Analysing the data in Gaspware-XTRACKN

Click R - open an energy spectra in the format: G0#D.000X|l:16

X is the run number and D the detector number. Start with X = 00

View the different detectors: left click: [#+] or [#-] buttons in the low left corner

View the different runs: right click: [#+] or [#-] buttons in the low left corner

Open CM - opens a compressed matrix .CMAT

W = set gates

CW = display the gated projection

ZW = delete gates

MW = display gates

DW = list/delete/group gates

Q = display initial projection of the matrix

Recalibrate spectra (0.5kev/chan) click [EnCal] -> n (new) -> A(1)=0.5 -> (leave the rest empty)

Zoom in X: put the markers with SPACE and type 'e'(expand)

Zoom out: type 'ff'

Zoom in Y: mousewheel

Show peak energies: 'cp'

Find a specific energy, type 'p' and enter the energy value.

Auto-fit individual peaks: hold CTRL and left click the peak; in the terminal the energy, area and FWHM will be displayed

Fit (integrate) multiple peaks: set fit region with 'r', set peaks with 'g', select background left+rigt with 'b'. Click 'Fit'

Integrate manually: set integration region with 'i', background region with 'b' and click INT (middle right part of xtrackn)

!!! Before each fitting procedure type 'za' to delete all the previous markers

Clear the screen: type '='.

To add aditional spectra: Right Click and select "Add Line" or "Add Column"

To cancel any command added in the terminal type "Ctrl+D"

To exit: "Ctrl+C"

DF/ZF = open/close file for storing fit data

DK = Energy calibration / Peak-search signifiance

CV = Fit Gaussian

CJ = Integrate

SX/SY = Same X / Same Y

FULL LIST OF COMMANDS (can be found by pressing ''?'' in xtrackn)

\*\*\*\*\*\*\*\*\*\*\*\* COMMAND-LIST \*\*\*\*\*\*\*\*\*\*\*

spacebar Marker

AJ AG Automatic CJ, CG at marker position

B G I R S W Insert a marker of type B, G, I, R, S or W

CB CI CJ MI MJ Background, Integration, CB+CI

CG CV MG MV Gaussfit, CB+CG. Show markers

CP MP Automatic peak search. Show peaks

Dn Cn Mn Zn n Define, Execute, Show, Erase command string n=1...9

DD Change the display parameters

DE Define how to do efficiency correction

DG Define peak width (individual/common) for fit

DK AK Energy and Width calibration

DF DL Define output file for Area calculations

DT CT AT Recalibration using Trackfit

DW CW Define, Estract cuts from compressed matrix

DQ Define matrix and background subtraction mode

E Expand between last two Markers

X Expand around current cursor position

FF FX FY Full display Full\_x Full\_y

SX SY same X or Y scale for all windows

FO FU Set Y-maximum or Y-minimum by marker

H ? Help (this list)

K Energy calibration from previous 2 energies

L Lin/Log

N Input new spectrum

DN MN ZN Define display behaviour at input of new spectrum

OS Write out current spectrum

O= Postscript plot of current display

P Insert a peak by energy

Q Display projection of compressed matrix

V Marker writing also counts in channel

MZ Draw a line at zero counts

ZA Delete all B/G/I markers

ZB ZI ZJ ZG ZV Delete corresponding type of markers

ZF ZL Close output file for Area calculations

DP MP ZP Define, Show, Delete peaks in buffer

+ - Insert/delete a peak by marker

= Repeat the display

< > Shift display 3/4 to Left, Rigth

CTL\_RIGHTARROW Increase # of windows adding one column more

CTL\_LEFTARROW Decrease # of windows deleting last column

CTL\_UPARROW Increase # of windows adding one row more

CTL\_DOWNARROW Decrease # of windows deleting last row

CTL\_C CTL\_Y CTL\_Z Stop

How to calibrate the energy for HPGe with XTrackn

1. Check for energy walk between runs. (look into all projections, run by run)

2. Load calibration spectra

3. Fit (ctrl+click) 2 peaks and click Cal2P. Input the correct energies

If 'cp' does not identify all peaks, modify peaksearch significance with 'dk' + enter, enter, ... or select EnCal and input by channel

4. Click DT. Select calibration source. Enter, Enter... Select polynomial of 3rd/4th degree for a better fit.

5. Save coeff in file.

6. Move to the next detector (#+)

7. Ctrl+Click(DT) - will perform automatically step 4

8. Repeat to infinity from step 6.

FOR LaBR: at step 4 also input FWHM fit region (fit a peak after Cal2P to find the approx FWHM)

calibrate\_planar\_GE with X-rays from 152Eu: (add energies by hand.)

1 39.50000 2.9999999E-02

2 40.11000 2.9999999E-02

3 45.30000 2.9999999E-02

4 46.57000 2.9999999E-02

5 121.7817 3.0000001E-04

6 244.6975 7.9999998E-04

7 344.2785 1.7000000E-03

8 411.1165 8.0000004E-03

9 443.9650 6.0000001E-03

"Run by Run" calibration:

1. First calibrate with Eu (see above steps)

2. Create file with gammas from the runs you want to calibrate (file should have 2 columns: Energy Error )

3. DT -> select from file

4. After you calibrate de first detector, type CT

5. For filename input =.+ (mantains the same name but increments the extension)

6. Many enters for default options.

7. Wait command (...) [N] -> type Y. Otherwise it will do automatically everything and you will skip the magic.

8. At the end of the runs, CTRL+D and change to the next detector. Repeat from step 4.

9. The recal command for gsort should contain RUN specification:

RECAL G0 Ge\_ener.cal RUN 0 2 10 2047 2 20