HER装置ログブック

年度とサイクル	2021年度　第2サイクル
実験番号	XX-
記載事項	(1)日付、Experiment number. この行を選択した状態で、「表示形式」メニューから「段落」「スタイル」と進み「タイトルを適用」を選択する。これにより、ページ左の見出しに日付とExperimental numberが現れるようにする。 (2)主に使用するエネルギーでのモニターカウント (3)アルミナスキャン（サイクル最初のみ） (4) アクリルスキャン (5) 横集光アナライザを使用する場合、使用するEfとTA-THの値 (6) トラブル事象 (7)その他気づいた点など
実験交代時にすること	（1）分光器を”guide-open-no filter- narrower open - narrower open or no narrower - 80 - Flat Anal - open”にする （2）Ei=5meVでモニターカウントを記録 （3）Ei=Ef=5meVでA2=60degでアクリルC3スキャン、強度を記録 （4）上記（2）、（3）をスプレッドシート「C11実験前記録」に記載する
ユーザーへのTIPS	（1）STOPボタンを押したあと、10秒間分光器の動きを注視し、目的の動作がなされているかを確認する。想定外の動作がなされている場合は、さらにSTOPボタンをおすこと。 次のコマンドを実行する前に、分光器のすべての動作が終了していることを確認すること
装置担当者の方へ	サイクル最初にすること （1）当該サイクル装置ログ用google document作成 （2）全サイクル装置ログを印刷・ファイルに保管 （3）アルミナスキャン （4）アクリルスキャン （5）PGのCCW確認 （6）FMのCCW確認 実験交替時にすること（装置担当者限定） （1）装置ログブックを益田研google driveに保存する

2022年11月07日　Exp#57

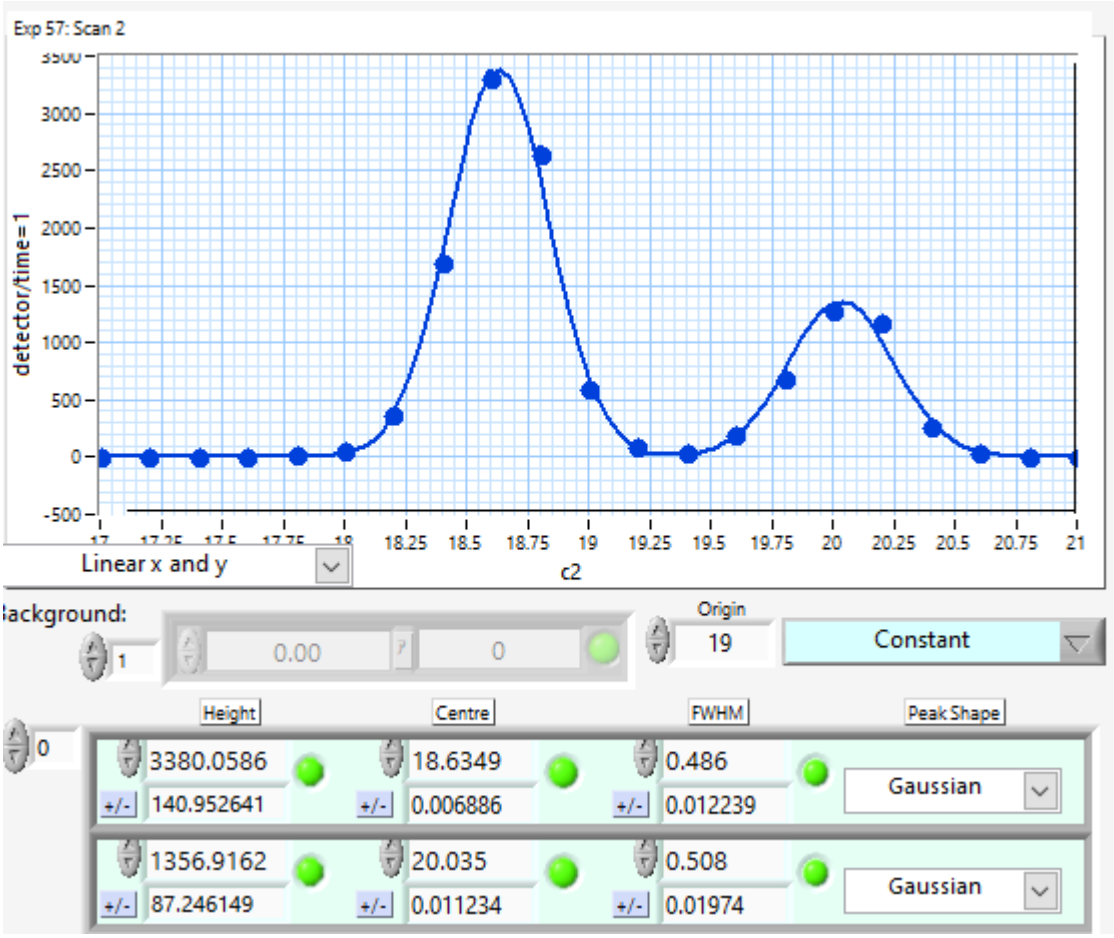
Ba2MnGe2O7, 5meV
Neutron - lambda: 4.04000 Magnif: 1.0 FWHM: 0.200
Space grp: P-421m Direct cell: 8.4952 8.4952 5.5256 90.00 90.00 90.00

No.	h	k	l	d	|F|	Phi	Mult.	2th.( )	Int.( )
1	1	1	0	6.0070	31.9	-3.142	4	39.30	100
2	0	0	1	5.5256	22.2	-3.142	2	42.89	20
3	0	1	1	4.6320	11.1	1.571	8	51.71	13
4	0	2	0	4.2476	19.2	-3.142	4	56.79	16
5	1	1	1	4.0667	18.6	0.670	8	59.57	27

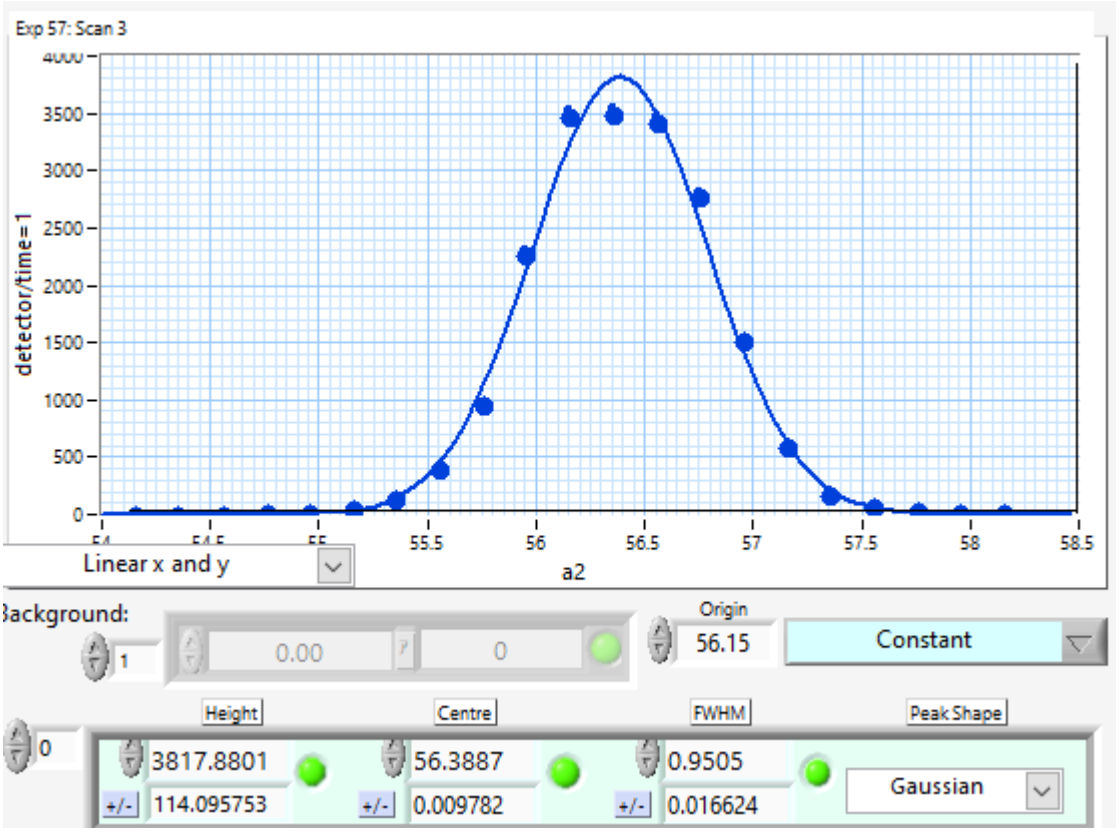
Samp.Tilt X	RX	-0.000
Samp.Trans.X	XS	-1.350
Samp.Tilt Y	RY	0.000
Samp.Trans.Y	YS	1.800

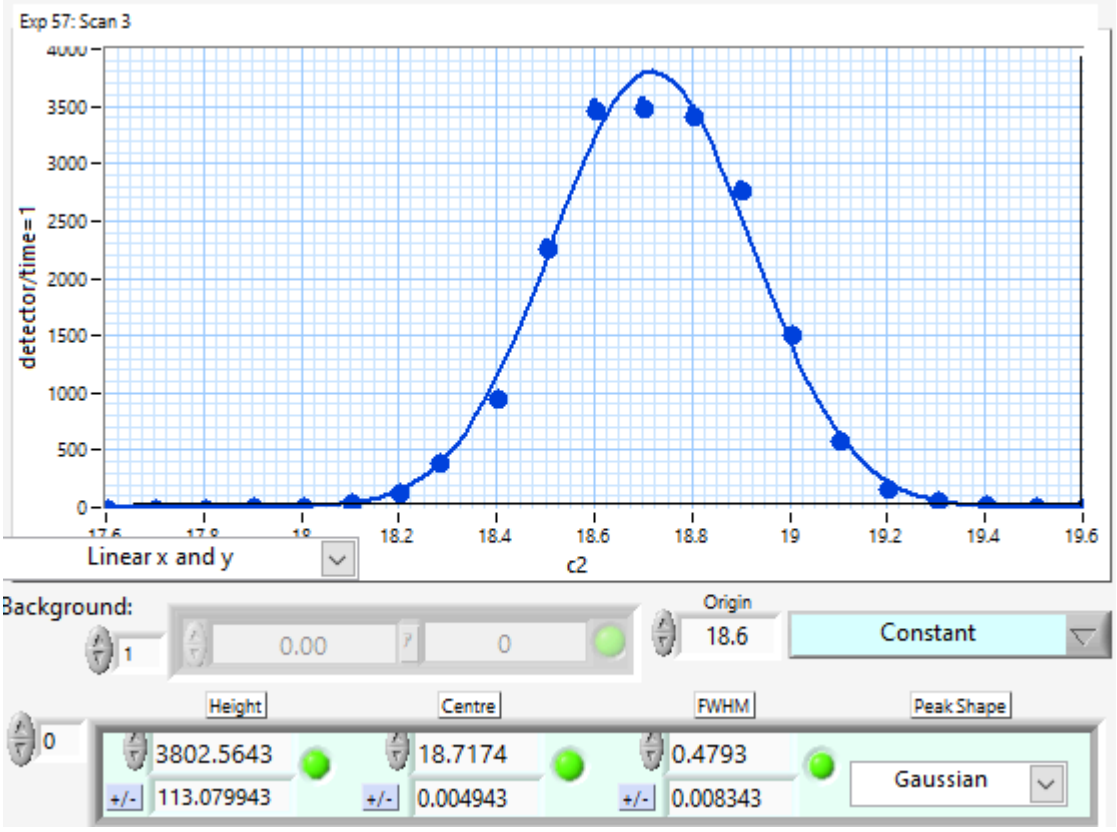
guide-open-Be/PG-sample-80’-Be-FA-open, Narrowers full open both for 1 and 2

(2 0 0) check
drive a2 56.153
#2 scanrelt c2 -2 2 0.2 1 @(2 0 0)

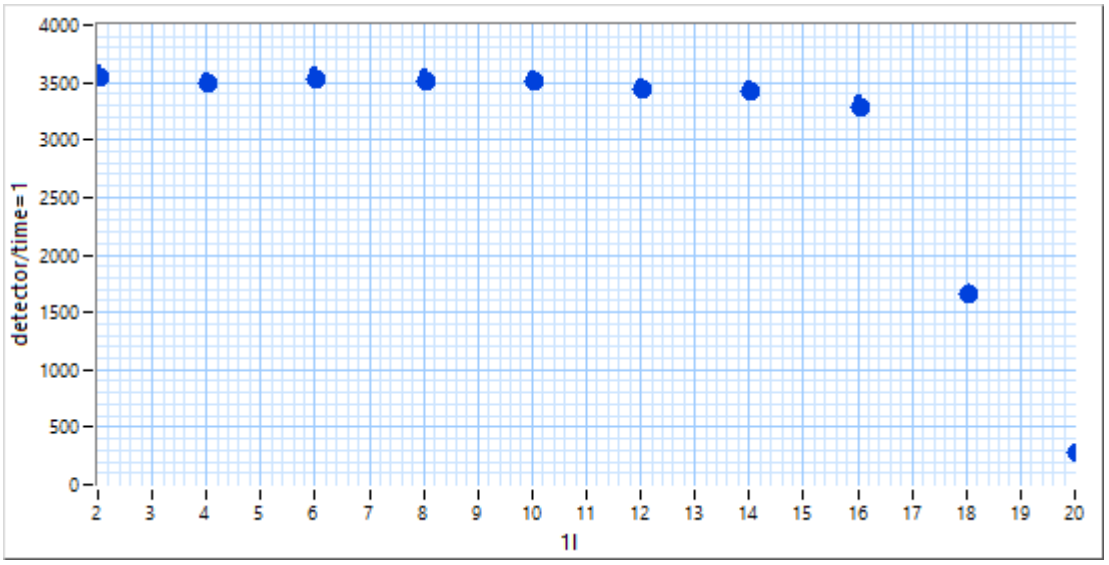


drive c2 18.6
#3 th2tht -2 2 0.2 1

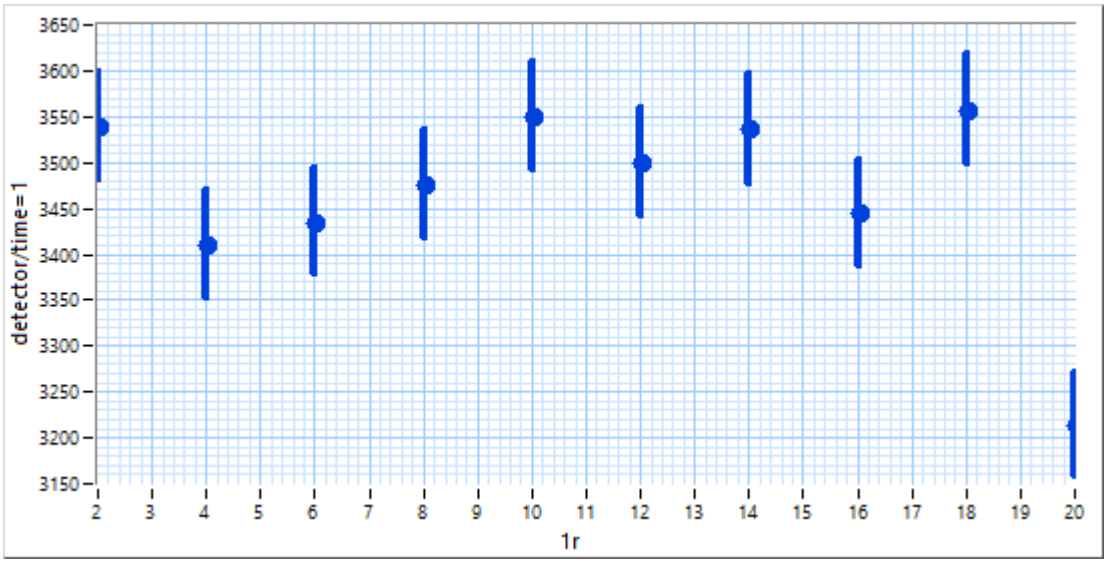




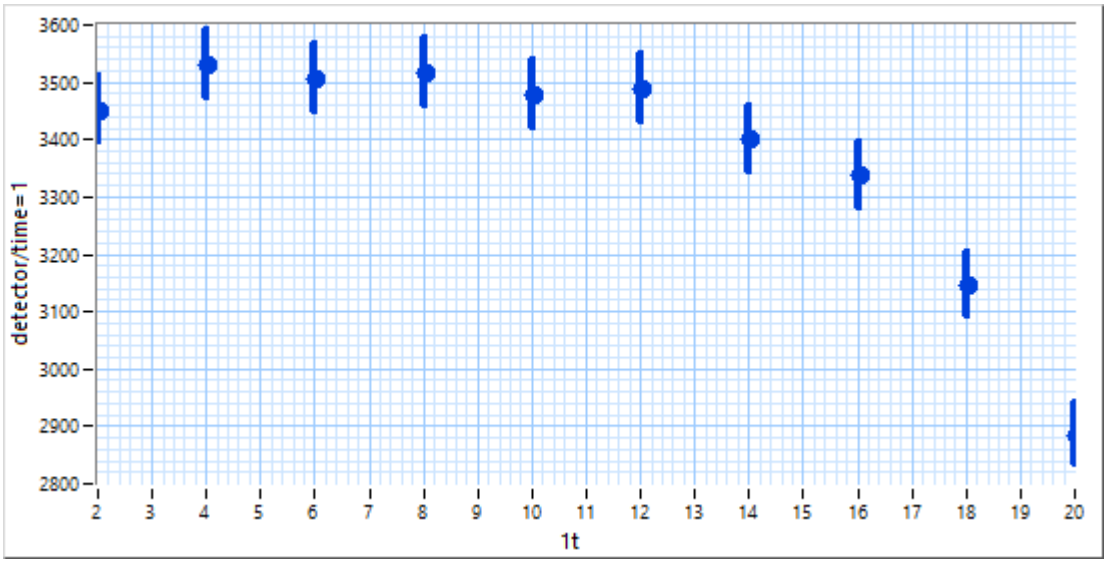
a=8.56119A, @a2=56.3887
drive a2 56.3887 c2 18.7174
drive xs -1.350 ys 1.800
#7 scan 1l 2 20 2 preset time 1



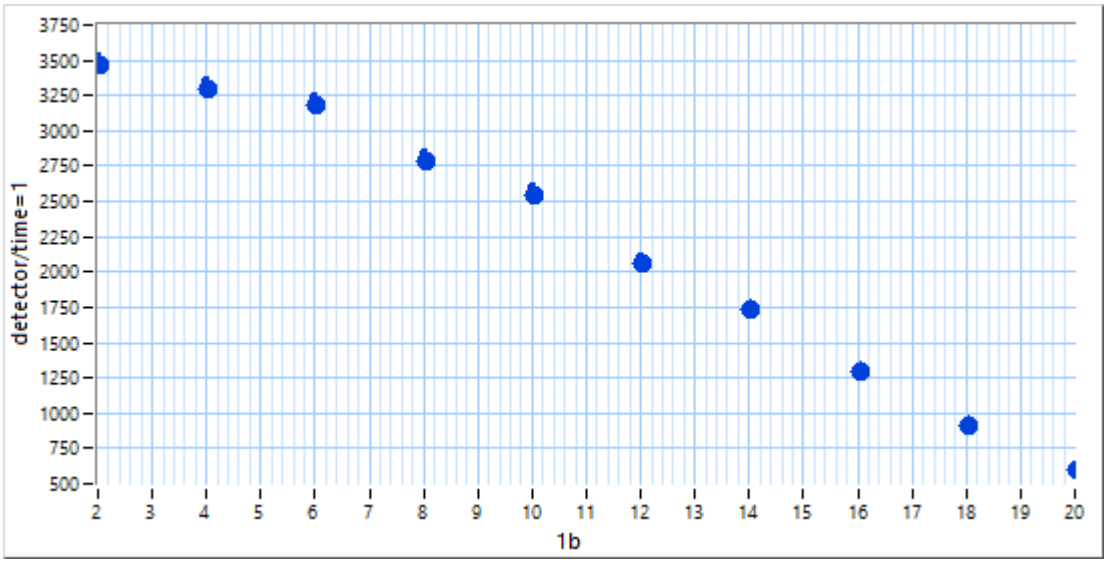
#8 scan 1r 2 20 2 preset time 1



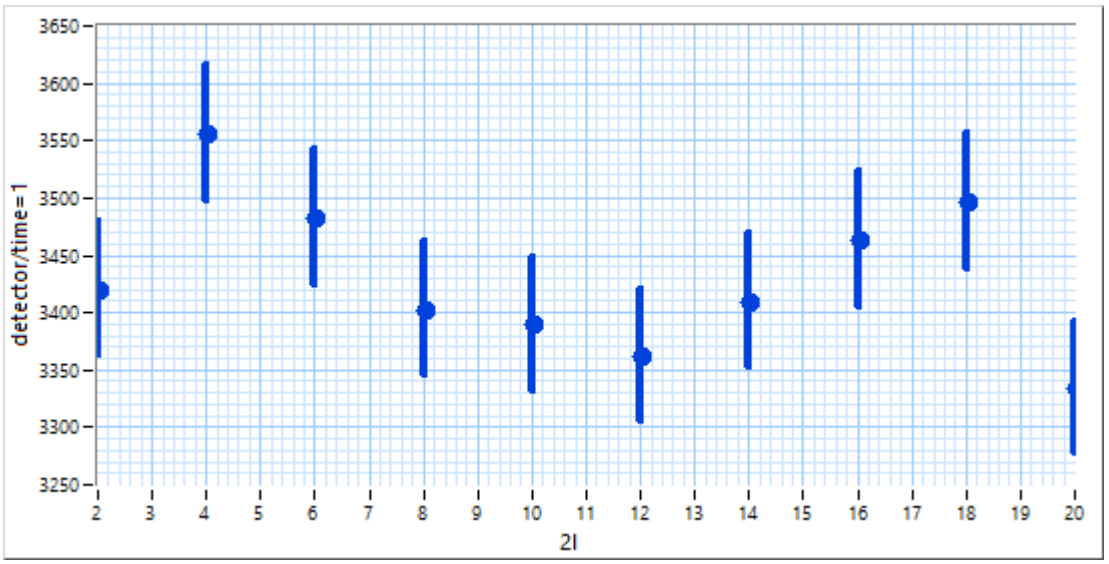
#9 scan 1t 2 20 2 preset time 1



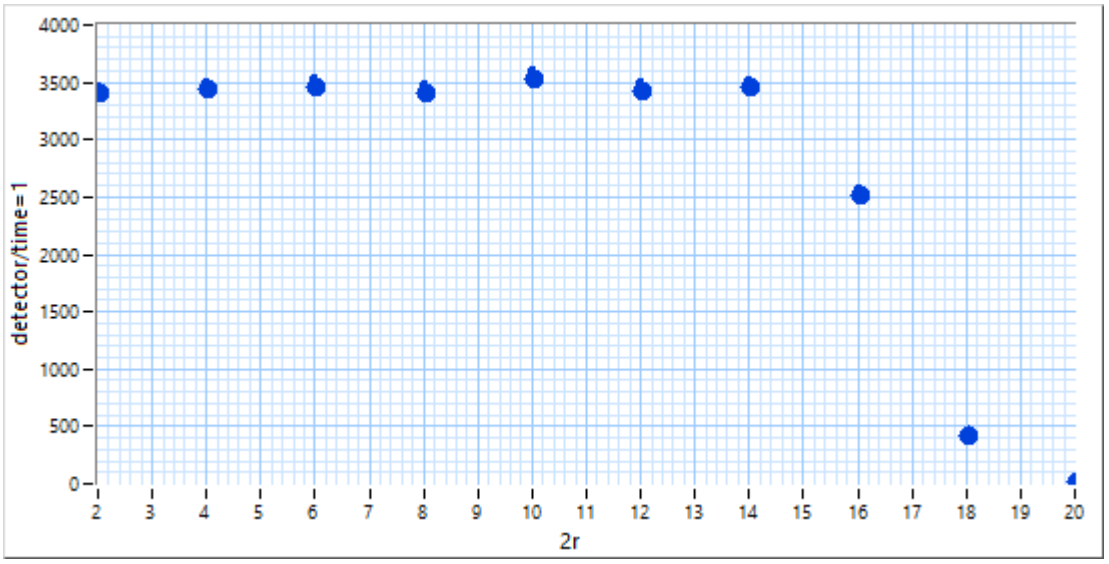
#10 scan 1b 2 20 2 preset time 1



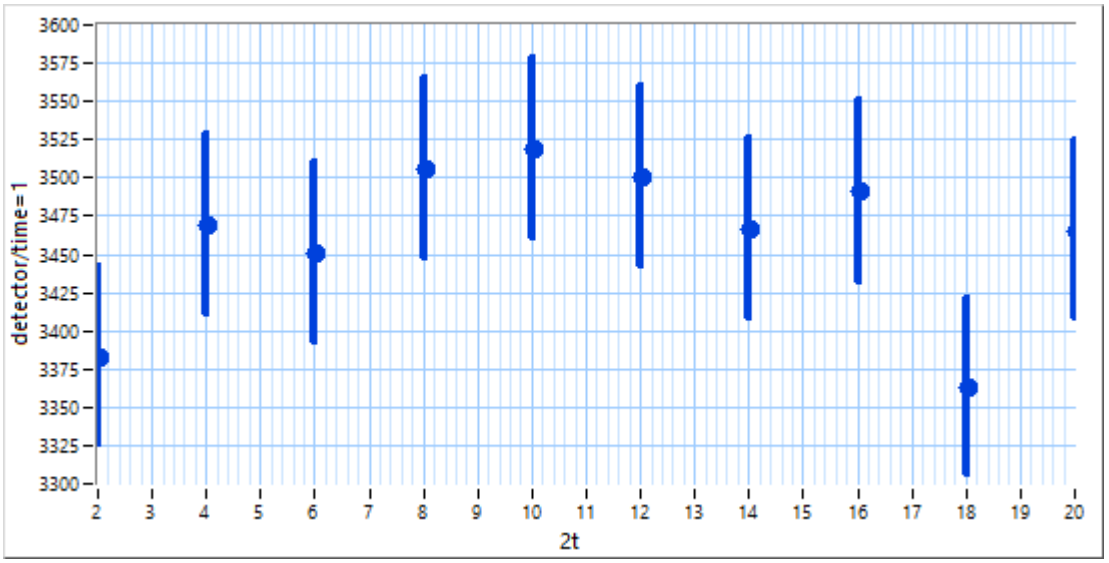
#11 scan 2l 2 20 2 preset time 1



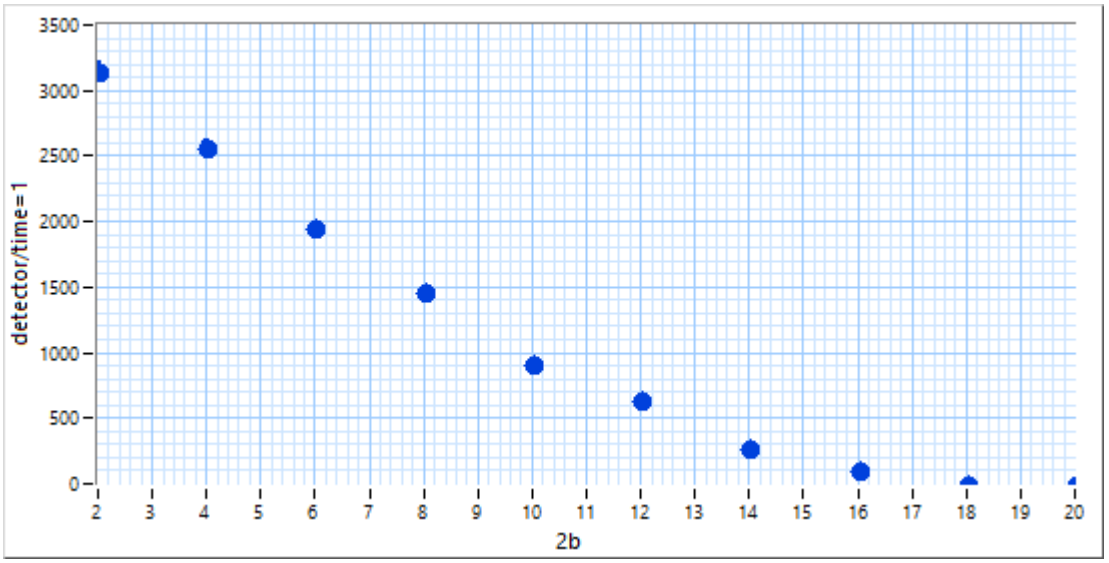
#12 scan 2r 2 20 2 preset time 1



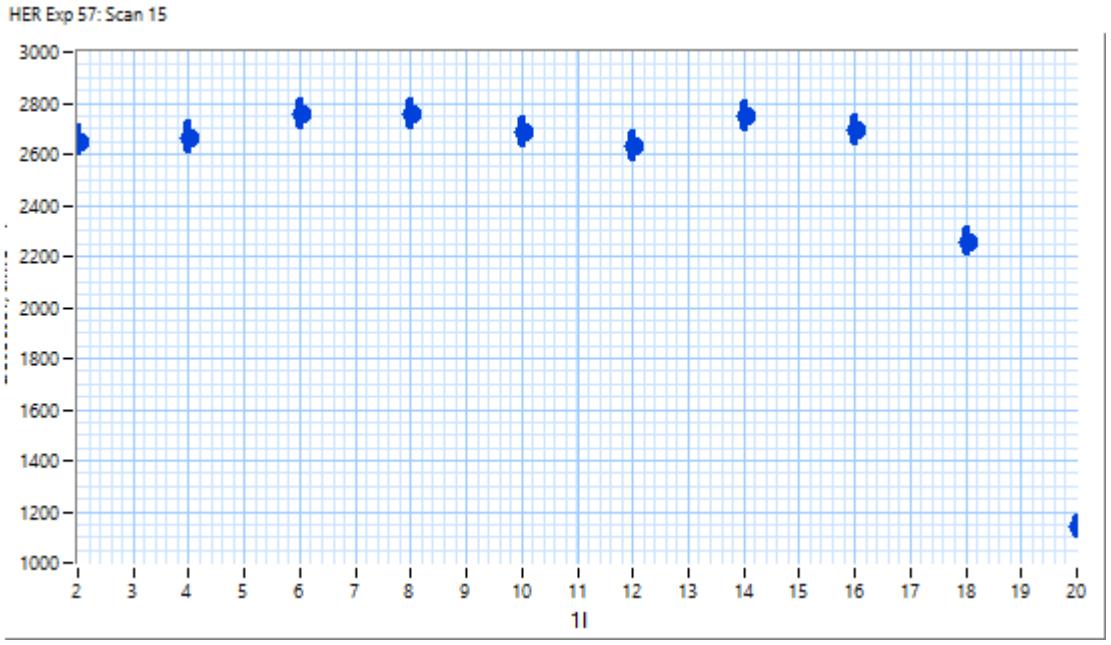
#13 scan 2t 2 20 2 preset time 1



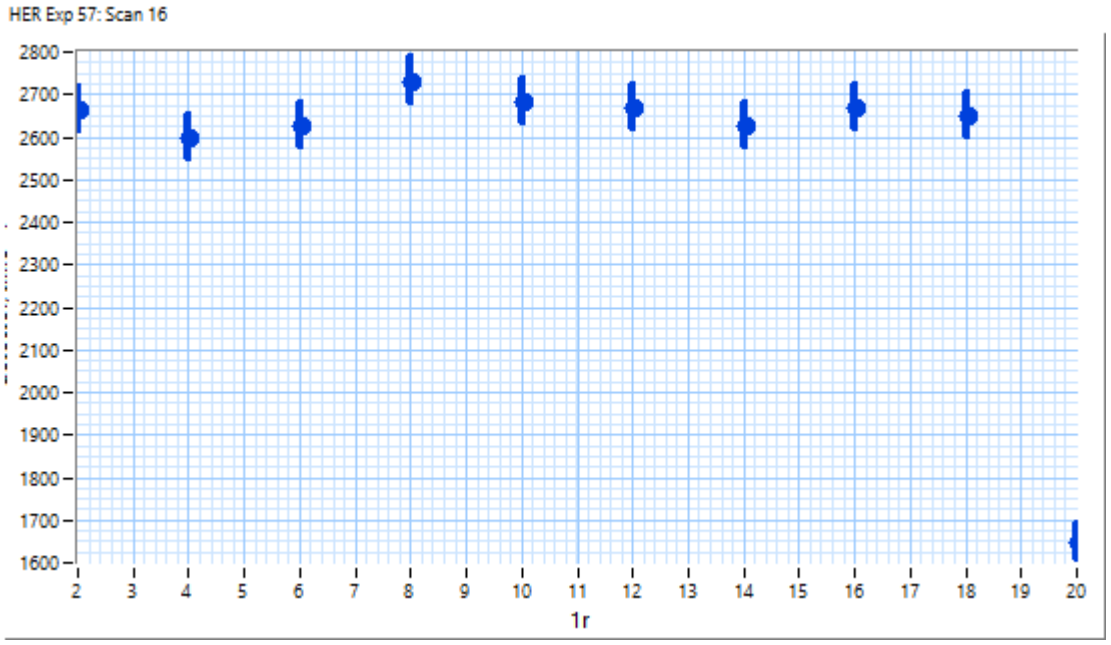
#14 scan 2b 2 20 2 preset time 1



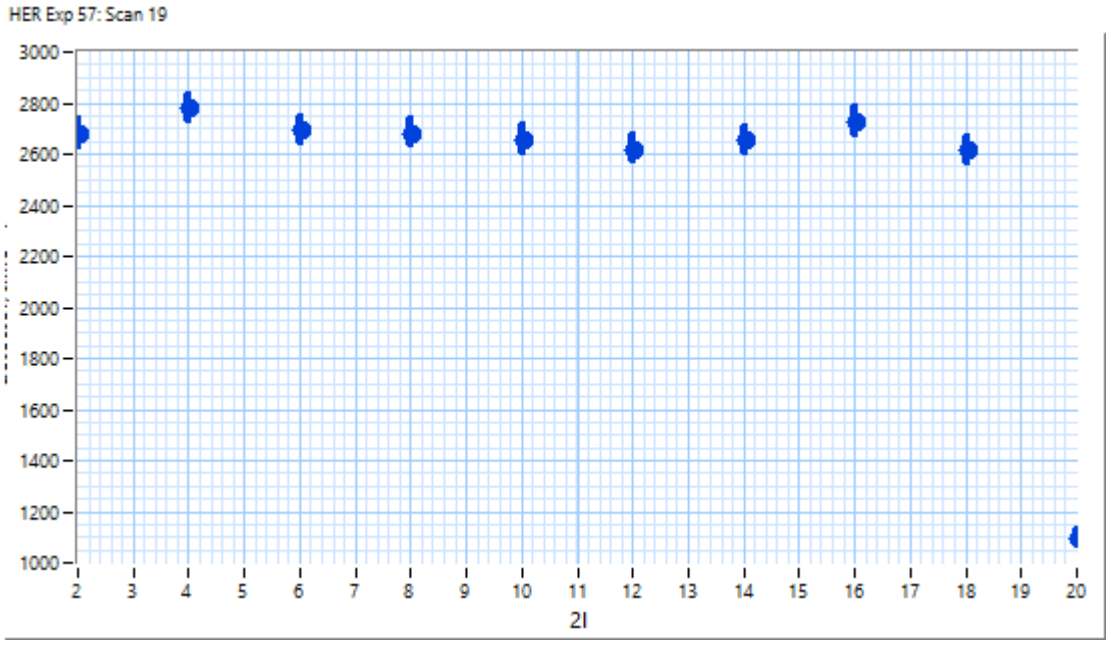
drive xs 0 ys 0
#15 scan 1l 2 20 2 preset time 1



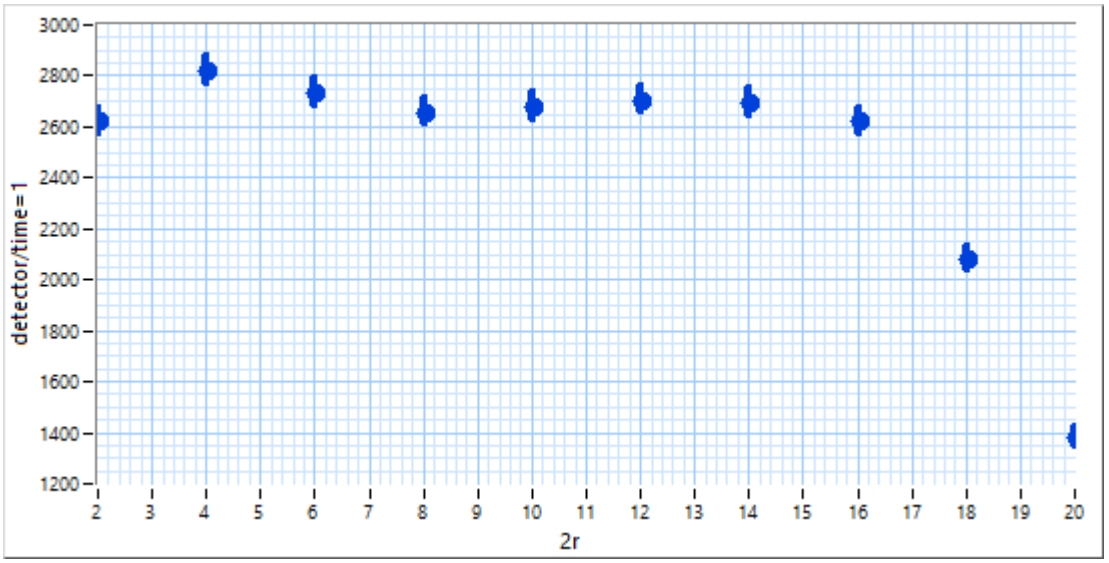
#16 scan 1r 2 20 2 preset time 1



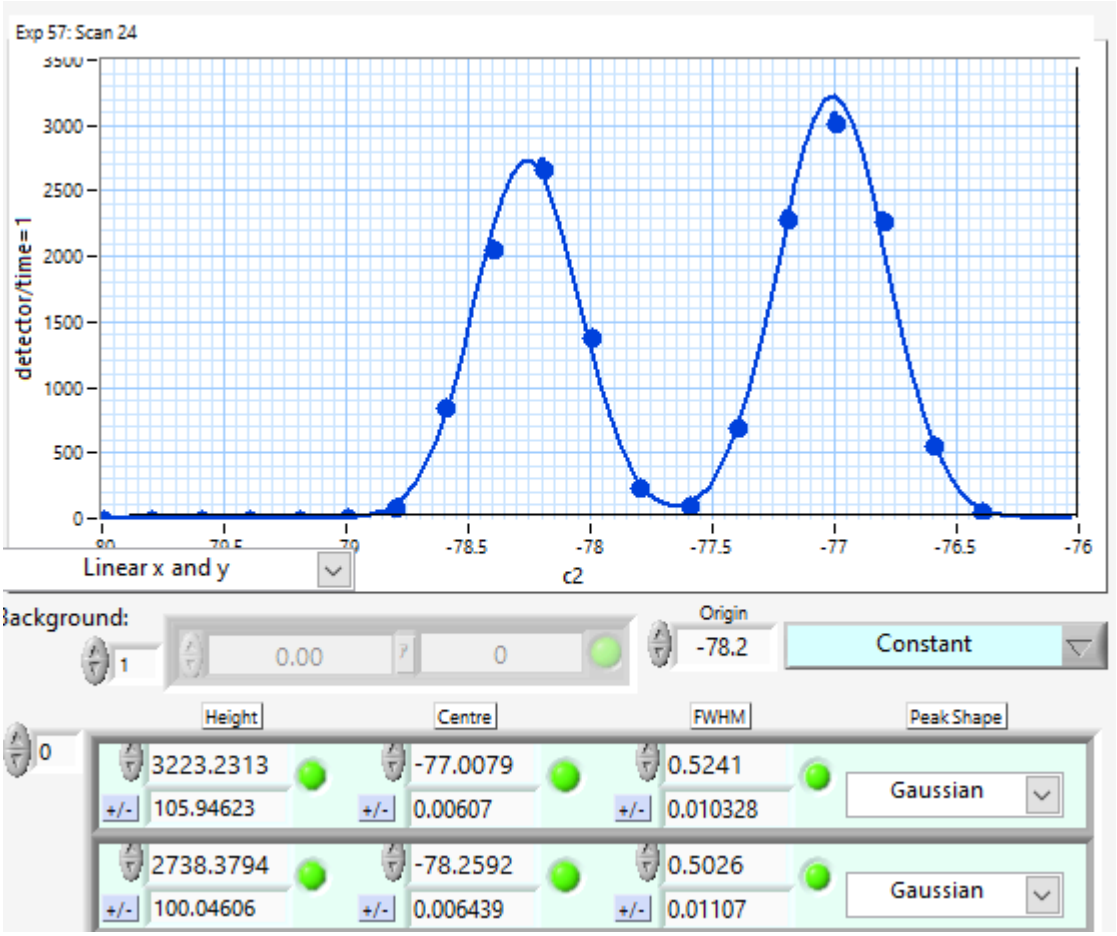
#19 scan 2l 2 20 2 preset time 1



#20 scan 2r 2 20 2 preset time 1

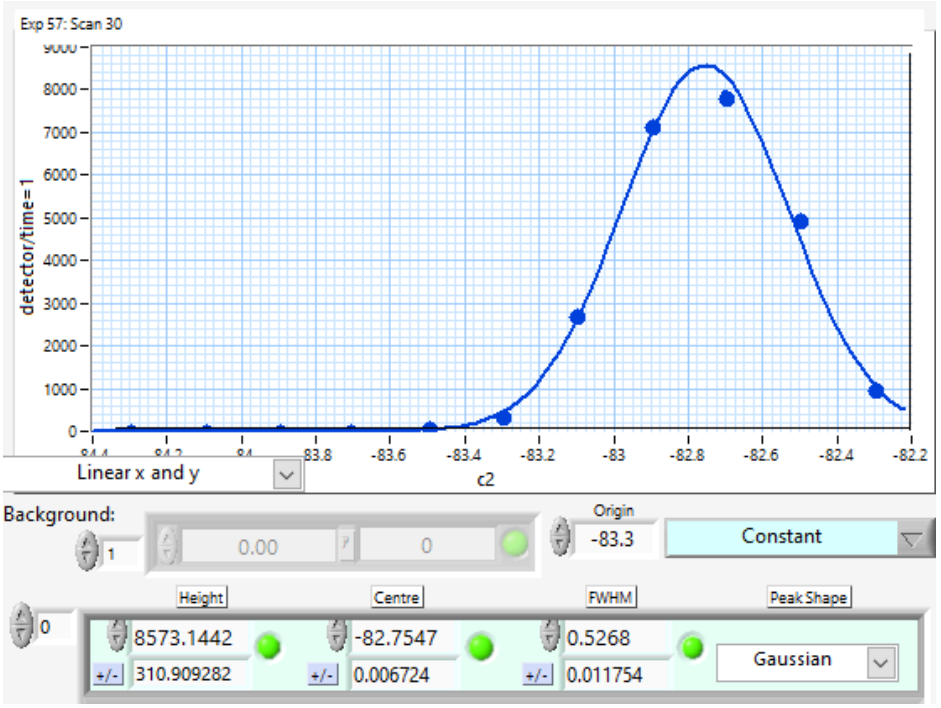


axis check @ (0 0 1)
drive a2 42.94635
#24 scanrelt c2 -2 2 0.2 1



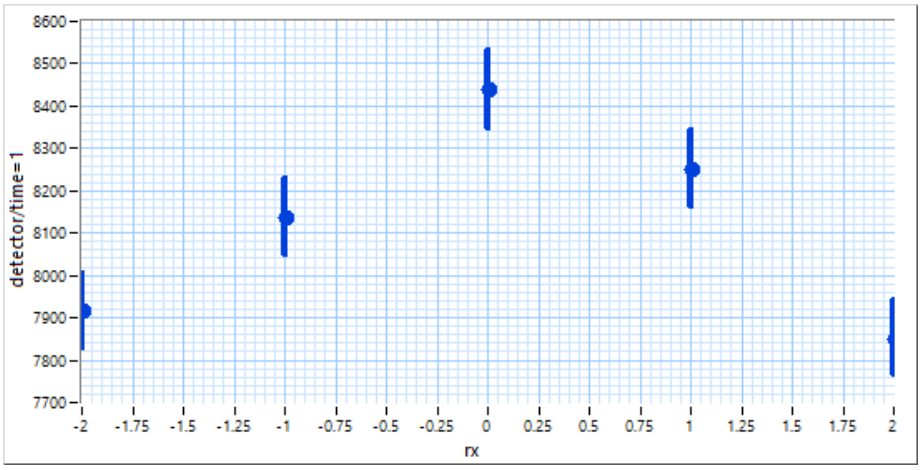
sample check 試料が2つに割れていた。片方取り除いて、再度軸の立て直し

xs -1.35, ys -1.35, (001) // RX
#30 scanrelt c2 -2 2 0.2 1 @ (001) a2 42.944

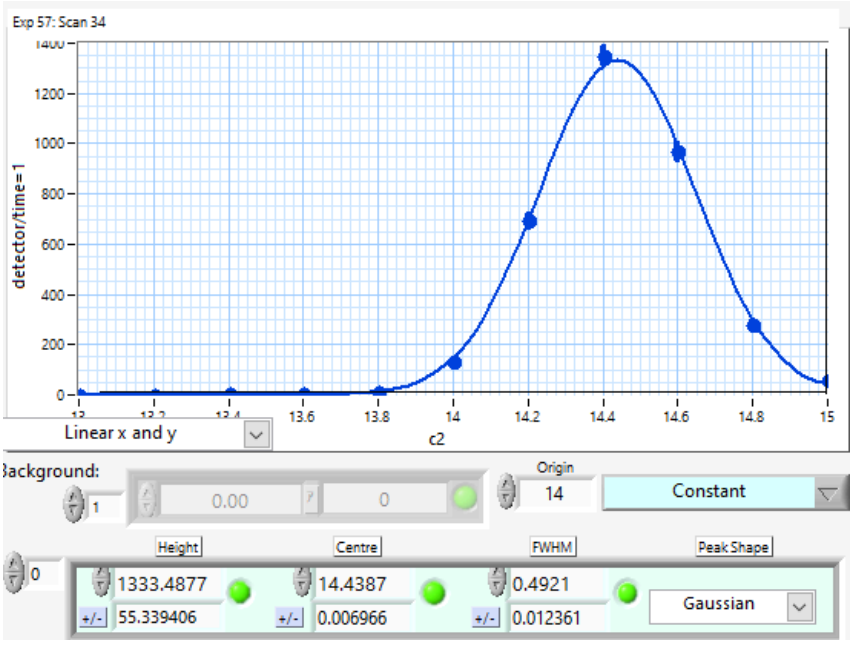


ピークが1つだけであることを確認。
drive c2 -83.2957

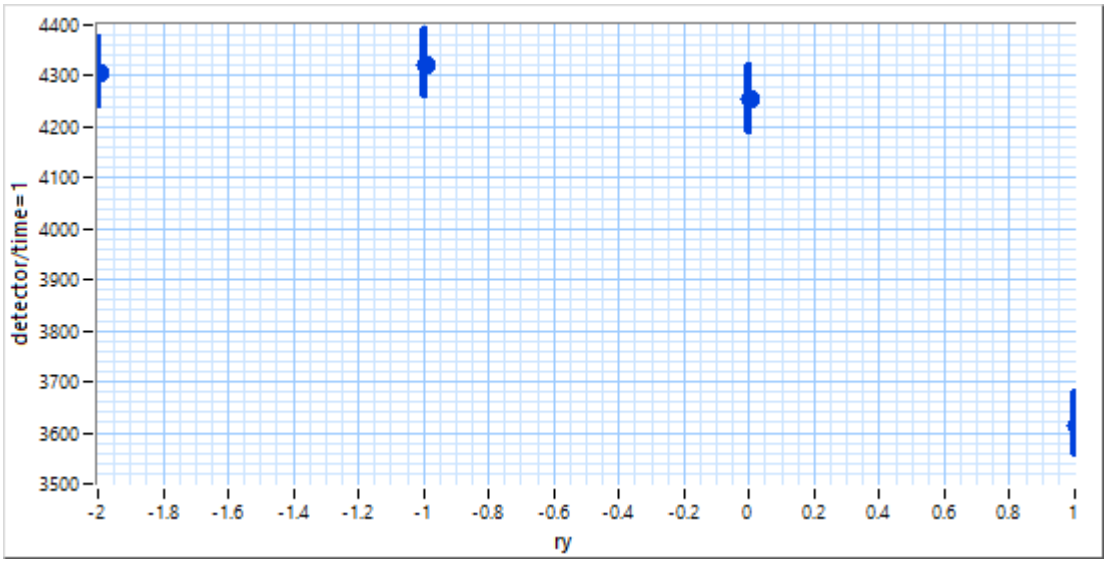
tilt調整



drive a2 56.16
#34 scanrelt c2 -1 1 0.2 1 @ (200)



#43 scan ry -2 2 1 preset time 1

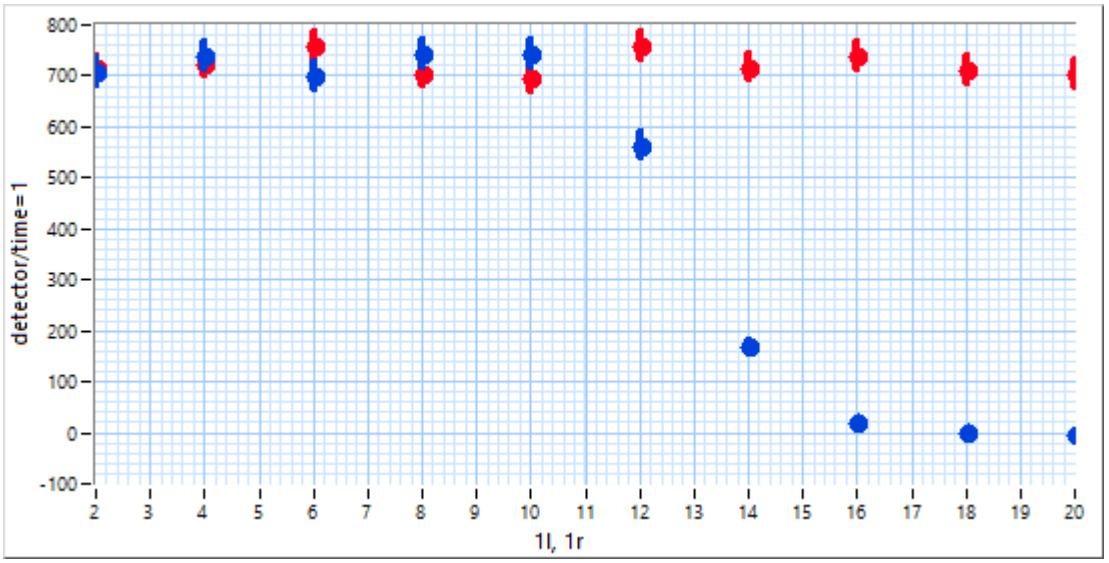


tilt 調整完了

(001) a2 42.94 c2 -86.23、(count preset time 1) 8000
(200) a2 56.16212 c2 11.544、(count preset time 1) 4400

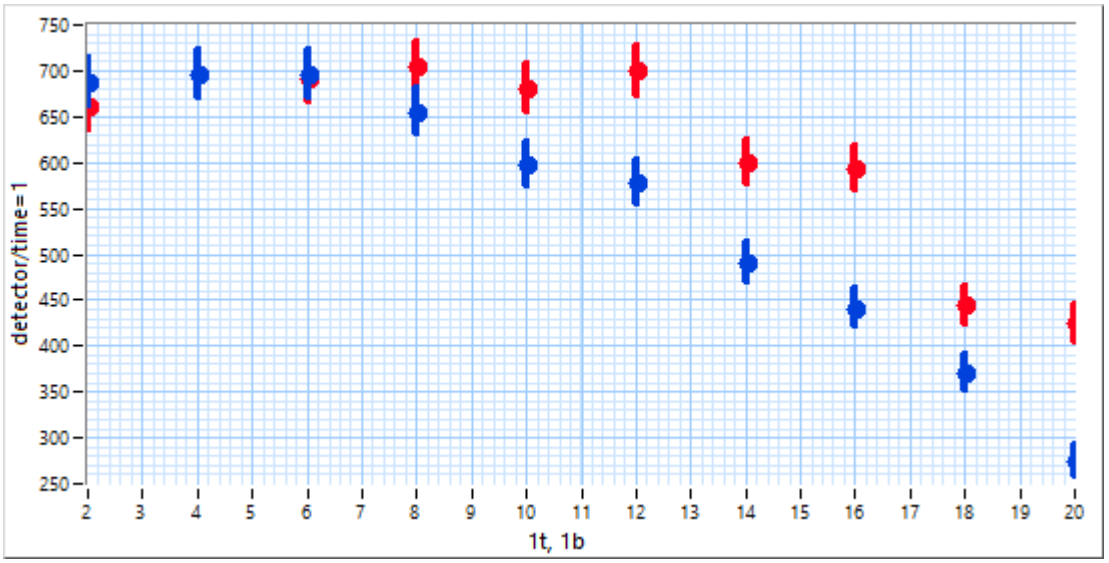
narrower scan @ (200)

#46 scan 1l 2 20 2 preset time 1
#47 scan 1r 2 20 2 preset time 1

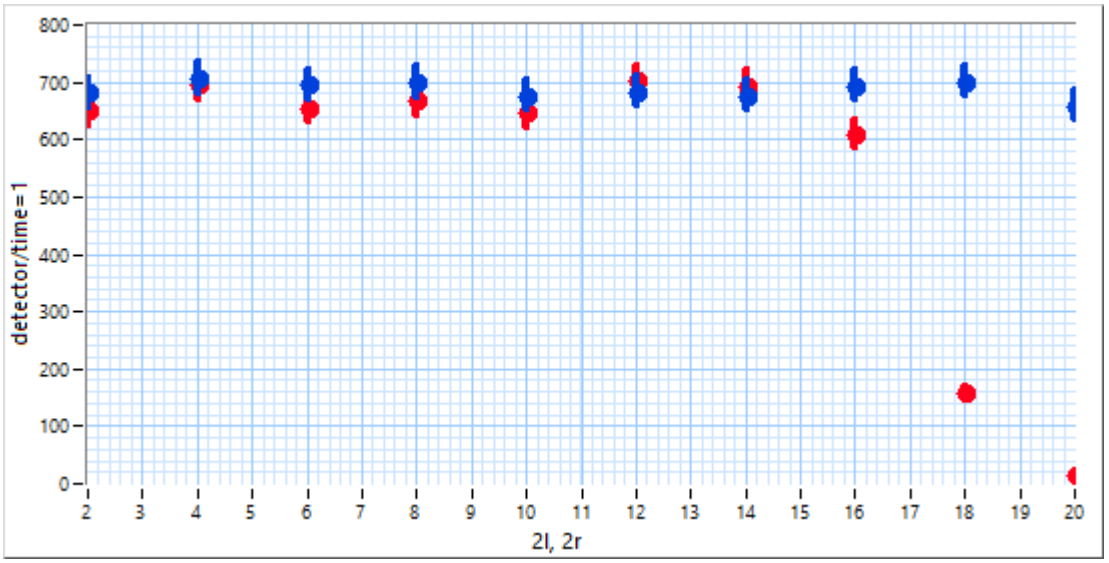


#46 blue, #47 red

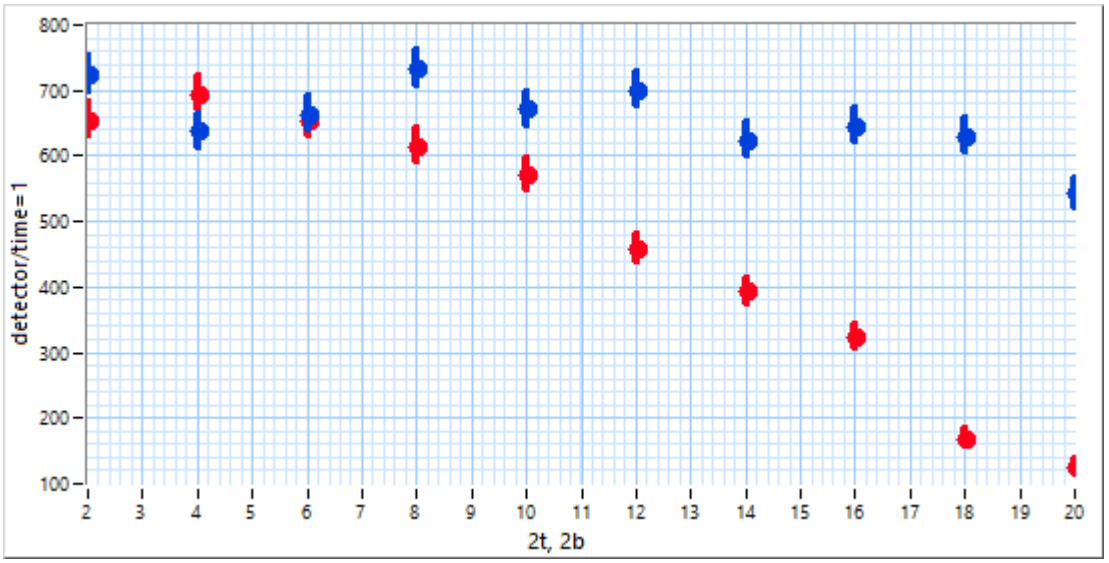
#48 scan 1t 2 20 2 preset time 1
#49 scan 1b 2 20 2 preset time 1



#50 scan 2l 2 20 2 preset time 1
#51 scan 2r 2 20 2 preset time 1

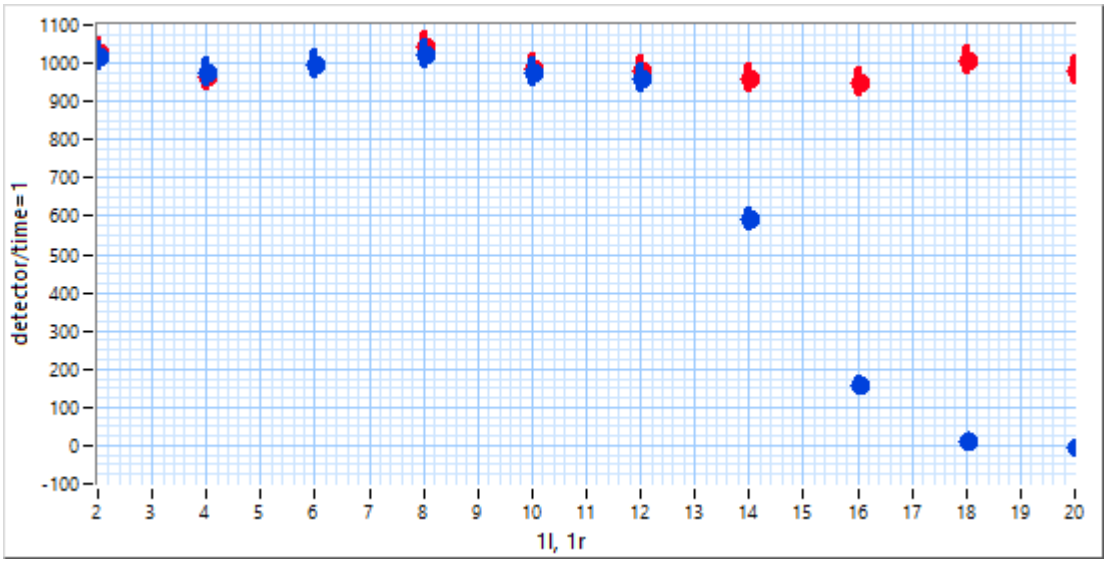


#52 scan 2t 2 20 2 preset time 1
#53 scan 2b 2 20 2 preset time 1

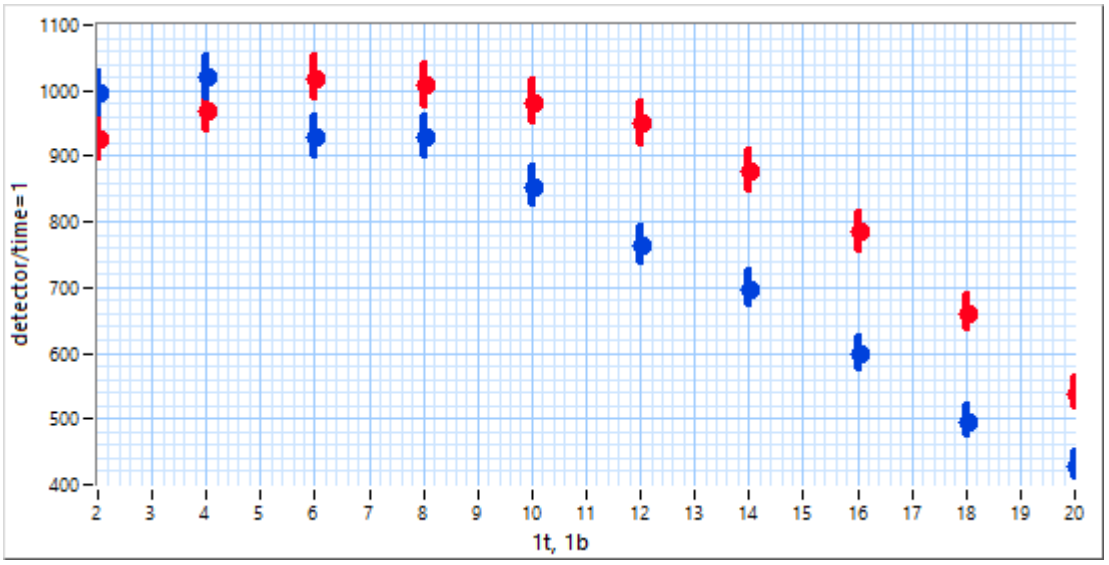


drive xs 0 ys 0

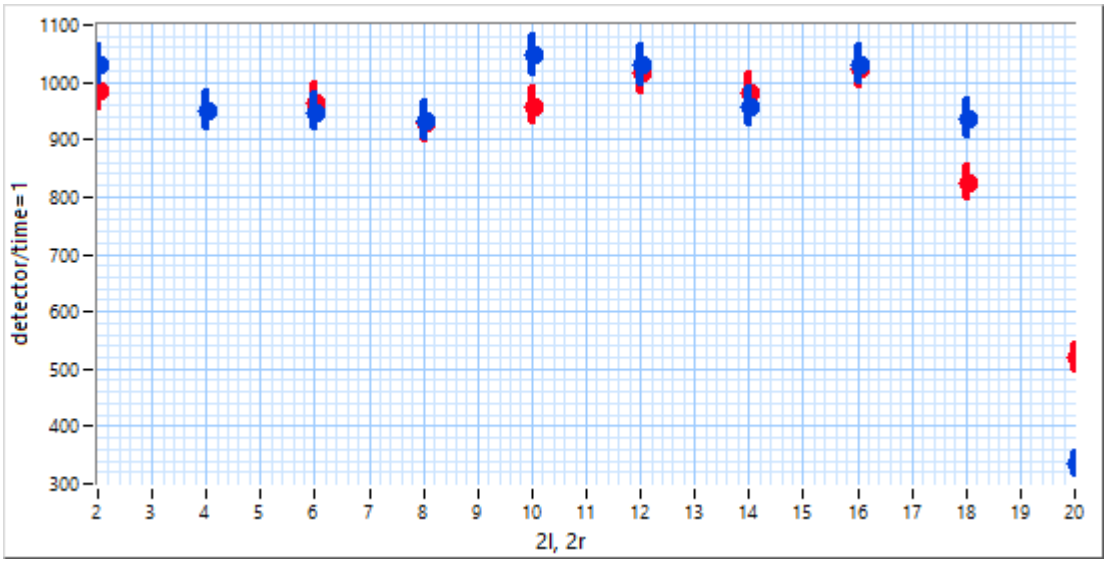
#54 scan 1l 2 20 2 preset time 1
#55 scan 1r 2 20 2 preset time 1



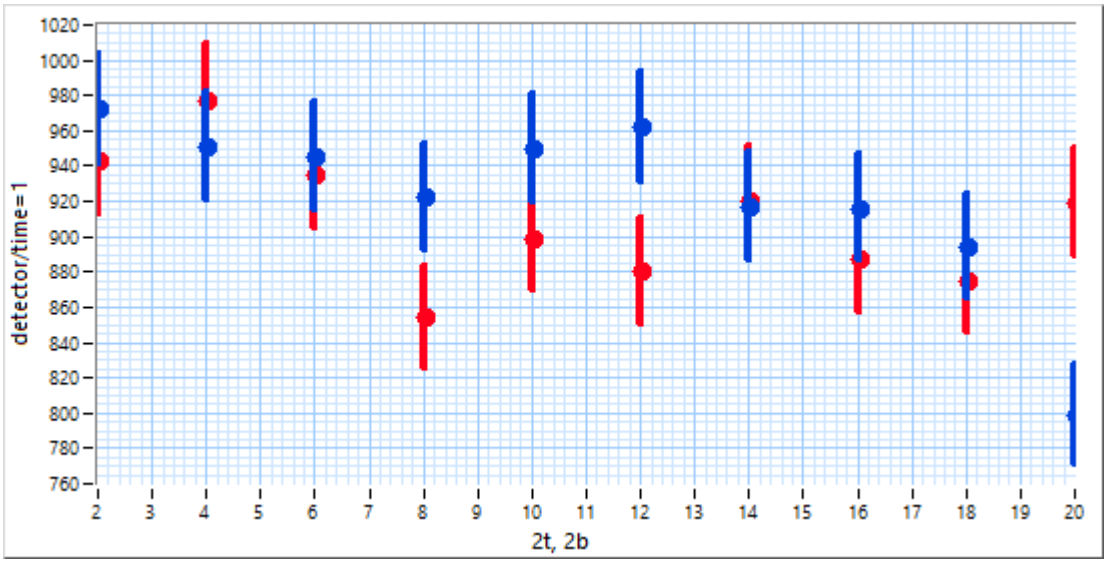
#56 scan 1t 2 20 2 preset time 1
#57 scan 1b 2 20 2 preset time 1



#58 scan 2l 2 20 2 preset time 1
#59 scan 2r 2 20 2 preset time 1



#60 scan 2t 2 20 2 preset time 1
#61 scan 2b 2 20 2 preset time 1



narrower scan @ (001)

drive a2 42.94 c2 -86.23 <-このコマンドがなぜか通ってなかった。

c2 -24, a2 42.93

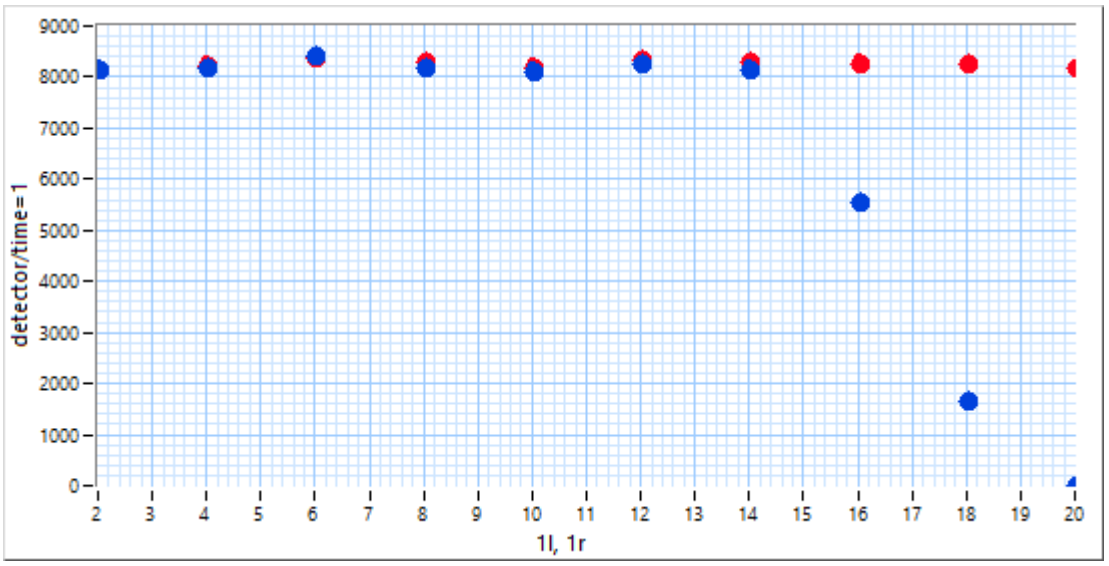
drive xs -1.350 ys 1.800<-このコマンドもなぜか通ってなかった。

2Tと2Bが変な値に。全開であるのに、18.48, 12.594(CCW)。

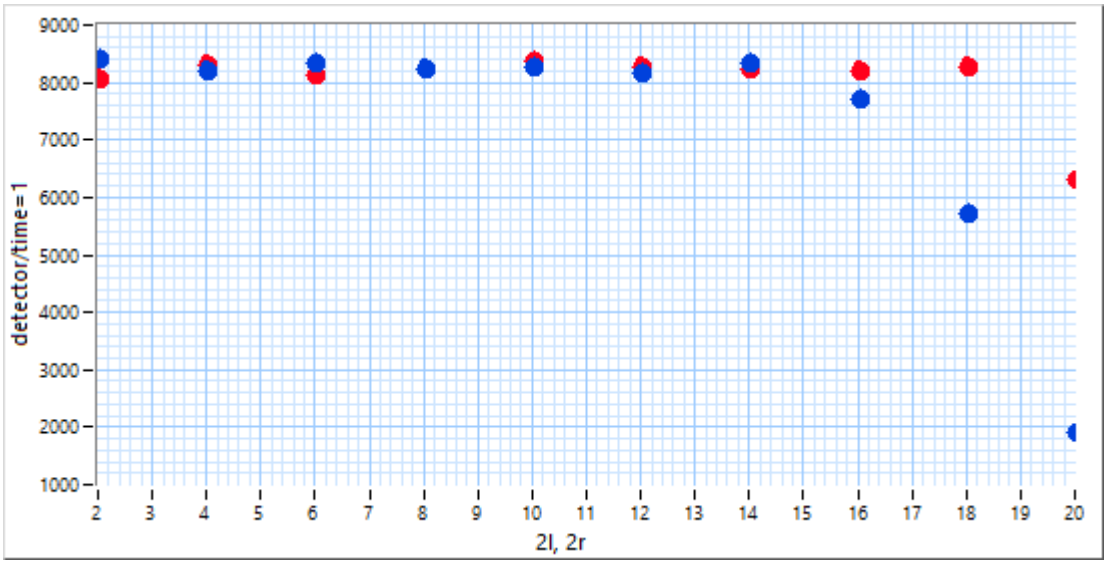
drive xs -1.35
drive ys 1.800

#74 scan 1l 2 20 2 preset time 1

#75 scan 1r 2 20 2 preset time 1



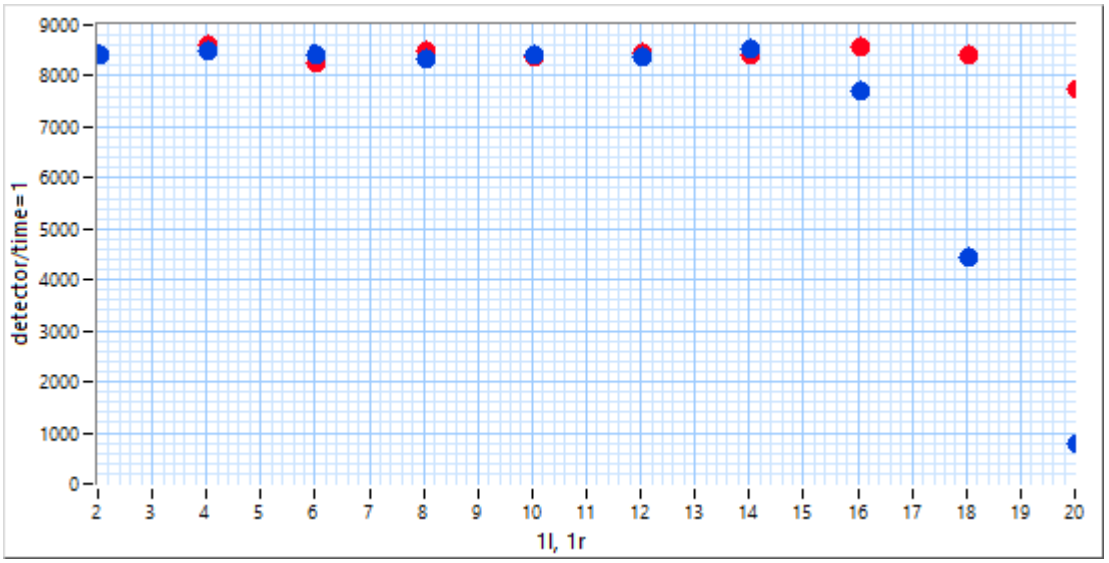
#76 scan 2l 2 20 2 preset time 1
#77 scan 2r 2 20 2 preset time 1



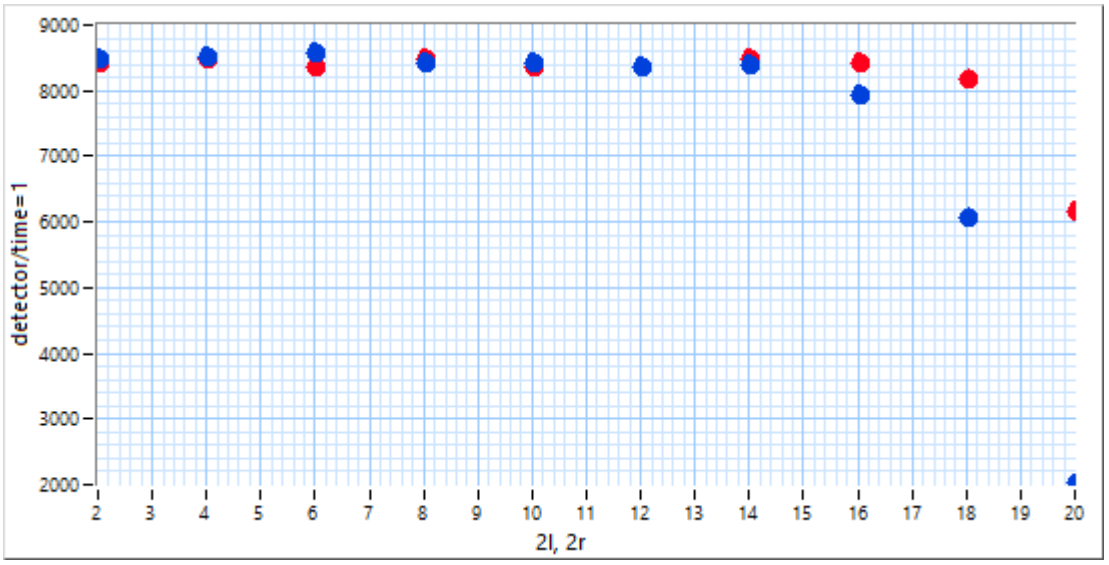
drive xs 0 ここでコマンドが止まった。目標値に達したのに、認識しなかった。

drive ys 0

#78 scan 1l 2 20 2 preset time 1
#79 scan 1r 2 20 2 preset time 1



#80 scan 2l 2 20 2 preset time 1
#81 scan 2r 2 20 2 preset time 1



drive ei 3.635 ef 3.635

monitor	time-act	mcu	counts
20000.0	8.0	20000.0	830.0

mcu 20000/8*60

guide - open - PG/Be - narrower open - Acrylic - 80’ - flat - open
Spacer for HFA OFF

---

drive ef 4.223
scan ei 4.223+5.3-0.4 4.223+5.3+0.4 0.05 preset mcu 2

drive ef 3.635

scan ei 3.635+4.5-0.4 3.635+4.5+0.4 0.05 preset mcu 2

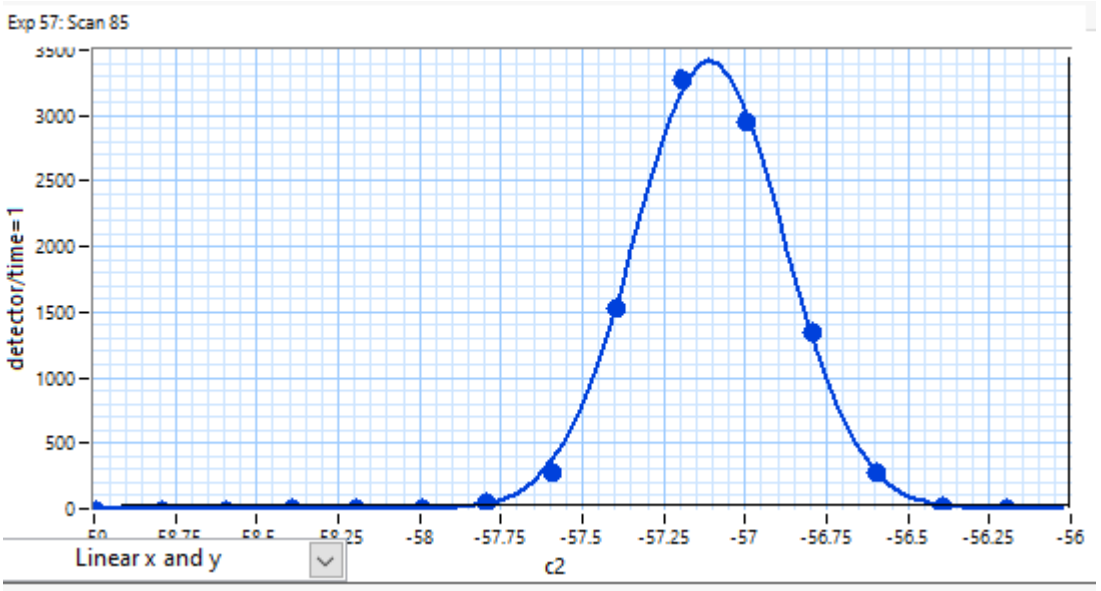
drive ef 3.0
scan ei 3.0+3.75-0.4 3.0+3.75+0.4 0.05 preset mcu 2

drive ef 2.888
scan ei 2.888+3.6-0.4 2.888+3.6+0.4 0.05 preset mcu 2

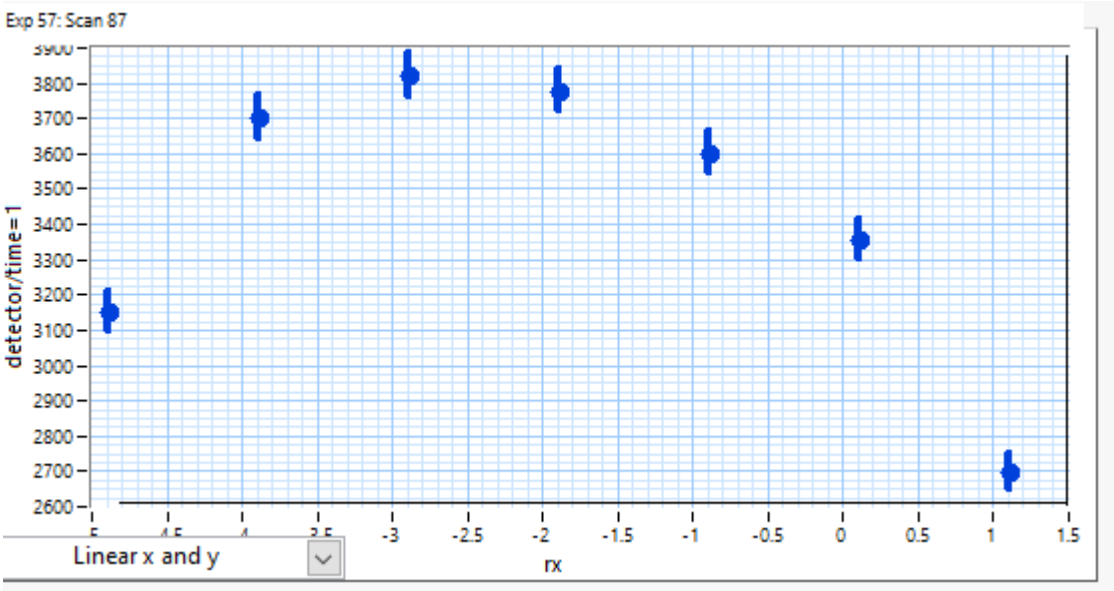
20:30 stop scan#84
Cryostat installed on goniometer

guide-open-Be/PG-sample-80'-Be-FA-open, Narrowers full open both for 1 and 2

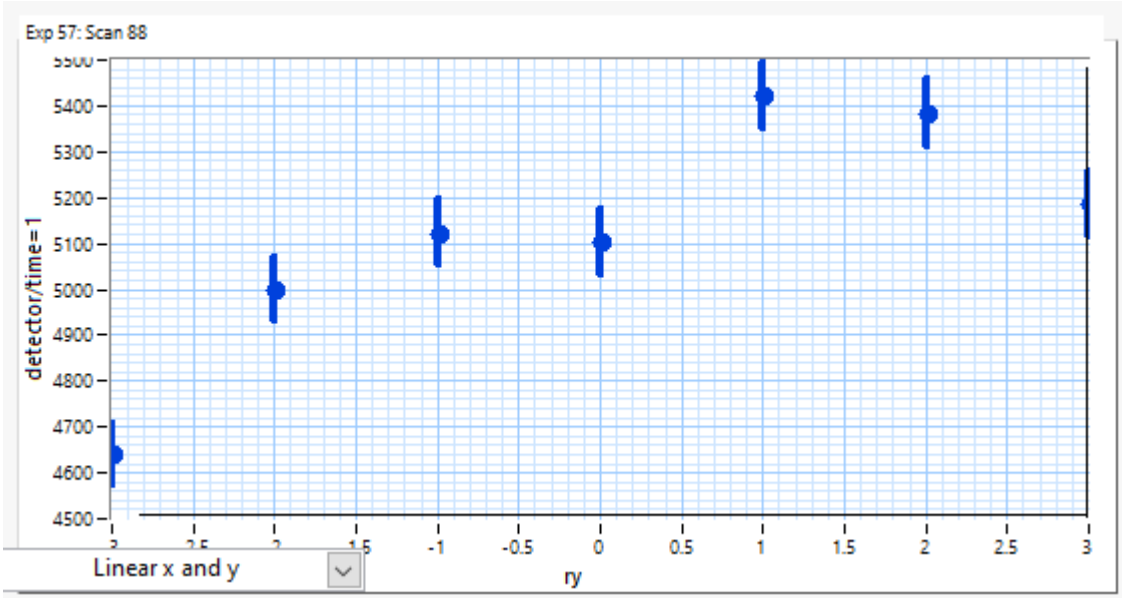
Scan#85 scanrelt c2 -2 2 0.2 1 @(200)



Scan#87 scan rx -4.9 4.1 1 preset time 1



Scan#88 scan ry -3 3 1 preset time 1@(001)

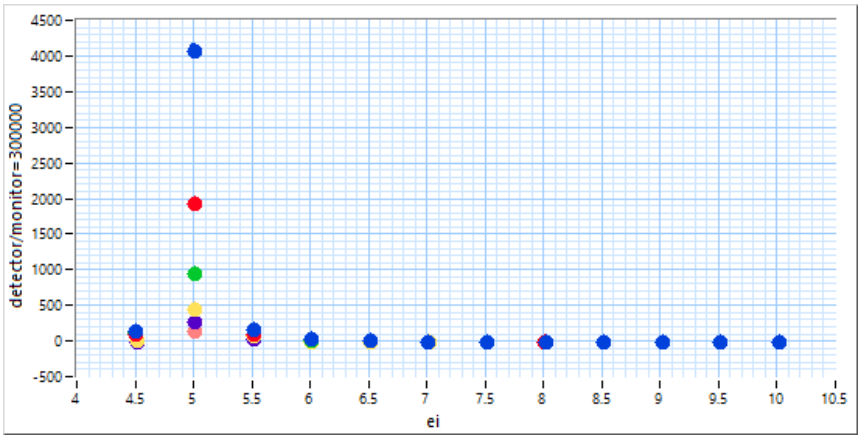


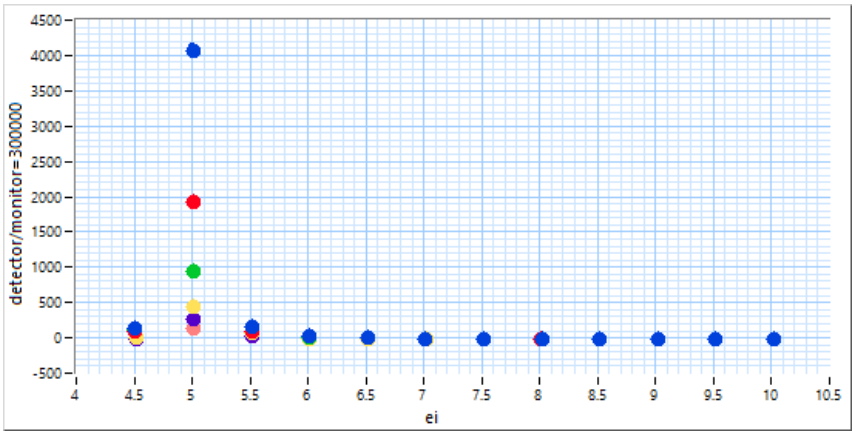
22:15 Start background scans

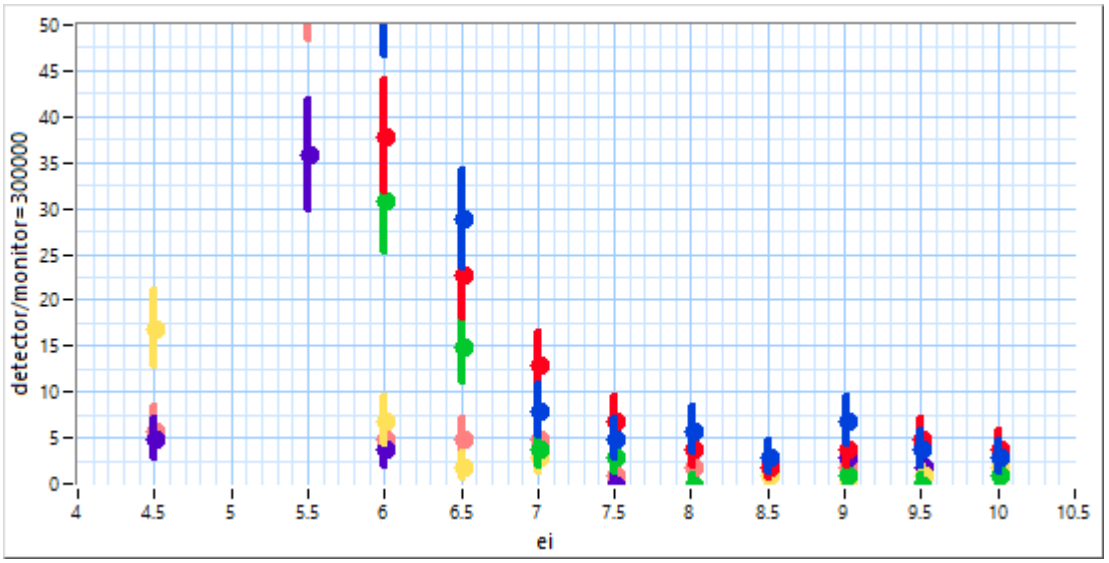
flat mode background measurement

drive ef 5
drive a2 10
#89 scan ei 4.5 10 0.5 preset mcu 2(50min)
drive a2 20
#90 scan ei 4.5 10 0.5 preset mcu 2
drive a2 30
#91 scan ei 4.5 10 0.5 preset mcu 2
drive a2 40
#92 scan ei 4.5 10 0.5 preset mcu 2

drive a2 60
#93 scan ei 4.5 10 0.5 preset mcu 2
drive a2 70
#94 scan ei 4.5 10 0.5 preset mcu 2



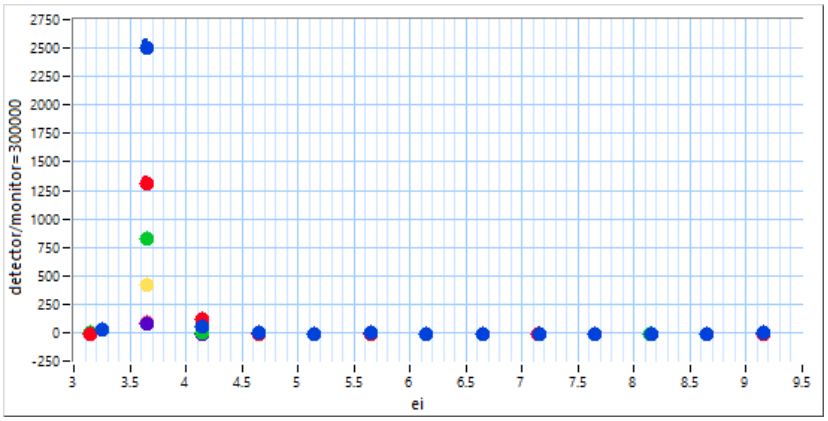


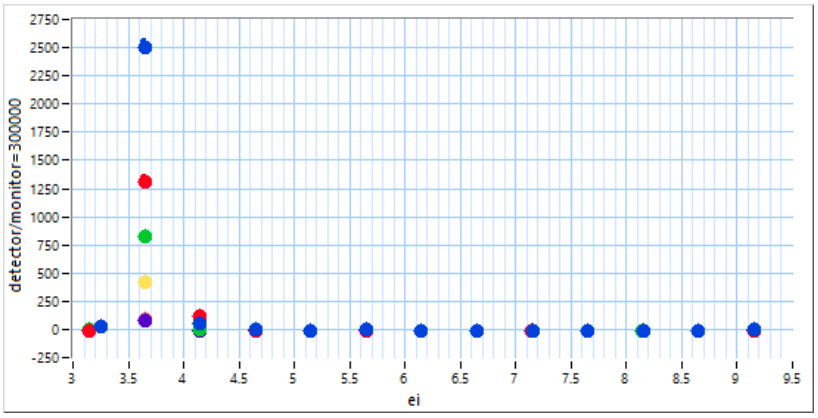


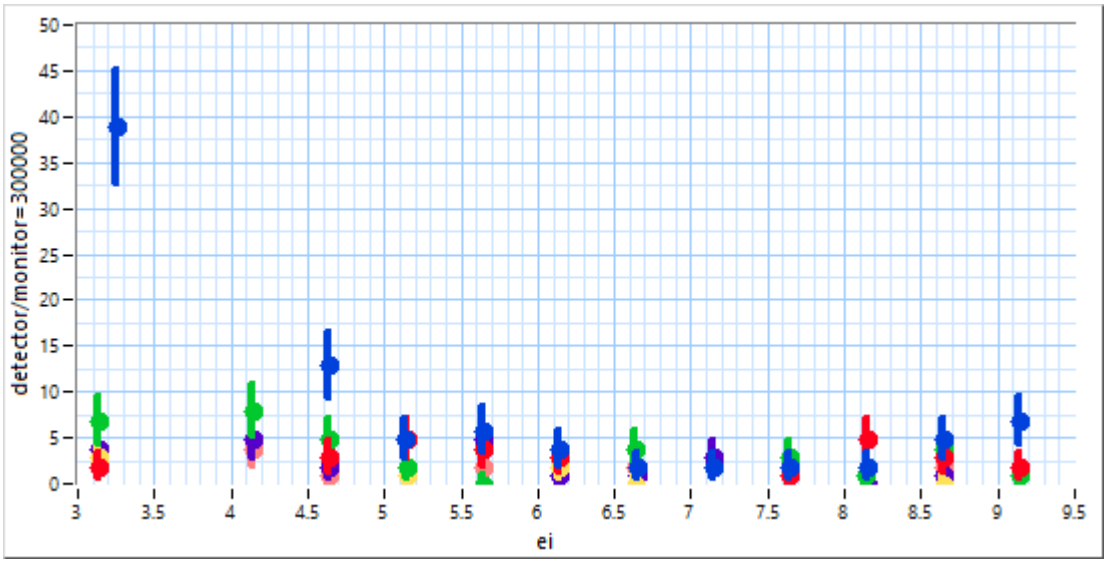
2meV<hw : average 5count(2mcu)

drive ef 3.635
drive a2 10
#95 scan ei 3.135 9.135 0.5 preset mcu 2
drive a2 20

#96 scan ei 3.135 9.135 0.5 preset mcu 2
drive a2 30
#97 scan ei 3.135 9.135 0.5 preset mcu 2
drive a2 40
#98 scan ei 3.135 9.135 0.5 preset mcu 2
drive a2 60
#99 scan ei 3.135 9.135 0.5 preset mcu 2
drive a2 70
#100 scan ei 3.135 9.135 0.5 preset mcu 2



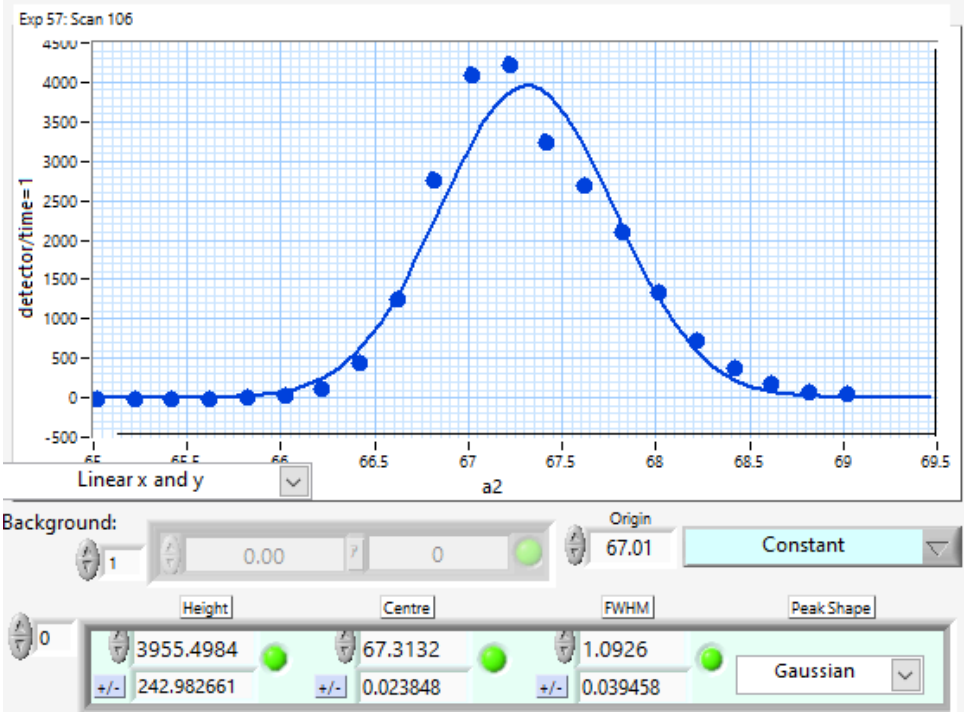


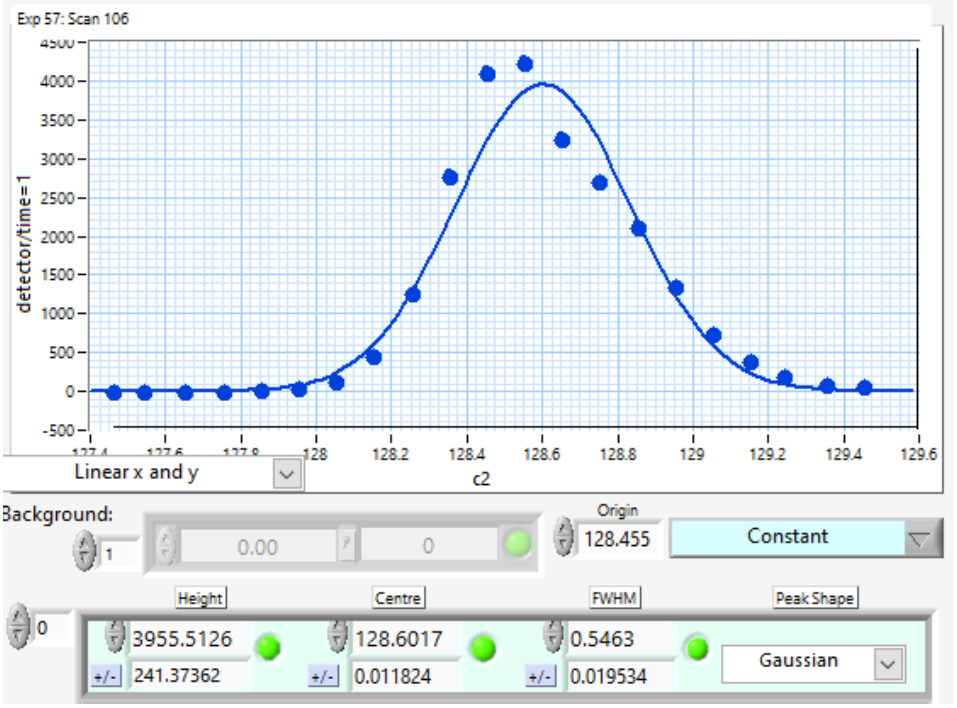


1meV<hw : average 5count(2mcu)

11/8 10:19 lattice constant define

Tc 2.202, Ts 2.464
drive h 2 k 0 l 0
c2をかなり回す為、現地でホース、ケーブル類に問題が無いか確認した。
#106 th2tht -2 2 0.2 1 @(200)

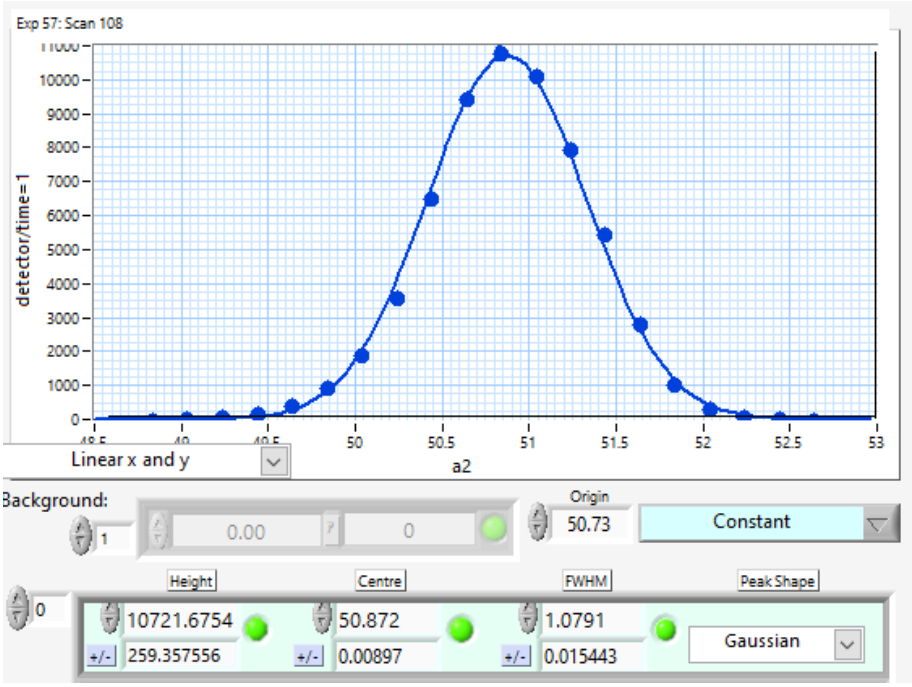


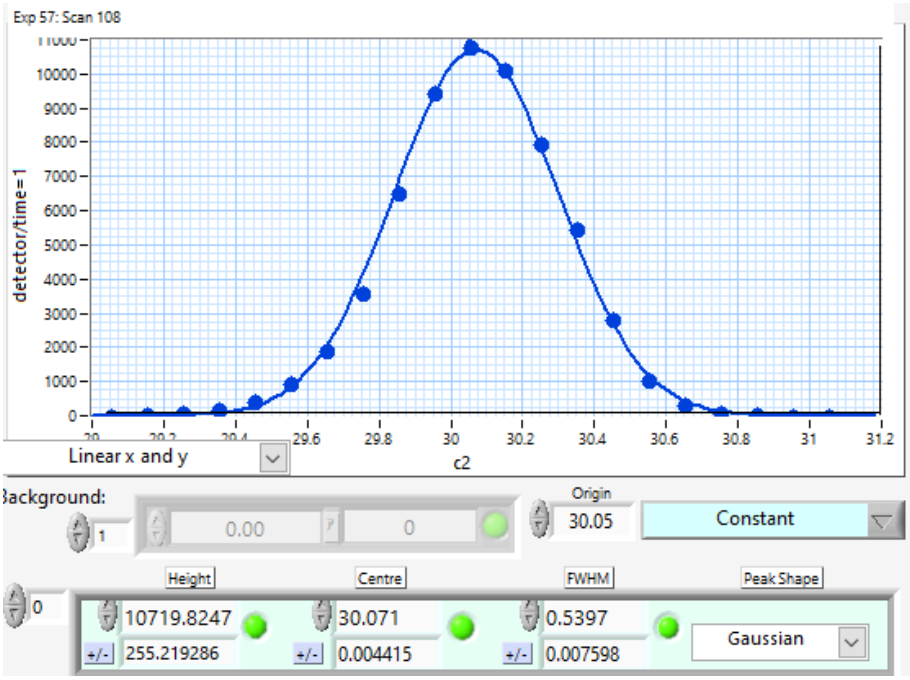


a=8.55969A

drive h 0 k 0 l 1
#107 scanrelt c2 -1 1 0.2 1@(001)

#108 th2tht -2 2 0.2 1@(001)





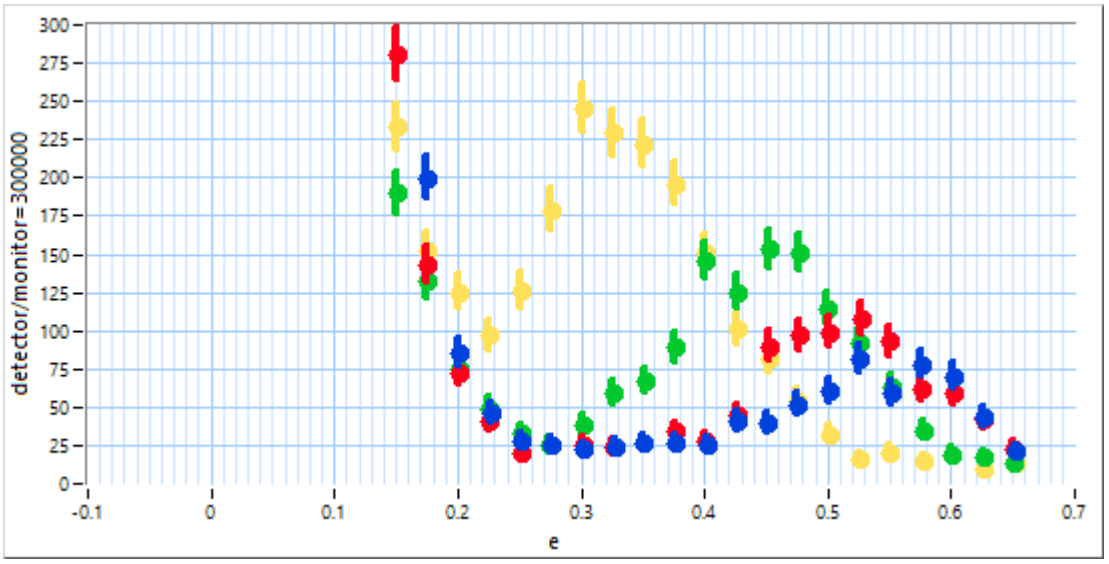
c=5.52255A

UB matrix define
Peak position as input:

h	k	l	a2	c2	rx	ry	Ei	Ef
0.0000	0.0000	1.0000	50.8600	30.0600	-2.9000	1.5000	3.6353	3.6350

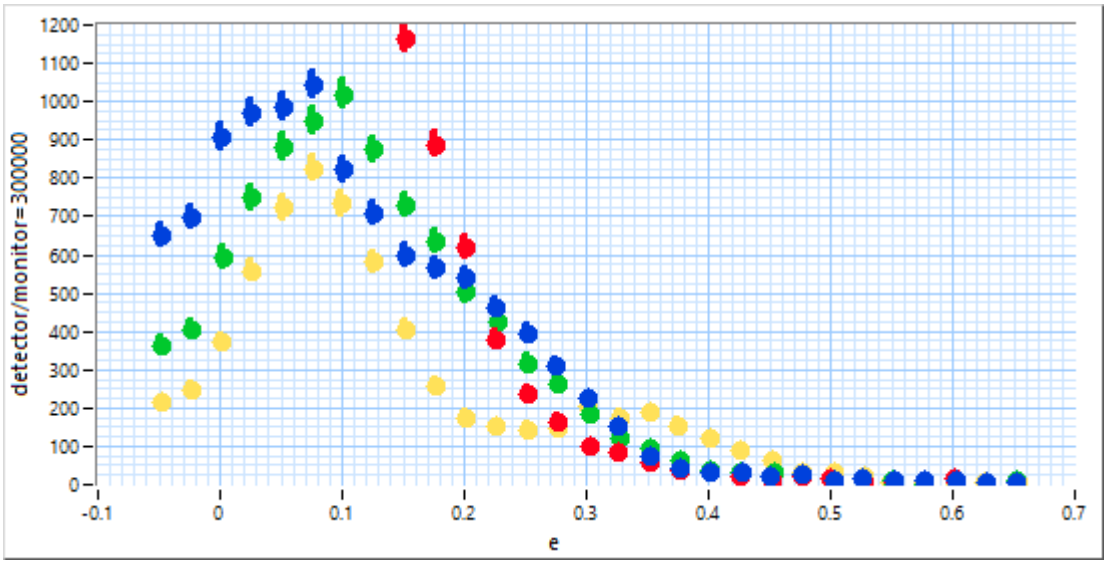
11:15
#109 scan h -0.5 k 0 l 0 e -0.05 0.65 0.025 preset mcu 2 (75min)
#110 scan h -0.6 k 0 l 0 e -0.05 0.65 0.025 preset mcu 2

#111 scan h -0.7 k 0 l 0 e -0.05 0.65 0.025 preset mcu 2
#112 scan h -0.8 k 0 l 0 e -0.05 0.65 0.025 preset mcu 2



blue #109, red #110, green #111, yellow #112

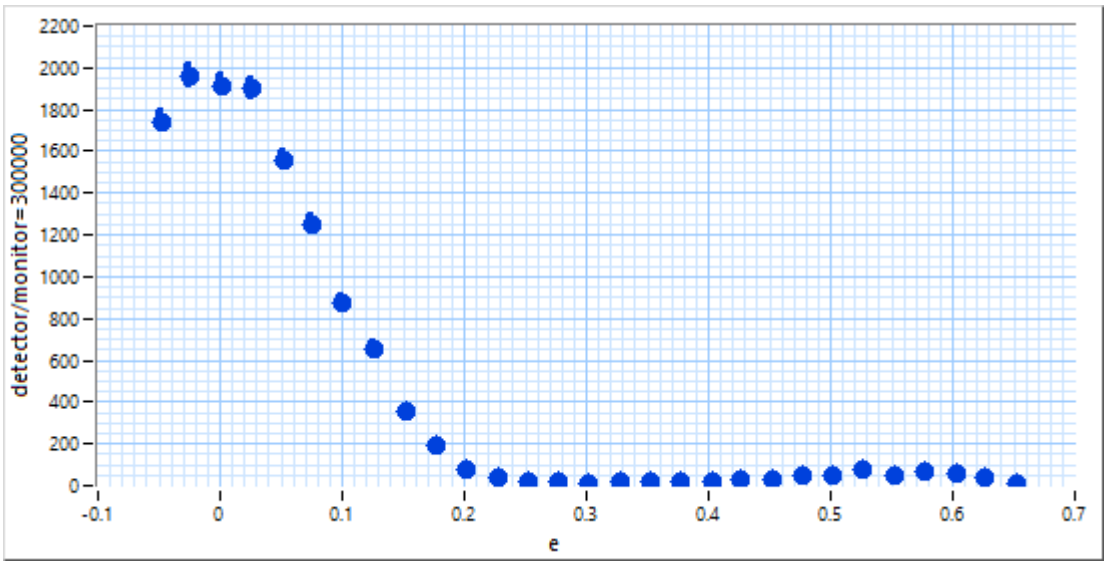
#113 scan h -0.9 k 0 l 0 e -0.05 0.65 0.025 preset mcu 2
#114 scan h -1 k 0 l 0 e -0.05 0.65 0.025 preset mcu 2
#115 scan h -1.1 k 0 l 0 e -0.05 0.65 0.025 preset mcu 2
#116 scan h -1.2 k 0 l 0 e -0.05 0.65 0.025 preset mcu 2



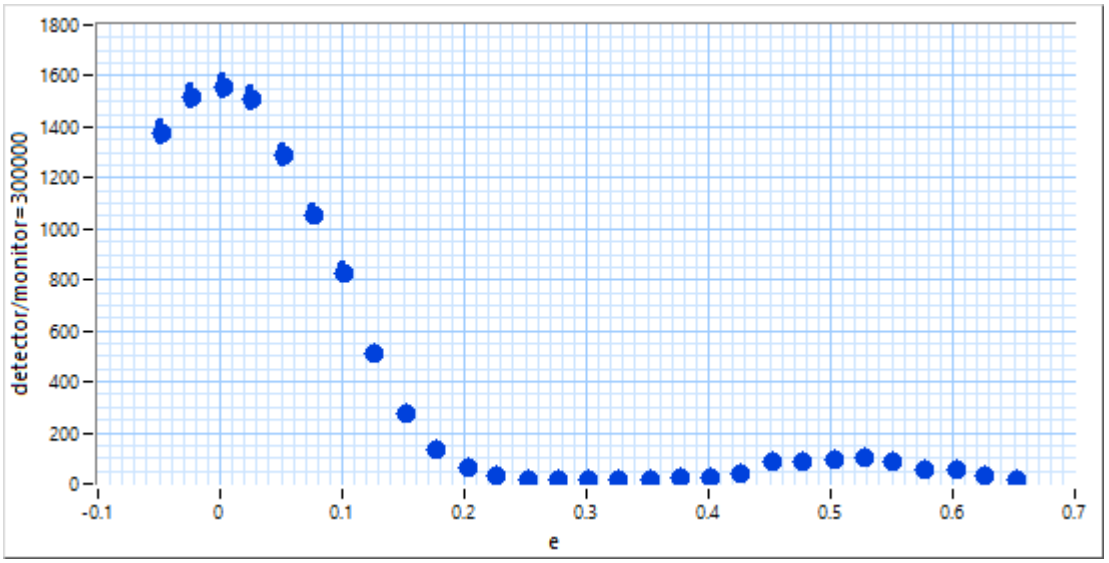
blue #113, red #114, green #115, yellow #116

#117 scan h -1.3 k 0 l 0 e -0.05 0.65 0.025 preset mcu 2
#118 scan h -1.4 k 0 l 0 e -0.05 0.65 0.025 preset mcu 2
#119 scan h -1.5 k 0 l 0 e -0.05 0.65 0.025 preset mcu 2

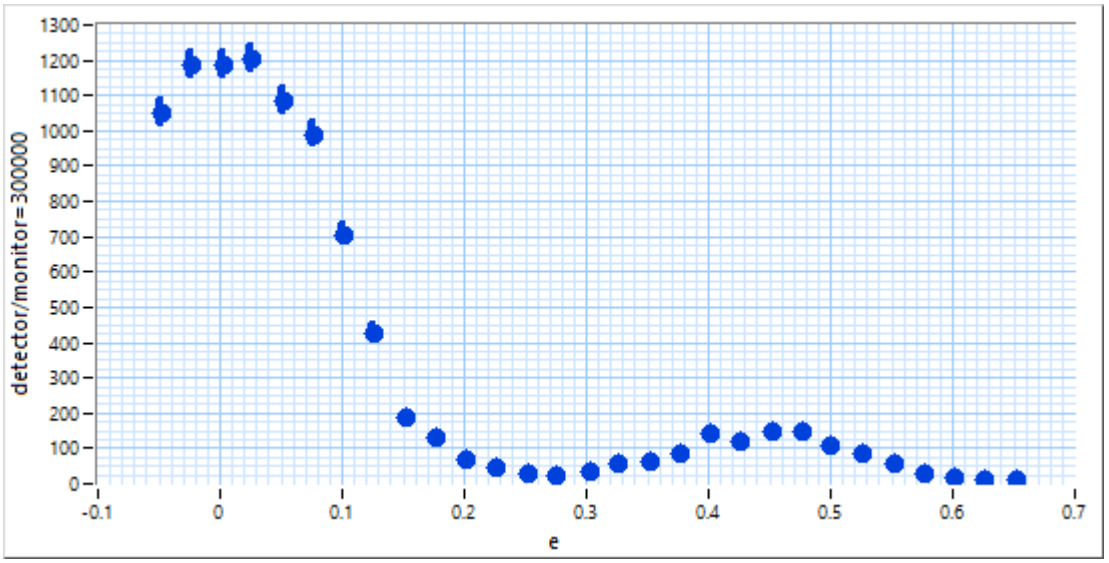
#109 h -0.5



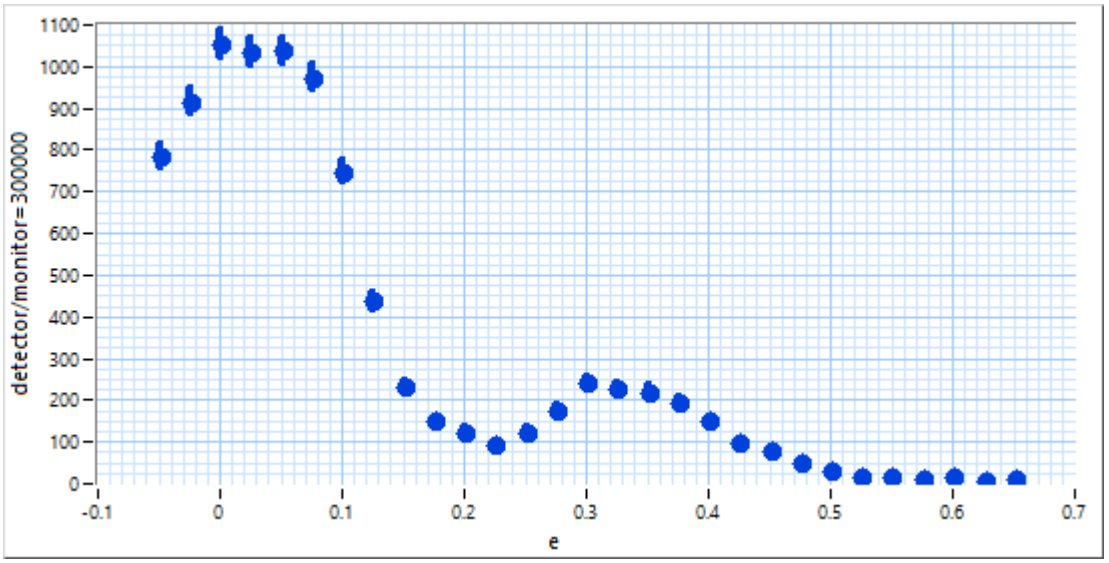
#110 h -0.6



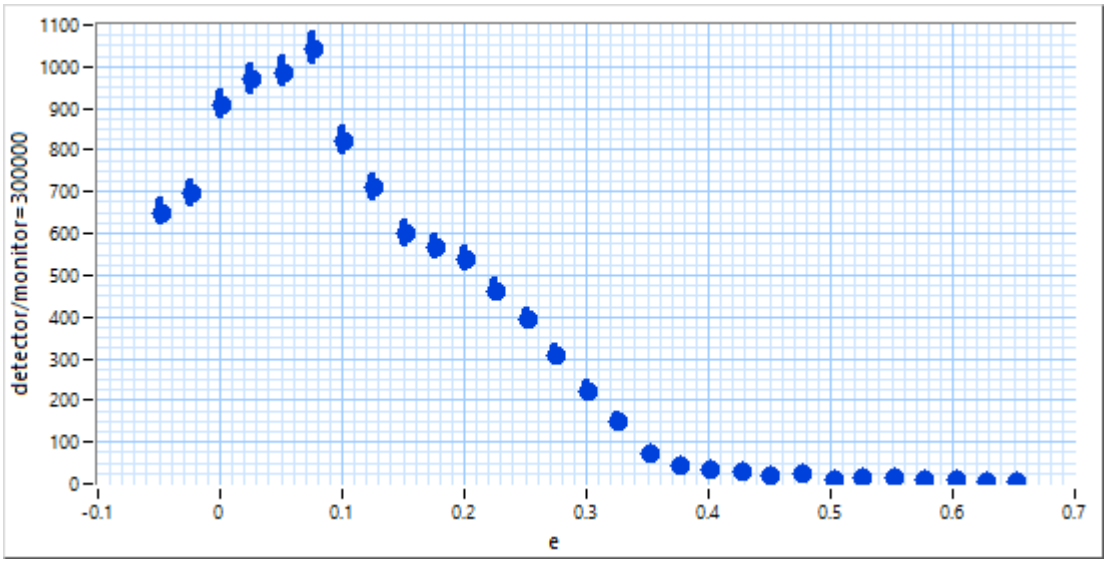
#111 h -0.7



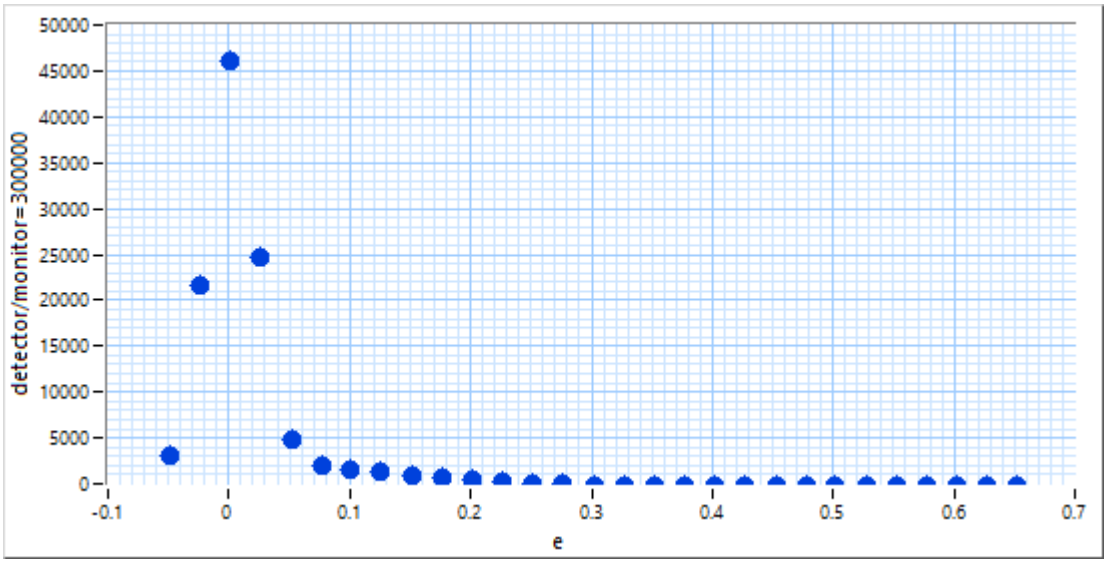
#112 h -0.8



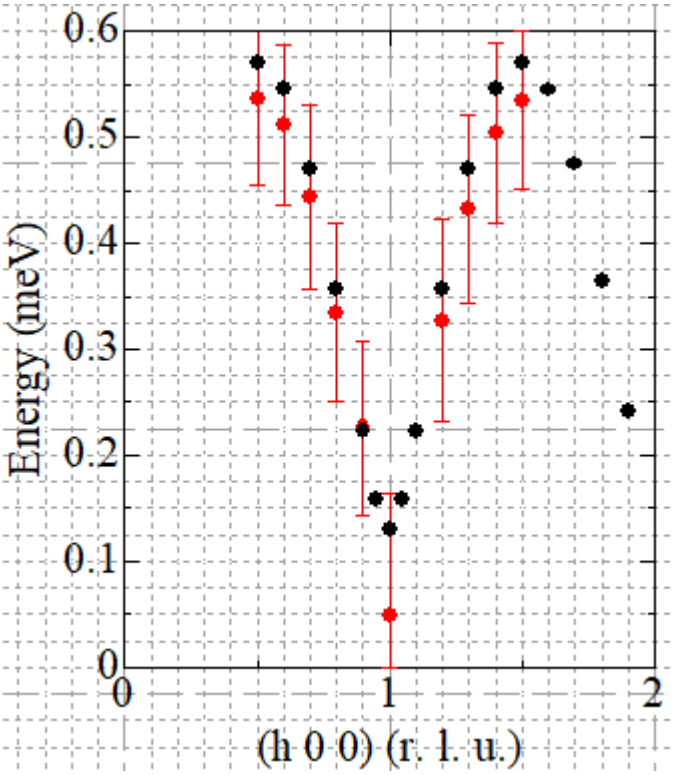
#113 h -0.9



#114 h -1.0

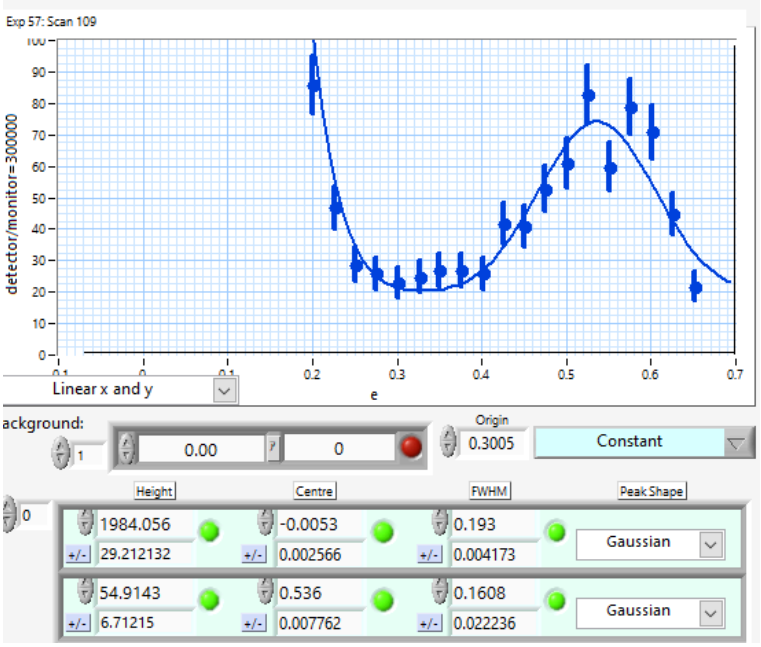


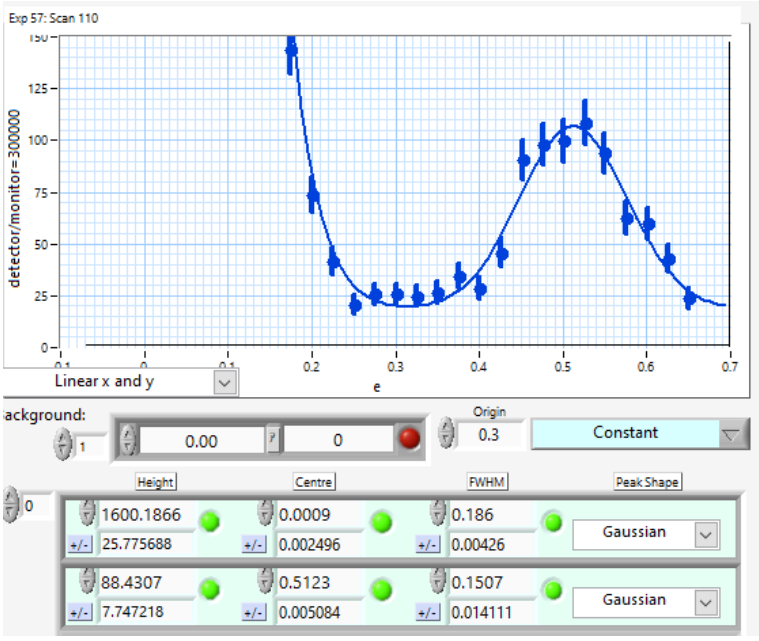
fitting (flat mode, Ef=3.635meV)



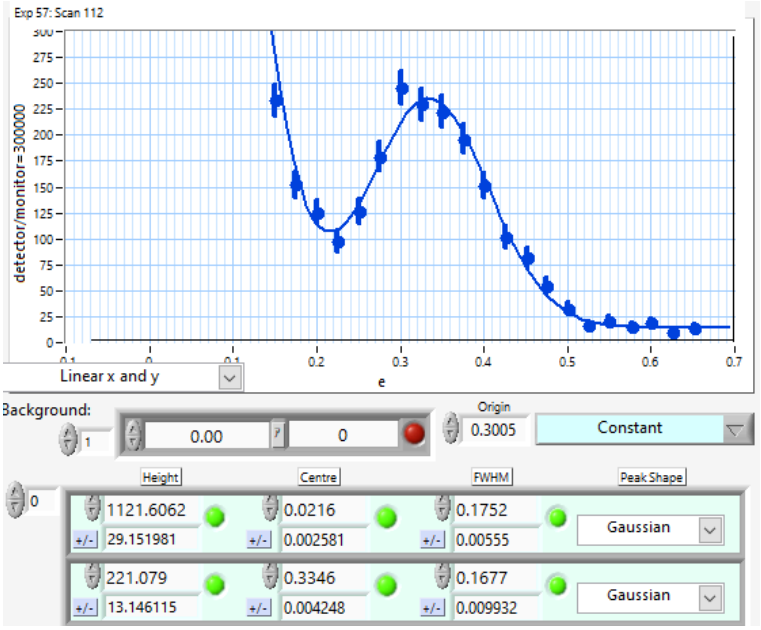
red : this experiment(Ef=3.635meV,guide-open-80'-open,T=2.468K),
black : previous data(Ef=3meV,guide-open-80'-80',T=1.7K)
moment sizeが先行研究の実験条件時の8割程度になっている為、分散が低くなった。

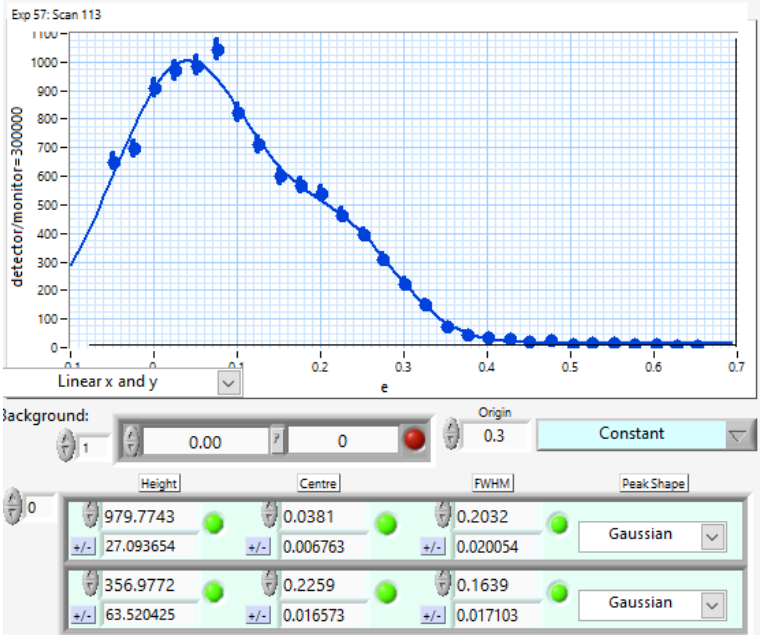
#109~#119

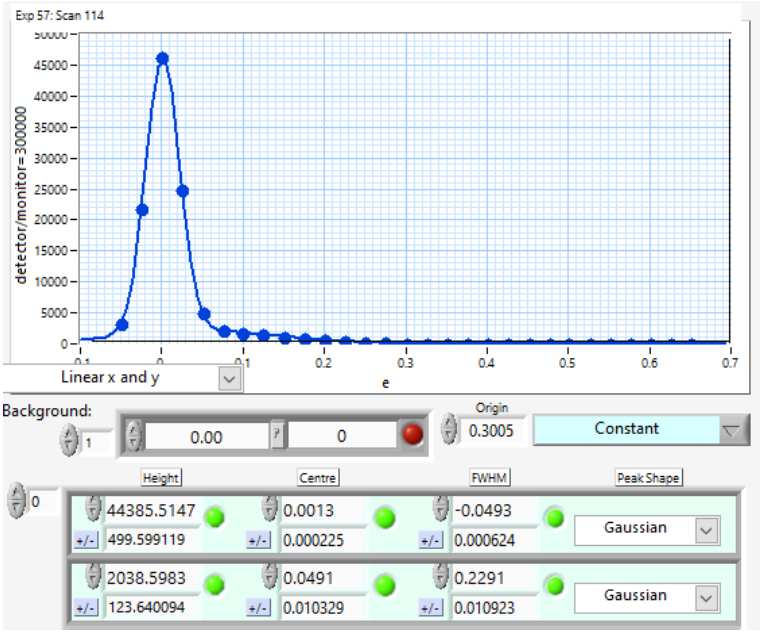


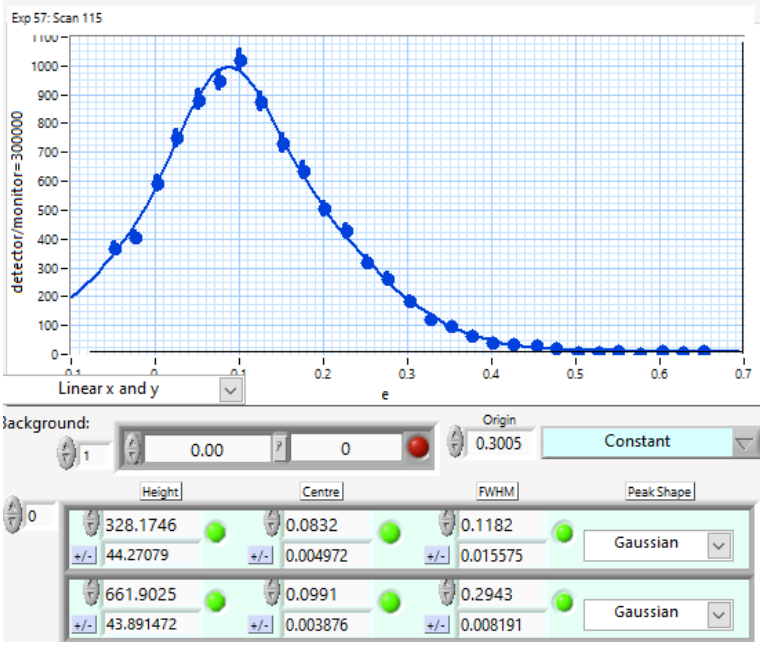

Exp 57: Scan 110
detector/monitor=300000
e
Linear x and y
ackground:
0.00
0
Origin
0.3
Constant
Height
Centre
FWHM
Peak Shape
1600.1866
0.0009
0.186
Gaussian
25.775688
0.002496
0.00426
88.4307
0.5123
0.1507
Gaussian
7.747218
0.005084
0.014111

Exp 57: Scan 111
detector/monitor=300000
e
Linear x and y
Background:
0.00
0
Origin
0.3
Constant
Height
Centre
FWHM
Peak Shape
1274.7508
0.0062
0.1849
Gaussian
29.946484
0.003335
0.005976
137.778
0.4433
0.1728
Gaussian
10.824534
0.005029
0.017225

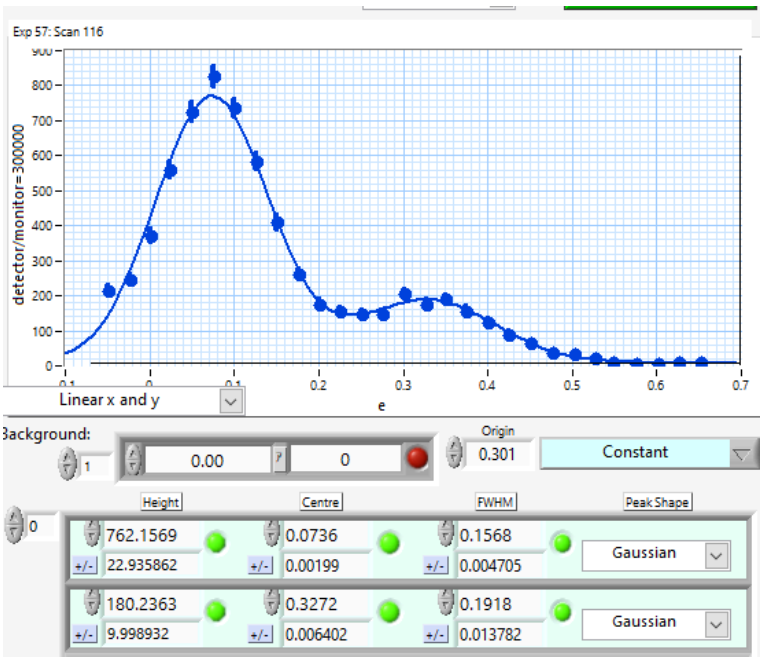

Exp 57: Scan 112
detector/monitor=300000
e
Linear x and y
Background:
0.00
0
Origin
0.3005
Constant
Height
Centre
FWHM
Peak Shape
1121.6062
0.0216
0.1752
Gaussian
29.151981
0.002581
0.00555
221.079
0.3346
0.1677
Gaussian
13.146115
0.004248
0.009932

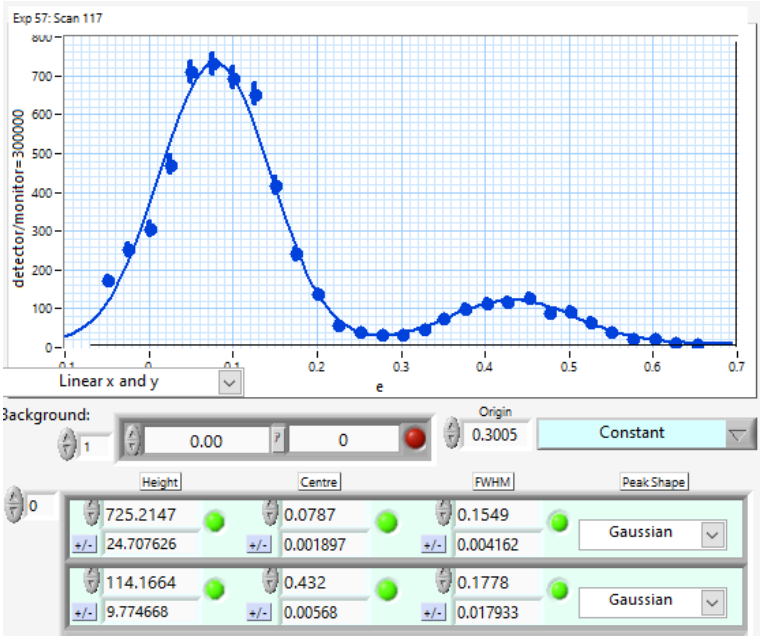

Exp 57: Scan 113
detector/monitor=300000
e
Linear x and y
Background:
0.00
0
Origin
0.3
Constant
Height
Centre
FWHM
Peak Shape
979.7743
0.0381
0.2032
Gaussian
27.093654
0.006763
0.020054
356.9772
0.2259
0.1639
Gaussian
63.520425
0.016573
0.017103

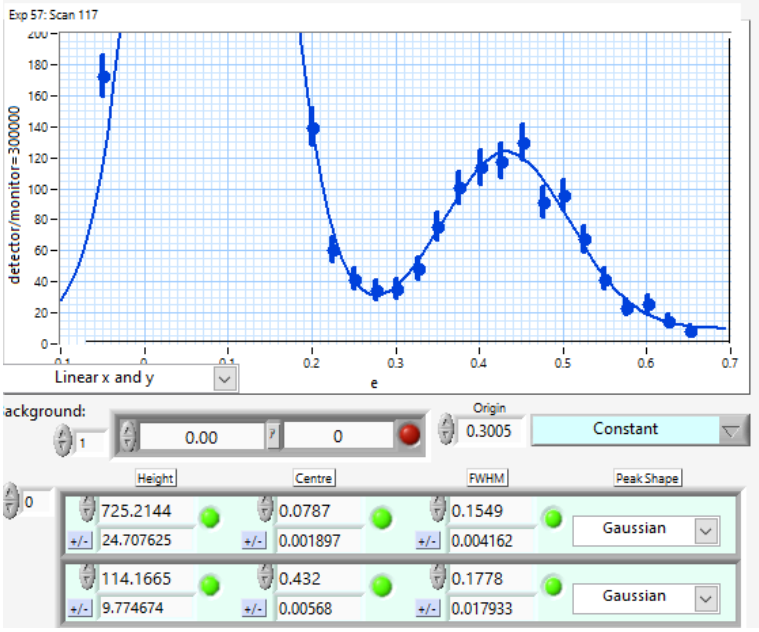


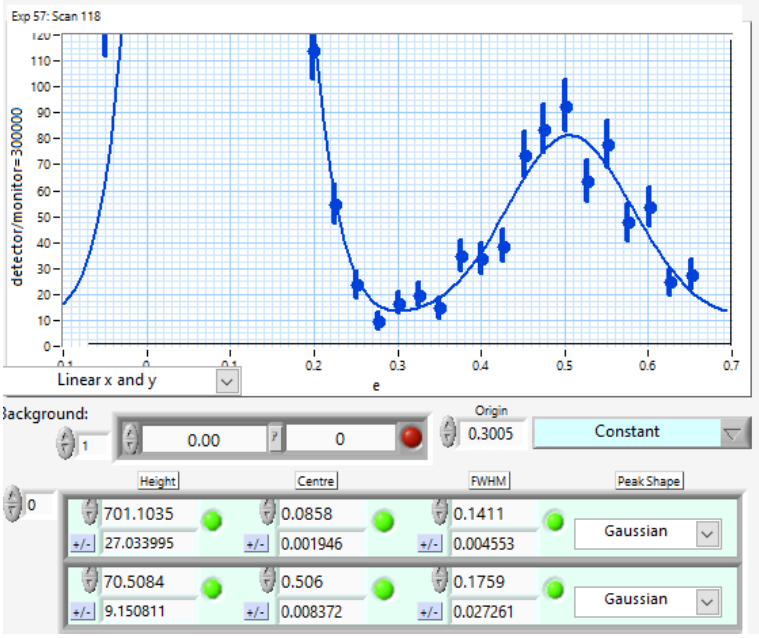


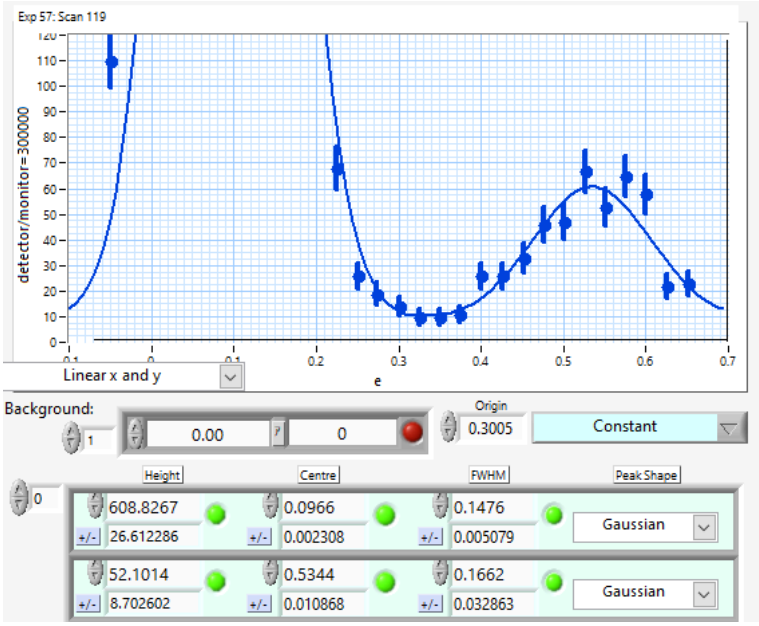
これについては除外する。


Exp 57: Scan 116
detector/monitor=300000
e
Linear x and y
Background:
0.00
0
Origin
0.301
Constant
Height
Centre
FWHM
Peak Shape
762.1569
0.0736
0.1568
Gaussian
22.935862
0.00199
0.004705
180.2363
0.3272
0.1918
Gaussian
9.998932
0.006402
0.013782


Exp 57: Scan 117
detector/monitor=300000
e
Linear x and y
Background:
0.00
0
Origin
0.3005
Constant
Height
Centre
FWHM
Peak Shape
725.2147
0.0787
0.1549
Gaussian
24.707626
0.001897
0.004162
114.1664
0.432
0.1778
Gaussian
9.774668
0.00568
0.017933


Exp 57: Scan 117
detector/monitor=300000
e
Linear x and y
ackground:
0.00
0
Origin
0.3005
Constant
Height
Centre
FWHM
Peak Shape
725.2144
0.0787
0.1549
Gaussian
24.707625
0.001897
0.004162
114.1665
0.432
0.1778
Gaussian
9.774674
0.00568
0.017933


Exp 57: Scan 118
detector/monitor=300000
e
Linear x and y
Background:
0.00
0
Origin
0.3005
Constant
Height
Centre
FWHM
Peak Shape
701.1035
0.0858
0.1411
Gaussian
27.033995
0.001946
0.004553
70.5084
0.506
0.1759
Gaussian
9.150811
0.008372
0.027261



11/09 01:11

HFA modeへ移行

2nd narrower取り外し
2 blade rad colへ変更
analyzer遮蔽体両側開放
spacer取付

Anly.Focus 1	TA	4.176
Anly.Focus 2	TB	3.006
Anly.Focus 3	TC	1.386
Anly.Focus 4	TD	1.314
Anly.Focus 5	TE	2.844
Anly.Focus 6	TF	4.212
Anly.Focus 7	TG	12.166
Anly.Focus 8	TH	12.166

guide-open-Be/PG filter-sample-2blade rad col-Be-HFA-spacer-open, Narrowers full open for 1

drive c2 -59.9 (#95-100と同じ)

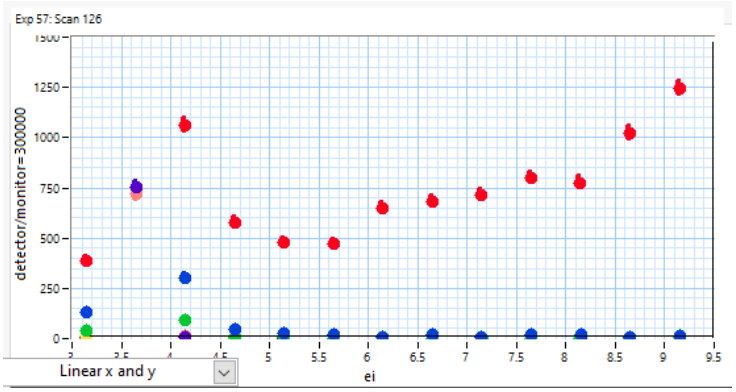
focusing mode background measurement

01:47 scan start

#121と#95を比較。HFAで弾性散乱近傍で強度が3倍以上になっていることを確認。

drive a2 10
#121 scan ei 3.135 9.135 0.5 preset mcu 2
drive a2 20
#122 scan ei 3.135 9.135 0.5 preset mcu 2
drive a2 30
#123 scan ei 3.135 9.135 0.5 preset mcu 2
drive a2 40
#124 scan ei 3.135 9.135 0.5 preset mcu 2
drive a2 60
#125 scan ei 3.135 9.135 0.5 preset mcu 2
drive a2 70
#126 scan ei 3.135 9.135 0.5 preset mcu 2

#121-#126
Red: #122, a2=20deg is no good

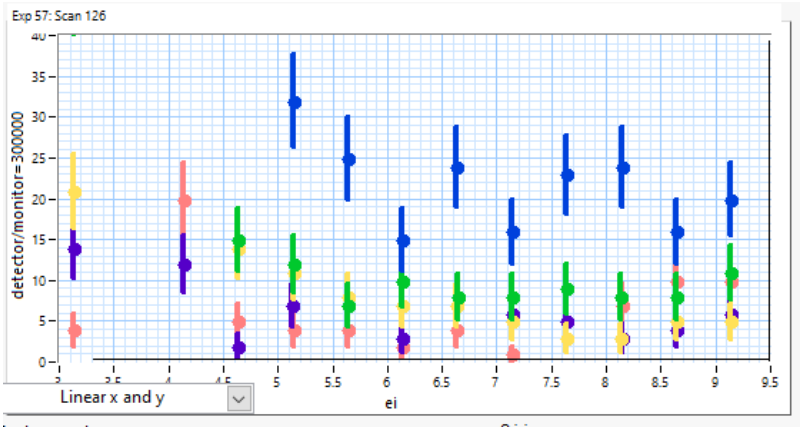


At A2=20deg. B4C shield below may not be enough.

Direct beam cather is modified.
3 plates of Cd, 25cm x 25 cm, thickness 1mm + B4C rubber

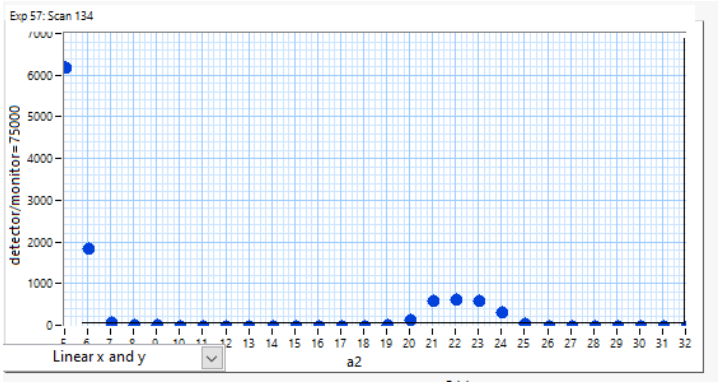
#121-#126

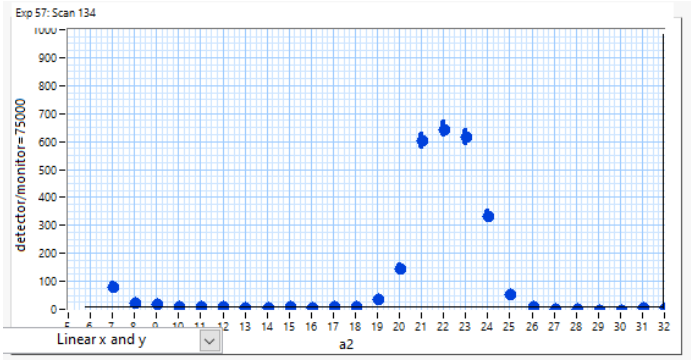
Blue: #121, a2=10deg
Red: #122, a2=20deg
Green: #122, a2=30deg
Yellow: #122, a2=40deg
purple: #122, a2=60deg
pink: #122, a2=70deg



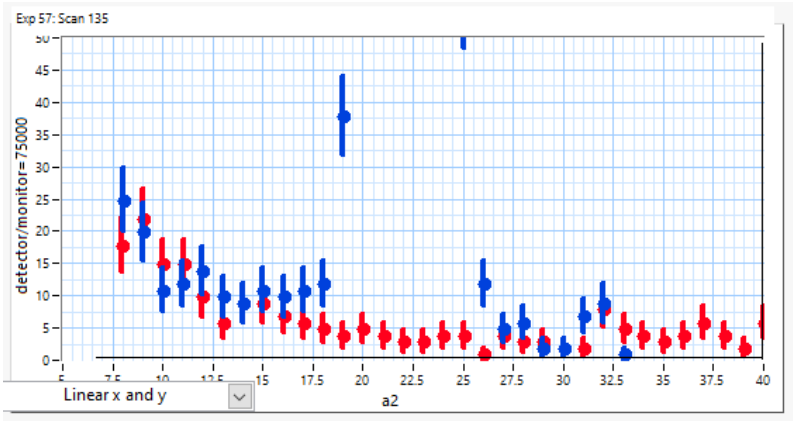
#127 scan h -0.5 k 0 l 0 e -0.05 0.65 0.025 preset mcu 1
#128 scan h -0.6 k 0 l 0 e -0.05 0.65 0.025 preset mcu 1
#129 scan h -0.7 k 0 l 0 e -0.05 0.65 0.025 preset mcu 1
#130 scan h -0.8 k 0 l 0 e -0.05 0.65 0.025 preset mcu 1
#131 scan h -0.9 k 0 l 0 e -0.05 0.65 0.025 preset mcu 1

Terminate #131 at e=0.2 meV
#134 scan a2 5 40 1 preset mcu 0.5 at Ei=4.634 and Ef=3.635 meV

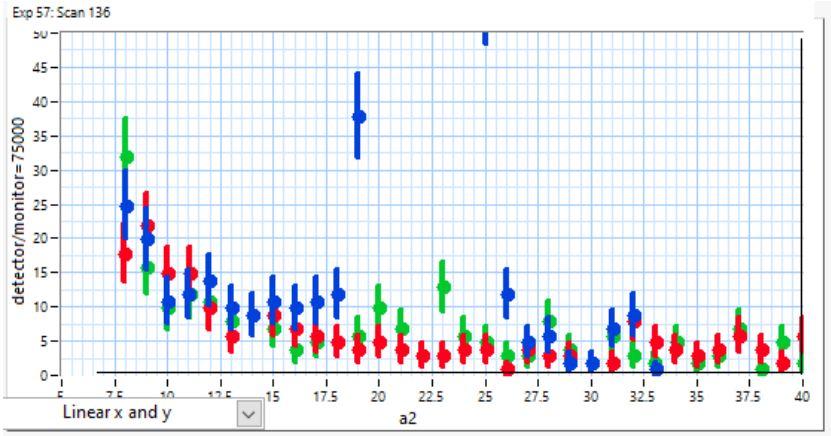




#135 scan a2 5 40 1 preset mcu 0.5 at Ei=4.634 and Ef=3.635 meV using revised direct beam catcher above

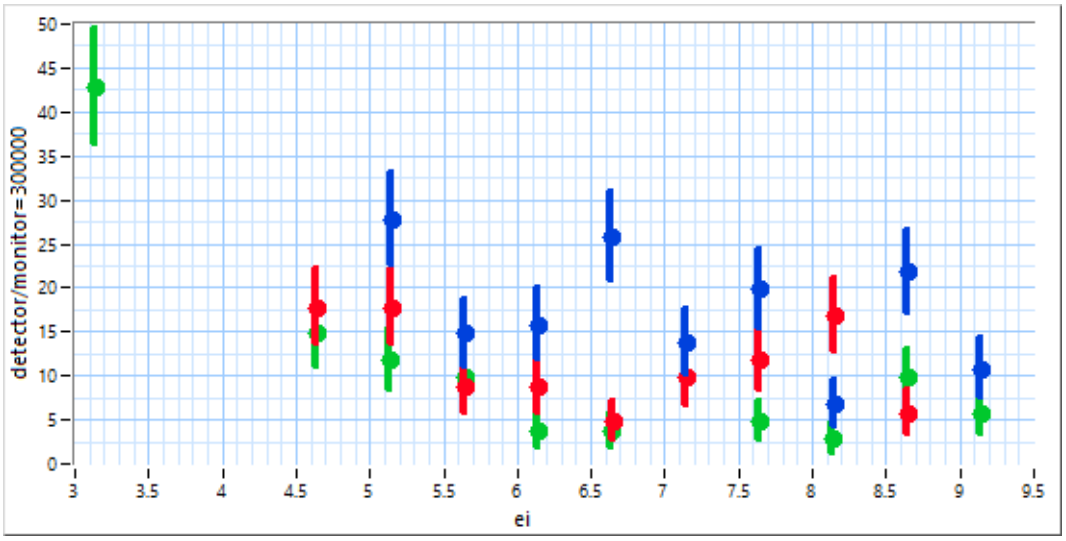


#136 scan a2 5 40 1 preset mcu 0.5 at Ei=4.634 and Ef=3.635 meV using revised direct beam catcher and B4c rubber in front of spacer



#132 scan h -1 k 0 l 0 e -0.05 0.65 0.025 preset mcu 1
#133 scan h -1.1 k 0 l 0 e -0.05 0.65 0.025 preset mcu 1
#134 scan h -1.2 k 0 l 0 e -0.05 0.65 0.025 preset mcu 1
#135 scan h -1.3 k 0 l 0 e -0.05 0.65 0.025 preset mcu 1
#136 scan h -1.4 k 0 l 0 e -0.05 0.65 0.025 preset mcu 1
#137 scan h -1.5 k 0 l 0 e -0.05 0.65 0.025 preset mcu 1

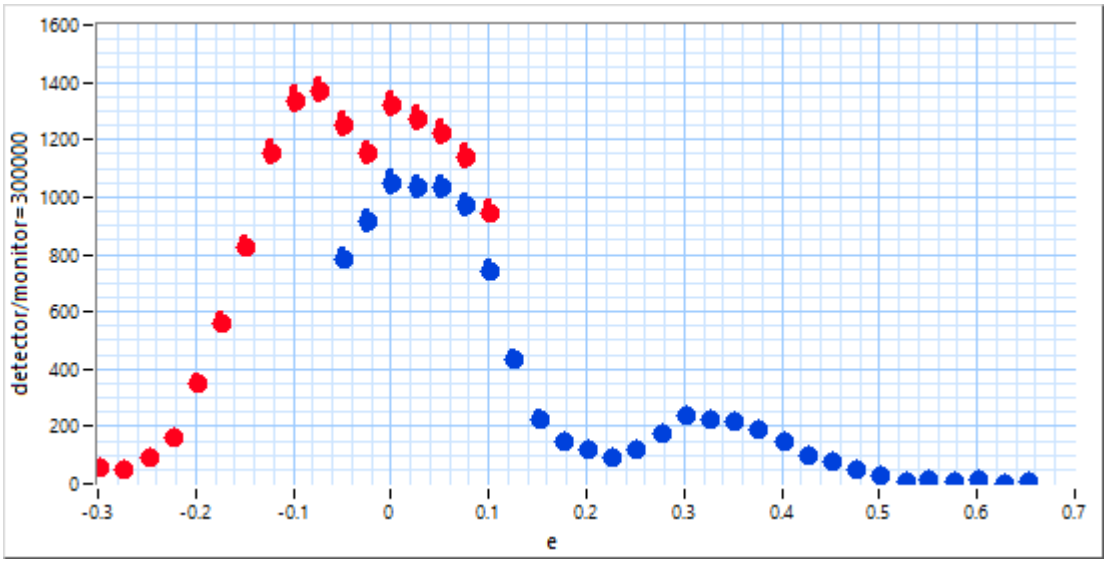
drive a2 10
#138 scan ei 3.135 9.135 0.5 preset mcu 2
drive a2 20
#139 scan ei 3.135 9.135 0.5 preset mcu 2
drive a2 30
#140 scan ei 3.135 9.135 0.5 preset mcu 2



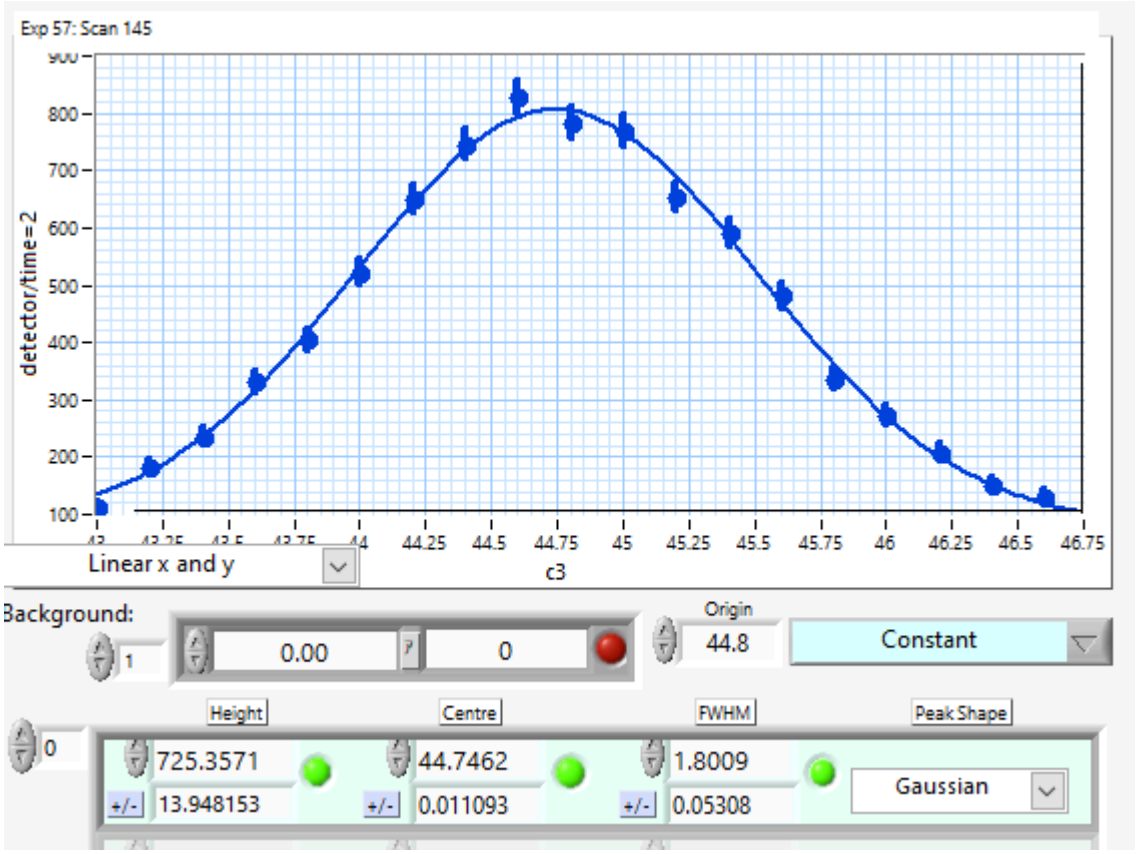
blue #138, red #139, green #140

guide-open-Be/PG filter-sample-80’-Be-falt ana-open, Narrowers full open for 1, spacer off

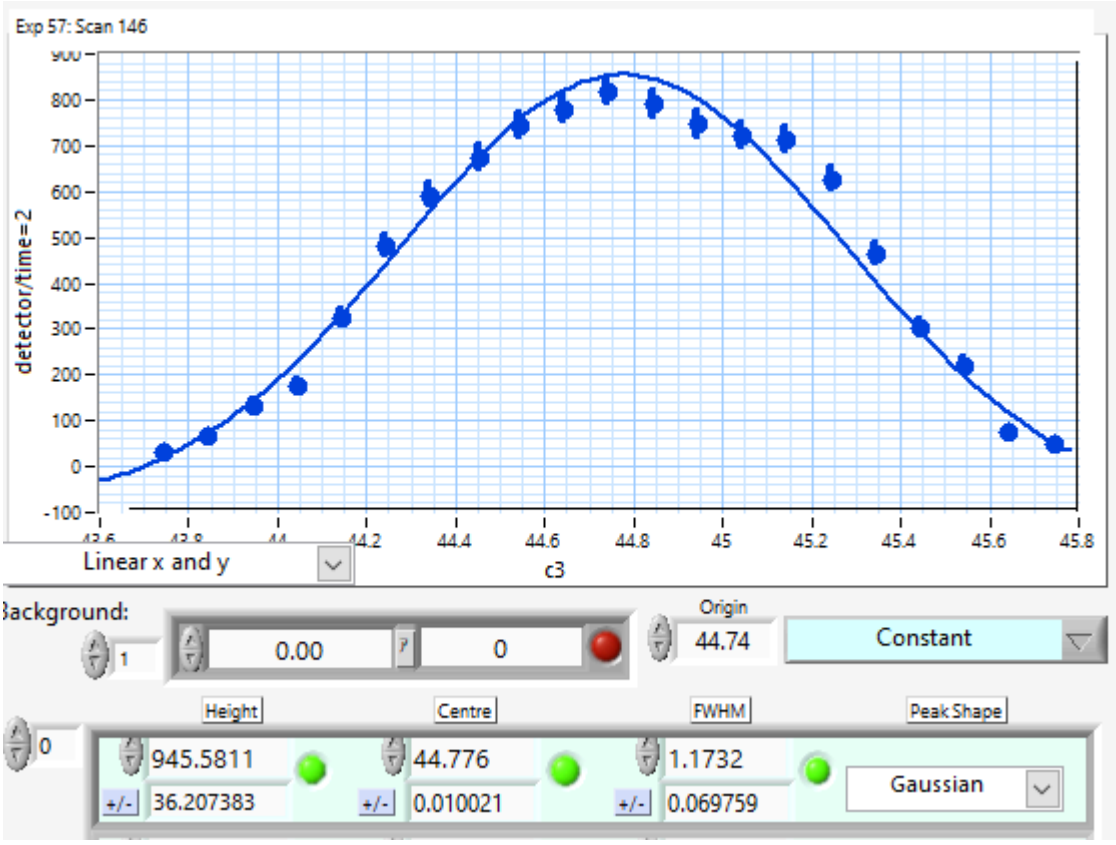
#141 scan h -0.8 k 0 l 0 e -0.3 0.1 0.025 preset mcu 2

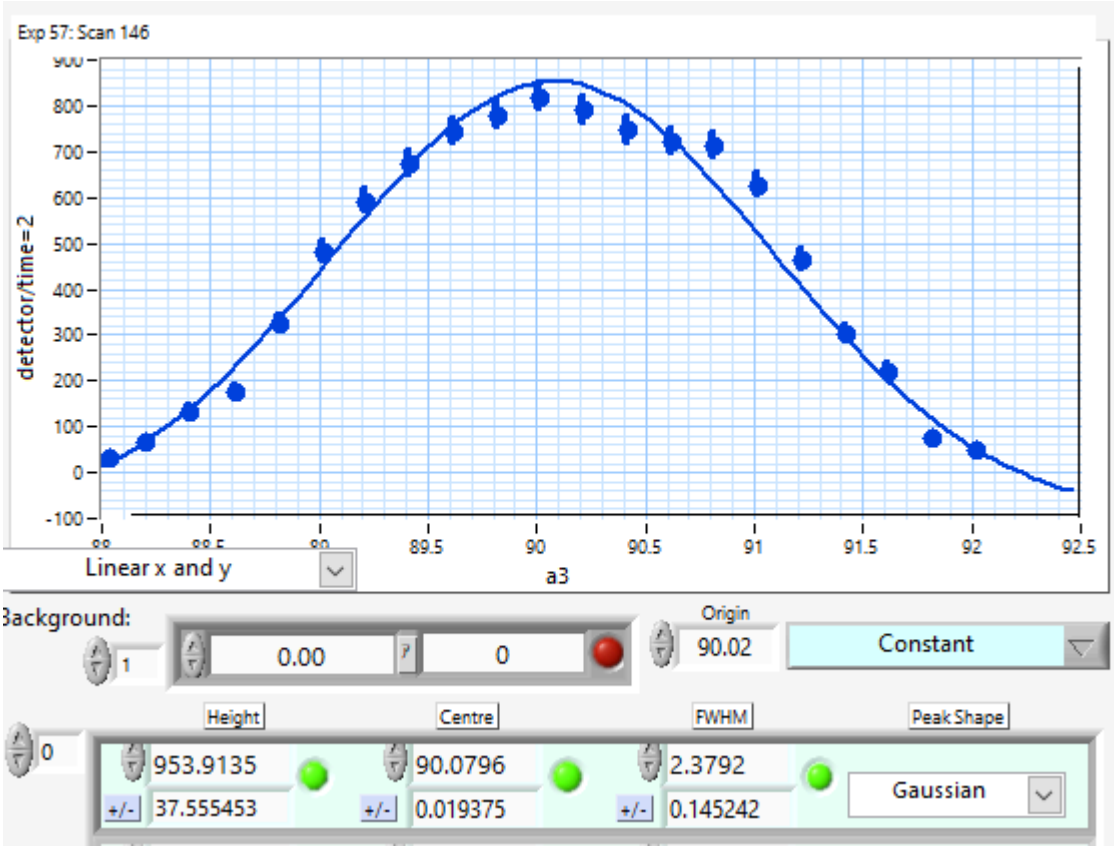


flatになっているか、確認するためc3-a3スキャン。
#145 scan c3 @(c3)-2 @(c3)+2 0.2 preset time 2 @(-1 0 0)

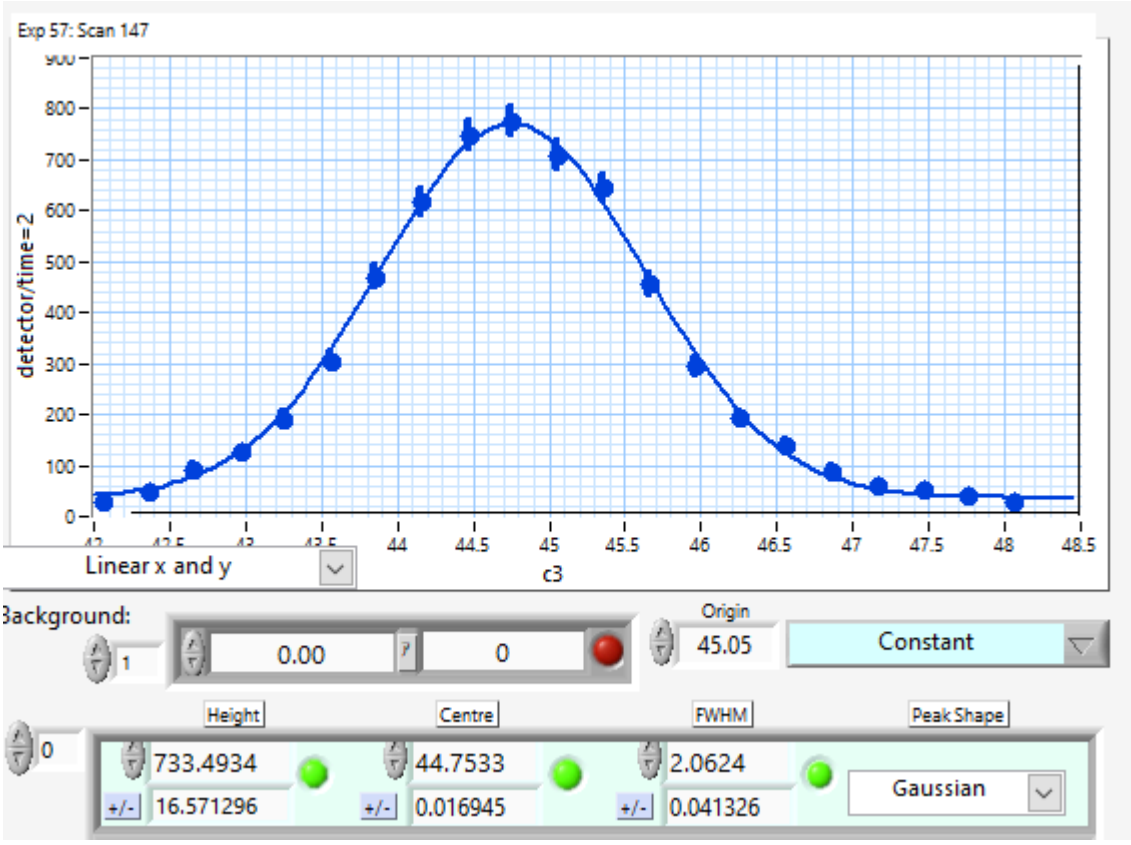


#146 scan c3 @(c3)-1 @(c3)+1 0.1 a3 @(a3)-2 @(a3)+2 0.2 preset time 2

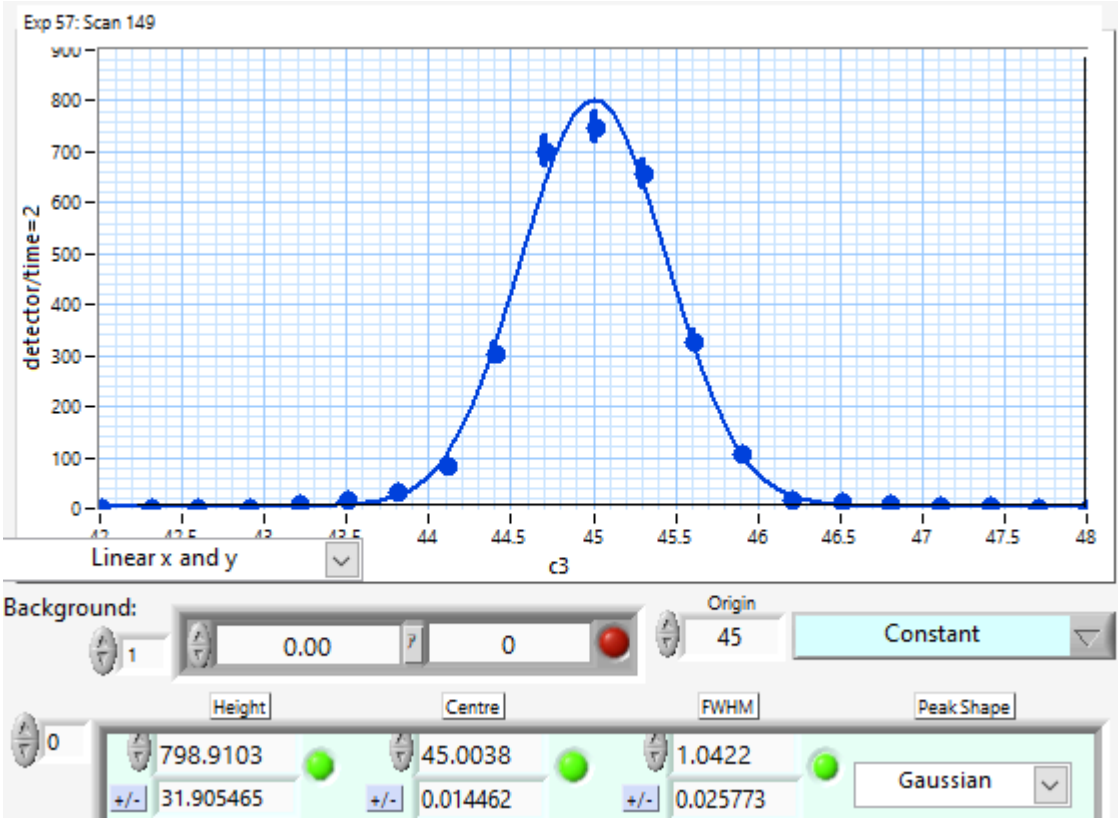


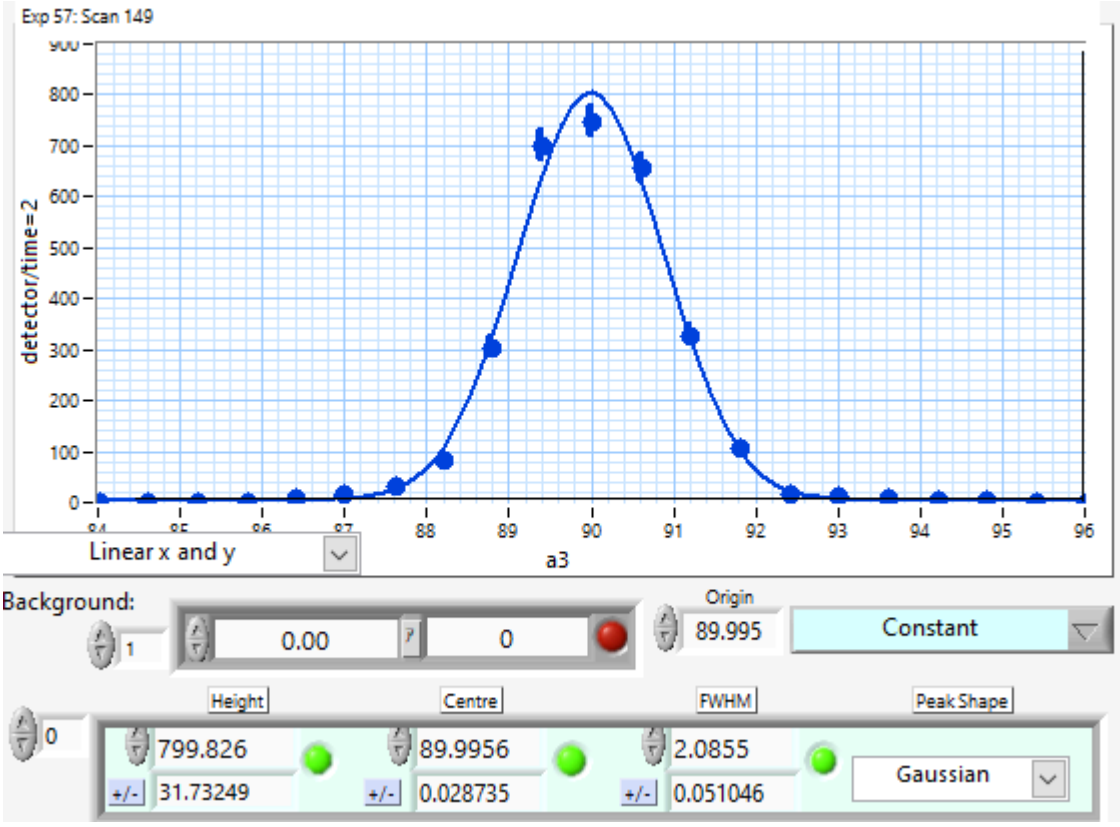


#147 scan c3 @(c3)-3 @(c3)+3 0.3 preset time 2



#149 scan c3 @(c3)-3 @(c3)+3 0.3 a3 @(a3)-6 @(a3)+6 0.6 preset time 2





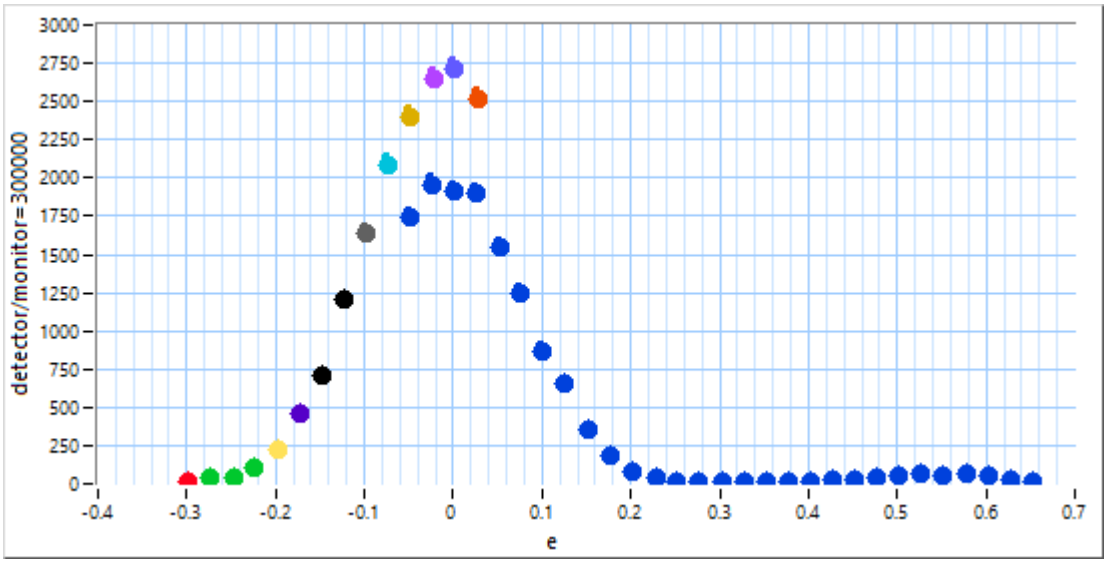
Setting the following motor zeros:

Motor Name	Motor Alias	Current angle	Set angle
c3	c3	44.7700	45.0000

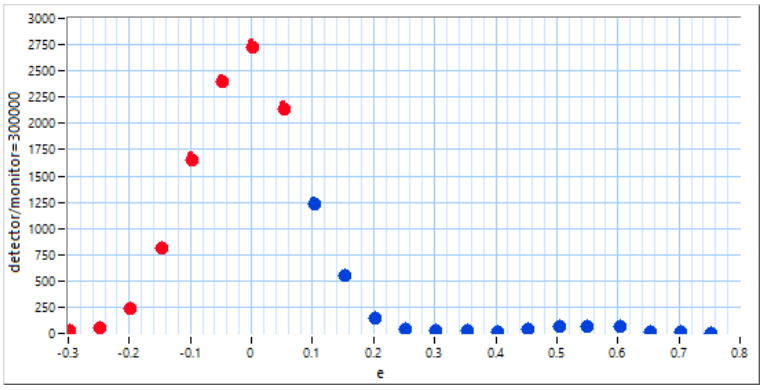
Setting the following motor zeros:

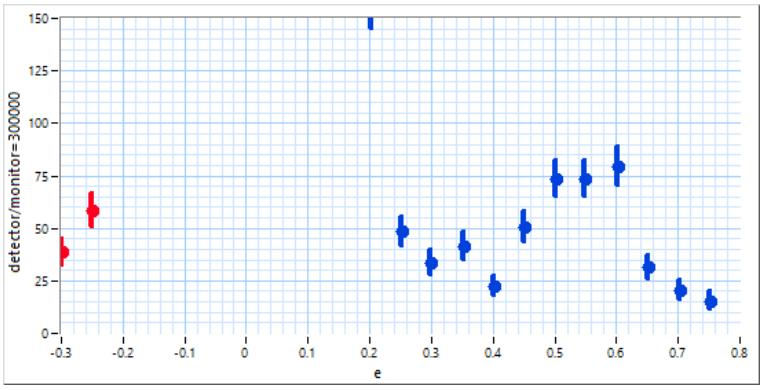
Motor Name	Motor Alias	Current angle	Set angle
a3	a3	90.0800	90.0000

#150 scan h -0.5 k 0 l 0 e -0.3 0.1 0.025 preset mcu 2 (#109)



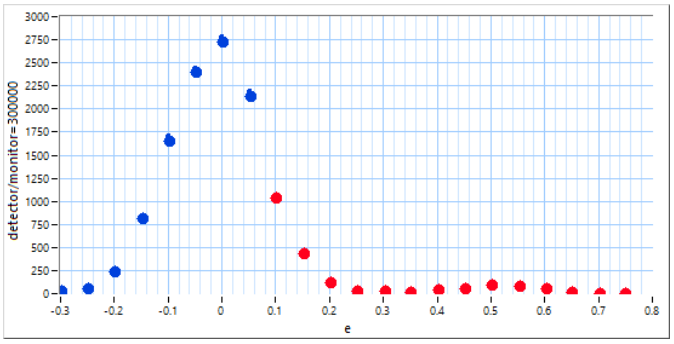
#159 scan h -0.5 k 0 l 0 e 0.1 0.75 0.05 preset mcu 2 (&#154)

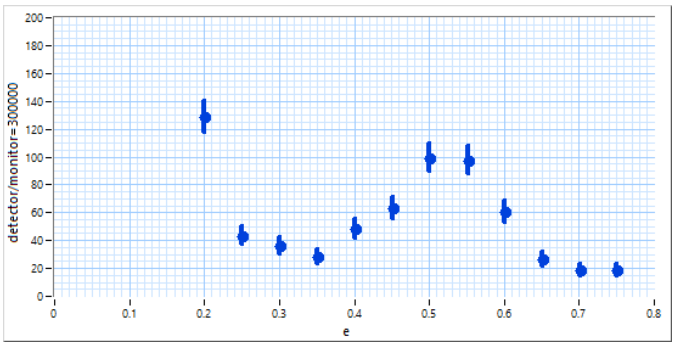




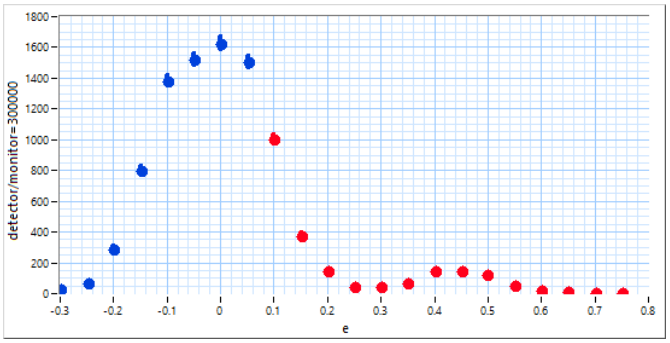
22:46

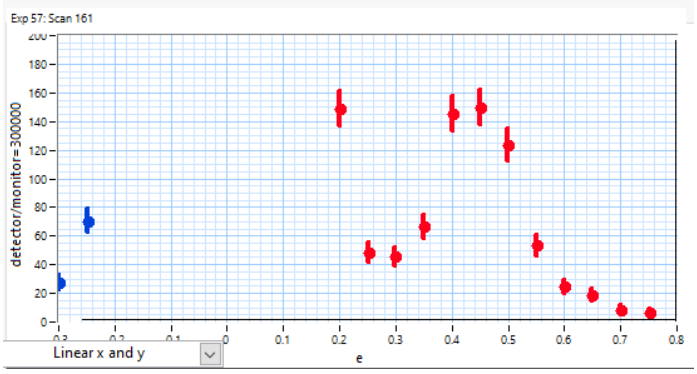
#160 scan h -0.6 k 0 l 0 e 0.1 0.75 0.05 preset mcu 2 (&#155) (35min)



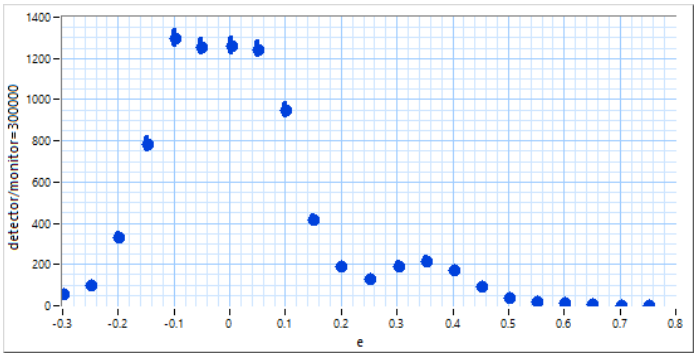


#161 scan h -0.7 k 0 l 0 e 0.1 0.75 0.05 preset mcu 2 (&#156)

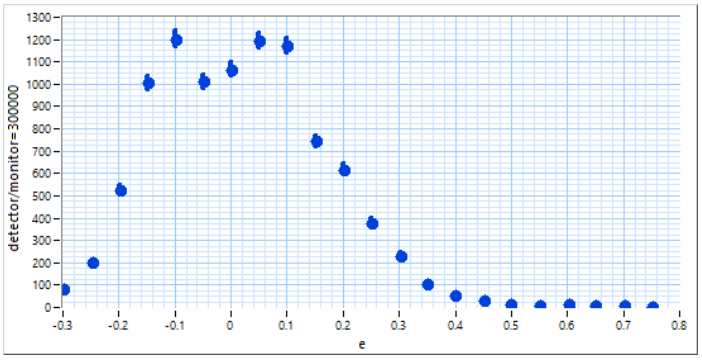




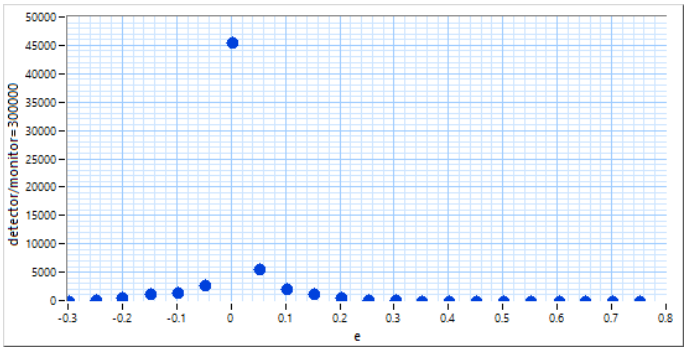
#162 scan h -0.8 k 0 l 0 e -0.3 0.75 0.05 preset mcu 2(55min)



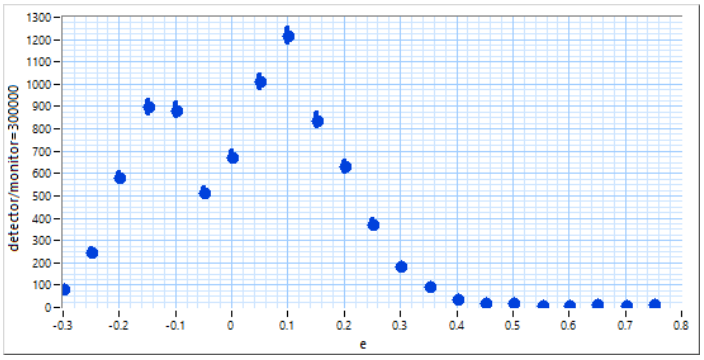
#163 scan h -0.9 k 0 l 0 e -0.3 0.75 0.05 preset mcu 2



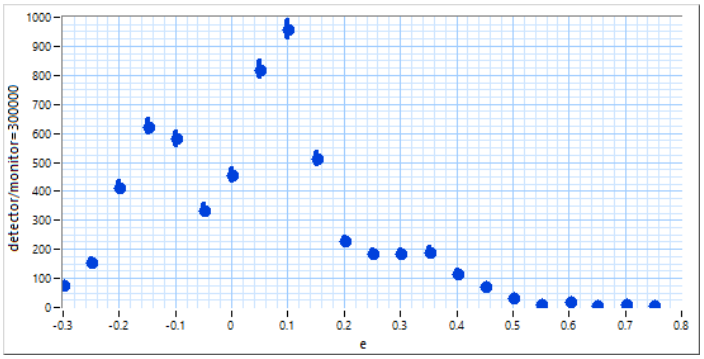
#164 scan h -1.0 k 0 l 0 e -0.3 0.75 0.05 preset mcu 2



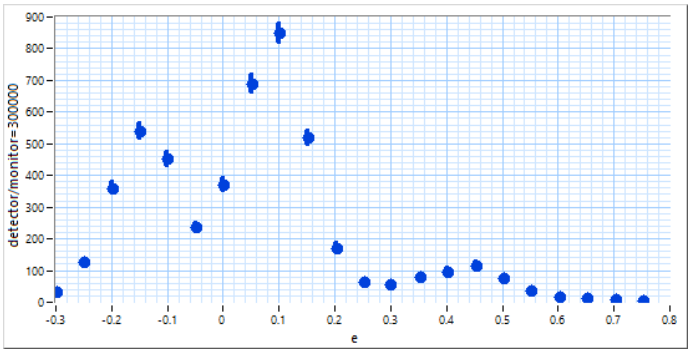
#165 scan h -1.1 k 0 l 0 e -0.3 0.75 0.05 preset mcu 2



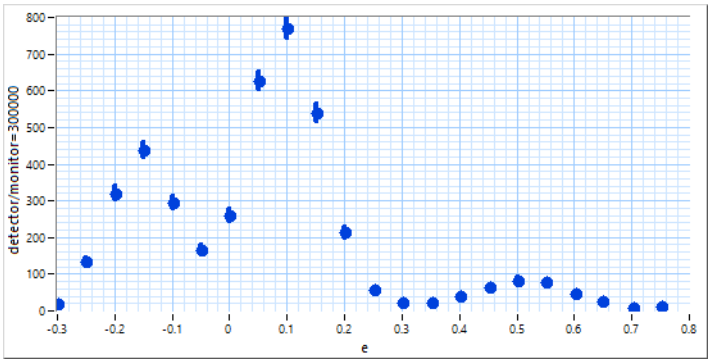
#166 scan h -1.2 k 0 l 0 e -0.3 0.75 0.05 preset mcu 2



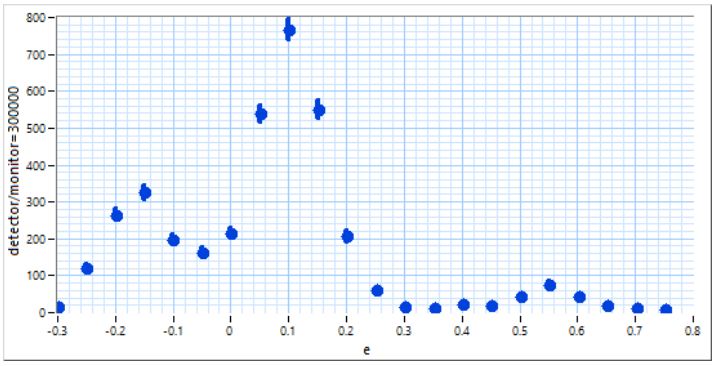
#167 scan h -1.3 k 0 l 0 e -0.3 0.75 0.05 preset mcu 2



#168 scan h -1.4 k 0 l 0 e -0.3 0.75 0.05 preset mcu 2



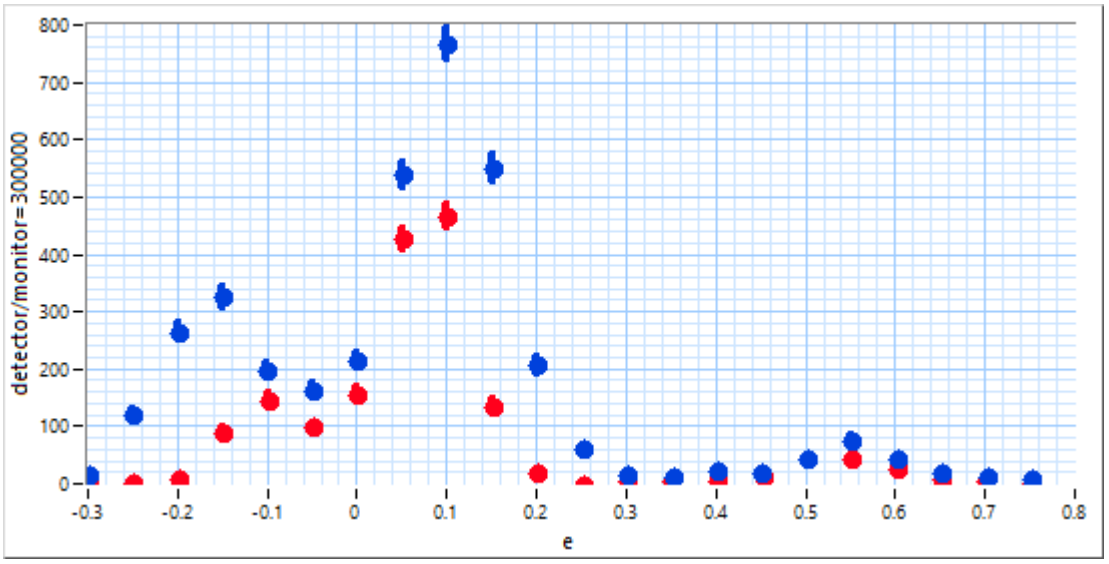
#169 scan h -1.5 k 0 l 0 e -0.3 0.75 0.05 preset mcu 2

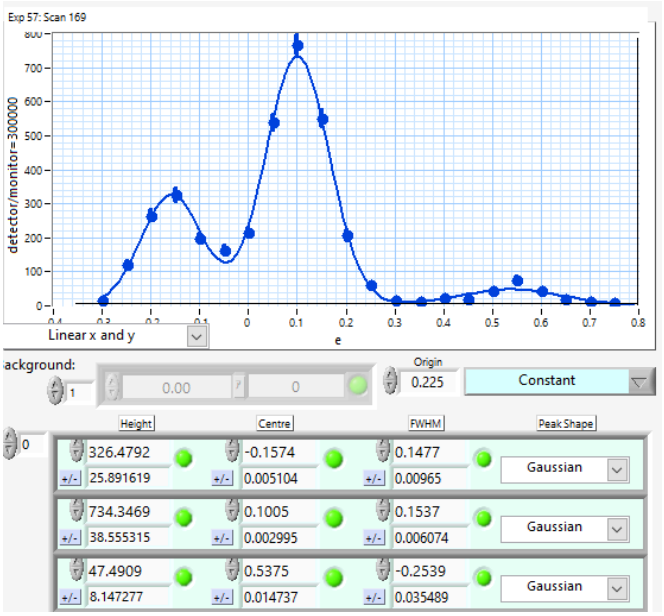


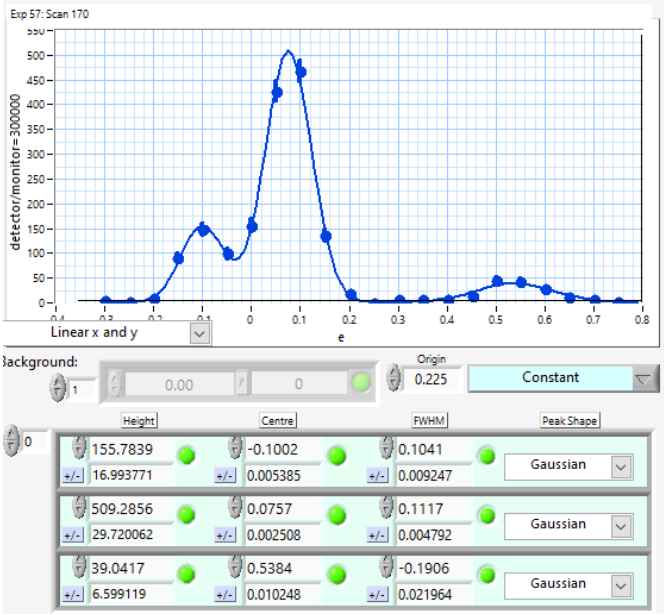
11/10

guide-open-Be/PG filter-sample-80’-Be-falt ana-open, Ef=3meV

#170 scan h -1.5 k 0 l 0 e -0.3 0.75 0.05 preset mcu 2







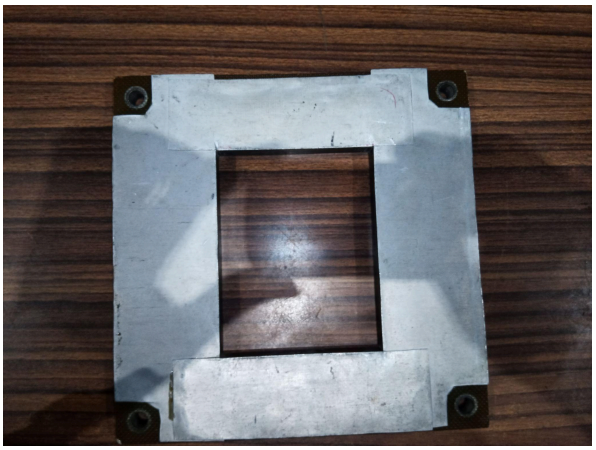
-0.15meVのピークは-0.1meVへ、0.1meVのピークは0.75meVに移動した。->偽のピークと結論づけた。

blue #169(Ef3.635meV), red #170(Ef3.0)
Spice再起動
パラメータが変わっていないことを確認

guide-open-Be/PG filter-sample-4blade rad col'-Be-focus ana-open, Ef=3.635meV

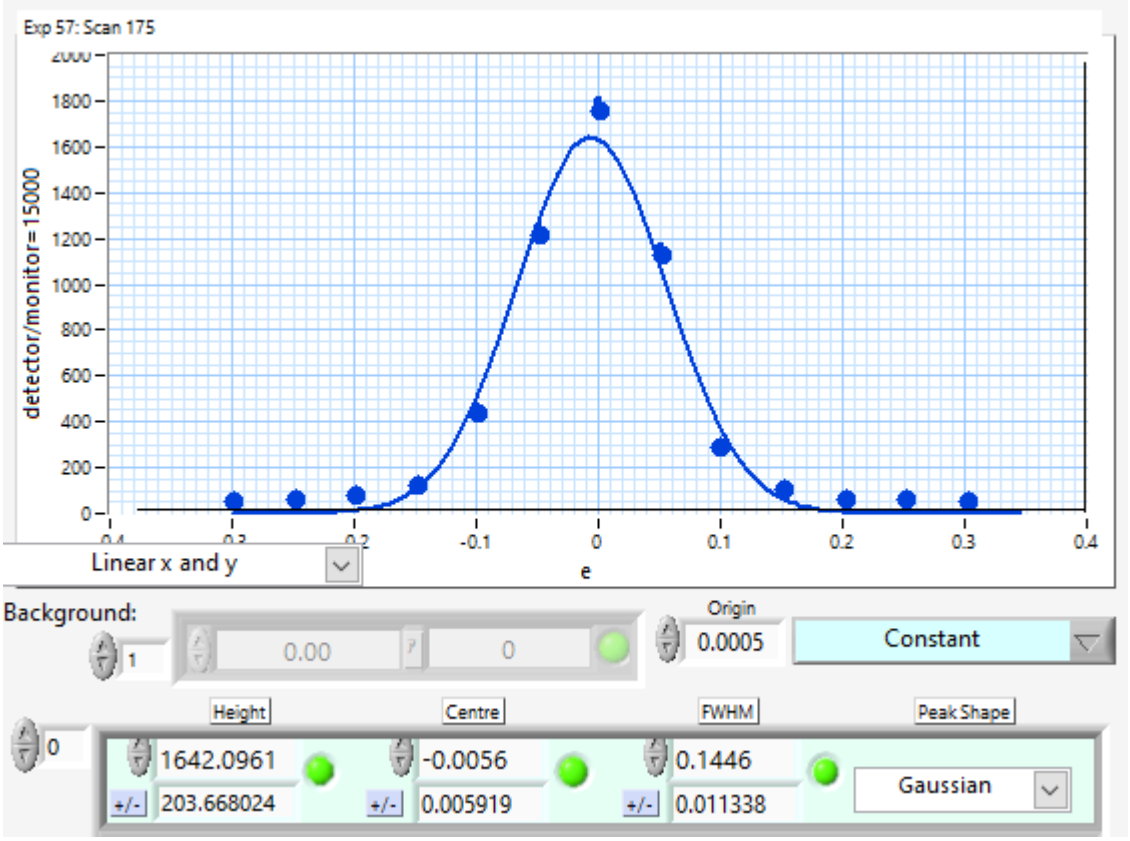
drive a2 10
#171 scan ei 3.135 9.135 0.5 preset mcu 2

drive a2 20
#172 scan ei 3.135 9.135 0.5 preset mcu 2
The apparatus below was forgotten to be installed in front of Rad Col.



Background scan using the apparatus was performed below.
#174 scan ei 3.135 9.135 0.5 preset mcu 2
No change in the background was found.

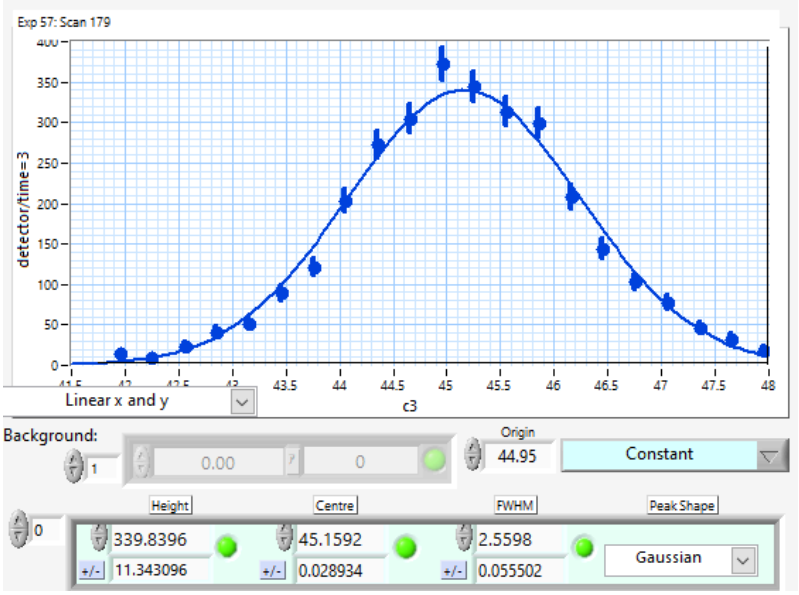
小型GM冷凍機をどかし、アクリルをセット
focusing mode, Ef=3.635meVでエネルギースキャン(c3-a3スキャンは昨日夜行った為)
#175 scan e -0.3 0.3 0.05 preset mcu 0.1



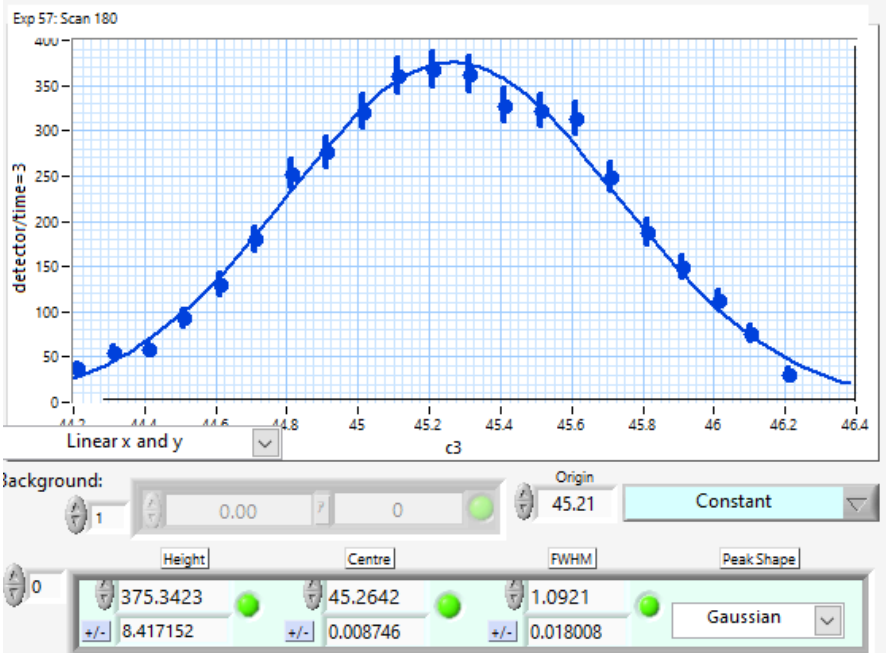
flat mode へ切り替え

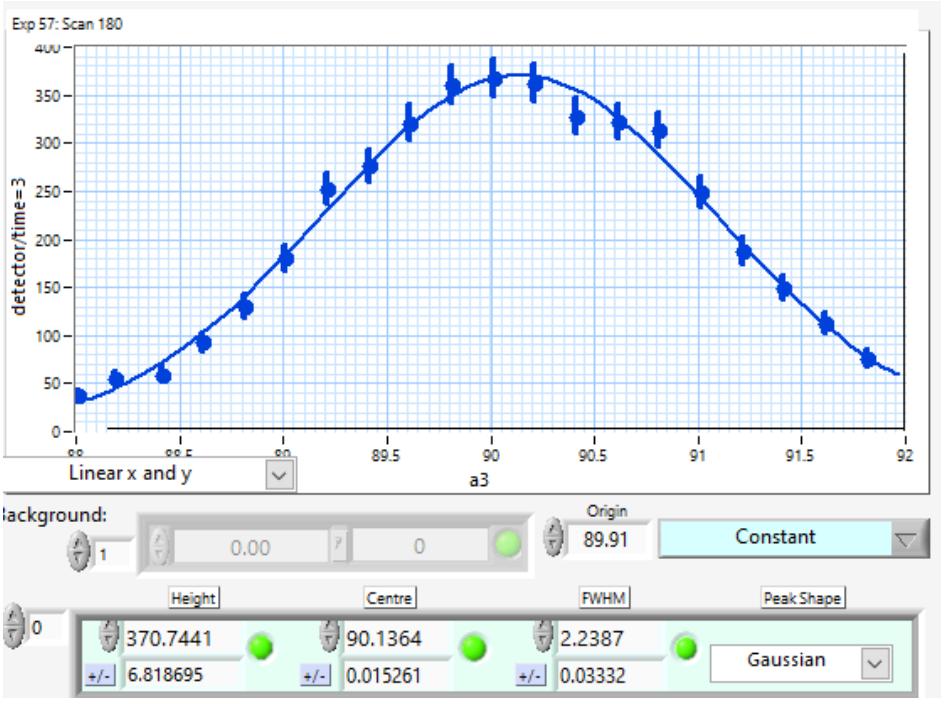
guide-open-Be/PG filter-sample-80’-Be-flat ana-open, Ef=3.635meV, (spacer off)

#177 scan c3 @(c3)-3 @(c3)+3 0.3 preset time 3



#178 scan c3 @(c3)-1 @(c3)+1 0.1 a3 @(a3)-2 @(a3)+2 0.2 preset time 3





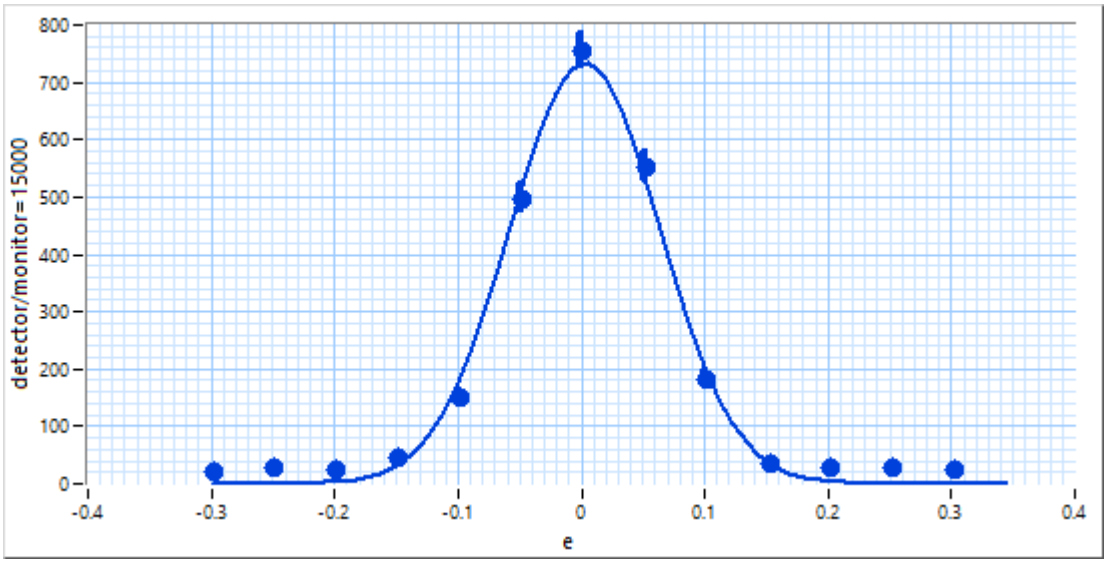
Setting the following motor zeros:

Motor Name	Motor Alias	Current angle	Set angle
c3	c3	45.2600	45.0000

Setting the following motor zeros:

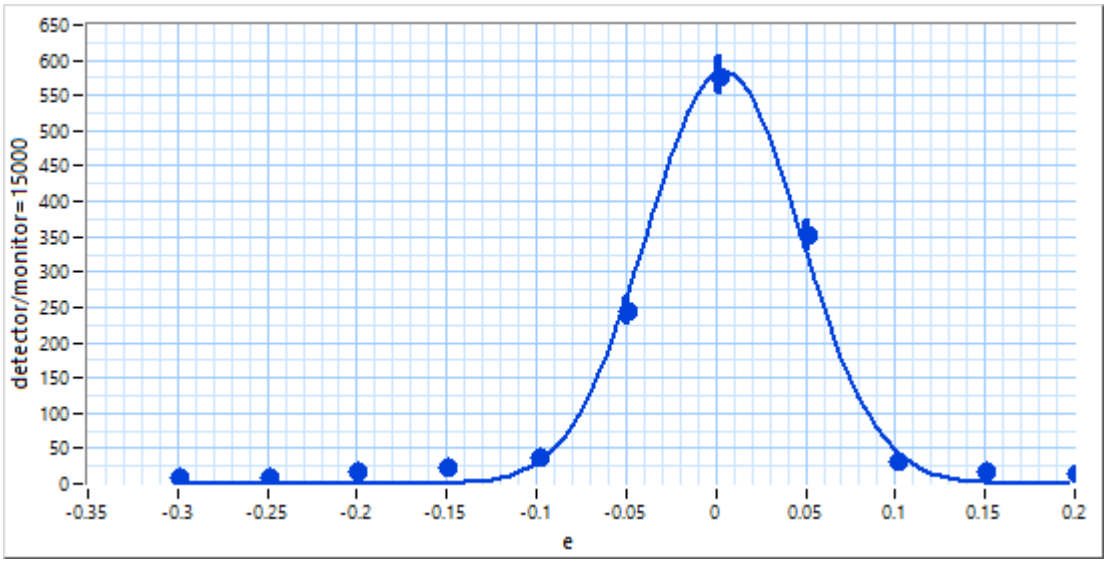
Motor Name	Motor Alias	Current angle	Set angle
a3	a3	90.1300	90.0000

#181 scan e -0.3 0.3 0.05 preset mcu 0.1



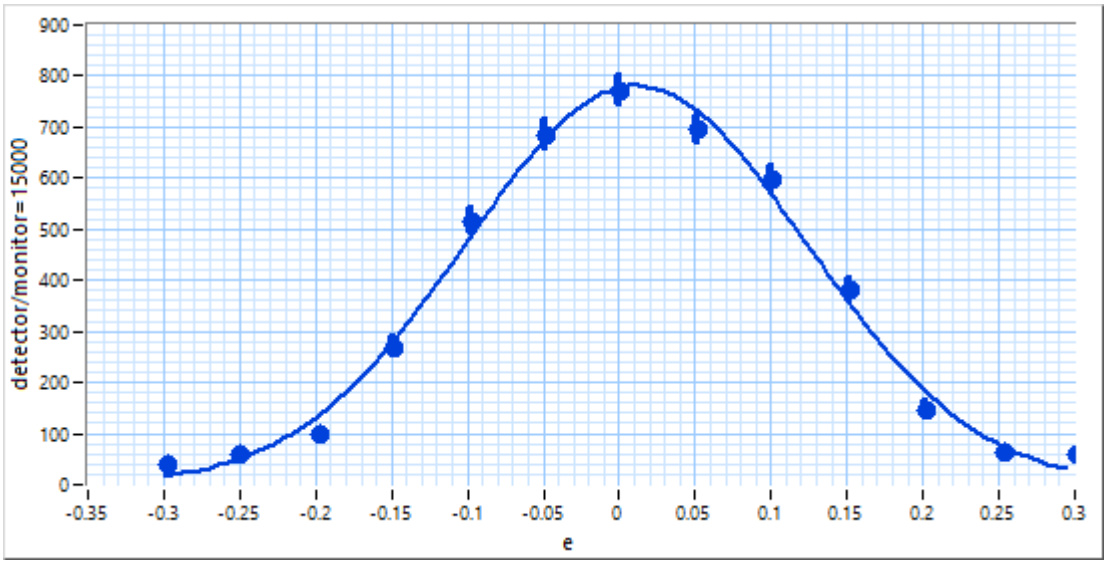
guide-open-Be/PG filter-sample-80’-Be-flat ana-open, Ef=3meV, (spacer off)

#182 scan e -0.3 0.3 0.05 preset mcu 0.1



guide-open-Be/PG filter-sample-80’-Be-flat ana-open, Ef=5meV, (spacer off)

#183 scan e -0.3 0.3 0.05 preset mcu 0.1



setttingに問題なし

実験終了。

last