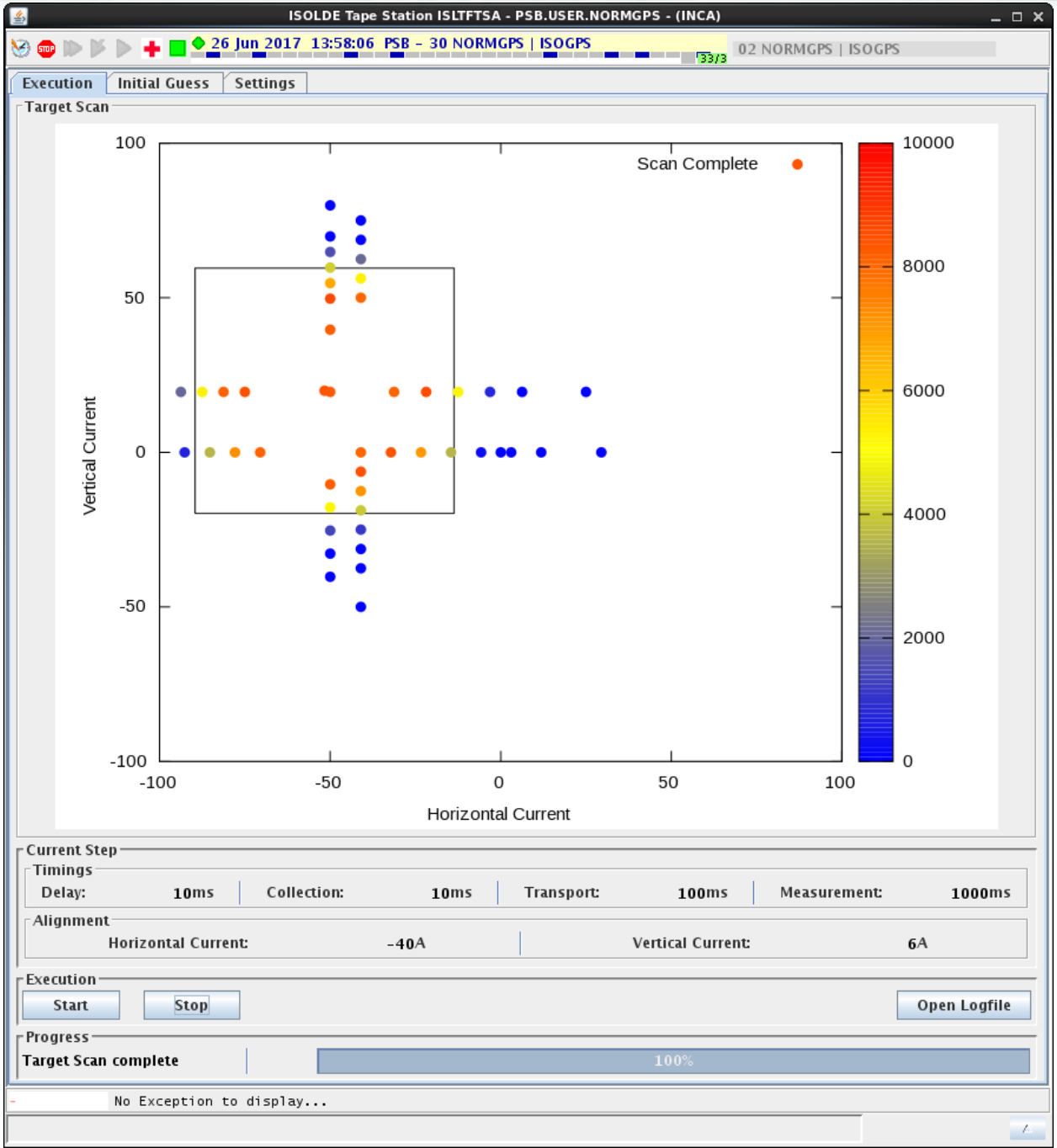
Console Application



Automatic Target-Scan



Automatic Target-Scan



Automatic Yield-Curves

Read data-points from tapestation file

Find isotope decay chain $^{n}X \xrightarrow[\alpha]{} {}^{n-4}Y \xrightarrow[\beta]{} {}^{n-4}Z$

Calculate decay curve

Make initial guess at release-curve parameters

Calculate modelled counts for each data point

¨fit model to data¨
resists problems with long collection times

Minimise average error-per-point

¨robust¨ fit, in units of std. error

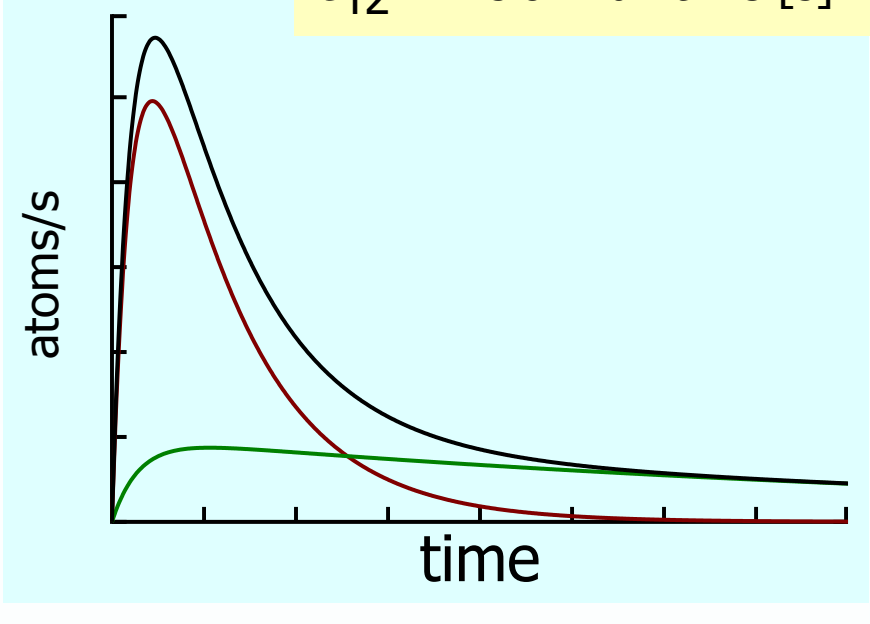
¨Simplex¨ n-dimensional optimiser

Common-sense check

eg. $t_{f2} > t_{half}$; delete outlying points

Release curve parameters:

n_0	yield [atoms / uC]
r	fast : slow yield ratio
t_r	rise-time [s]
t_{f1}	fast fall-time [s]
t_{f2}	slow fall-time [s]



Summary

Finish low-level controls!

Test and debug

Move to CA0

Automatic yield measurements

Long-term software maintenance