

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

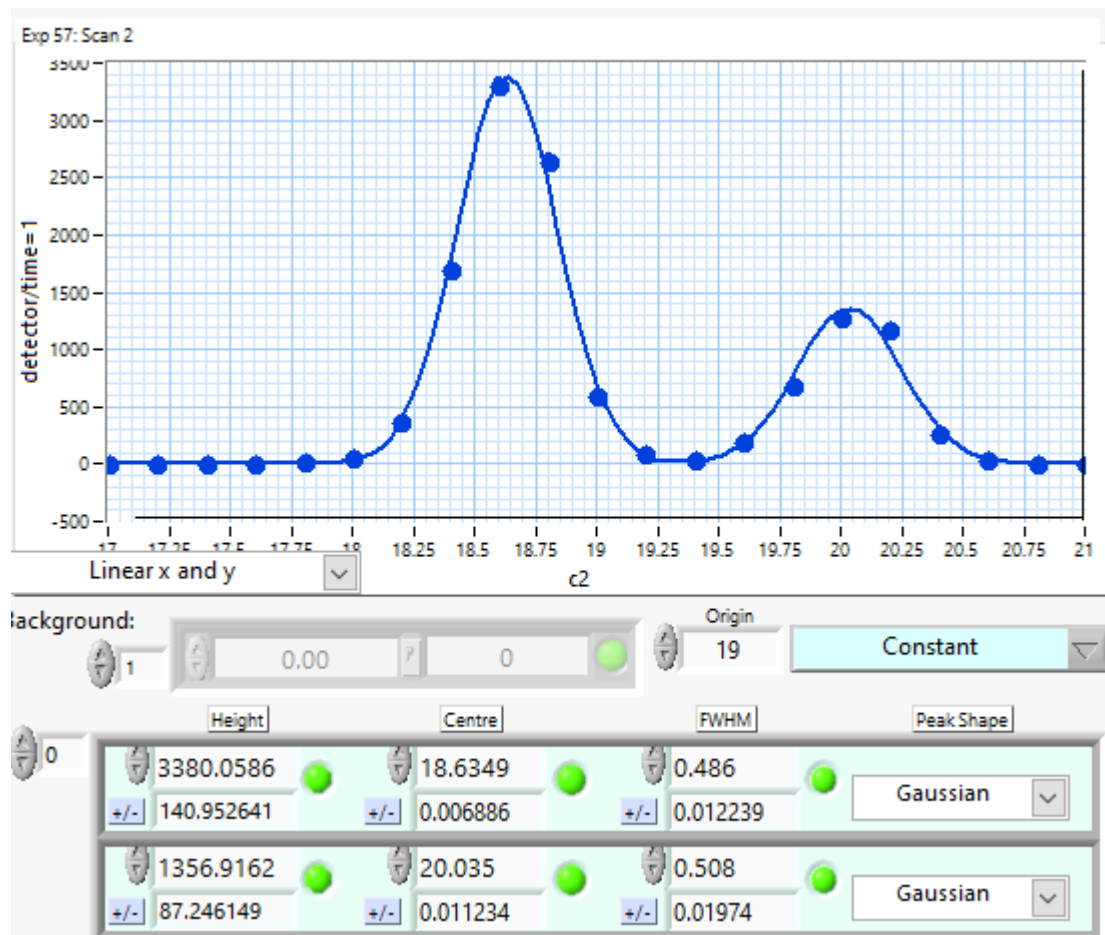
Samp.Tilt X	RX	-0.000
Samp.Trans.X	XS	-1.350
Samp.Tilt Y	RY	0.000
Samp.Trans.Y	YS	1.800

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

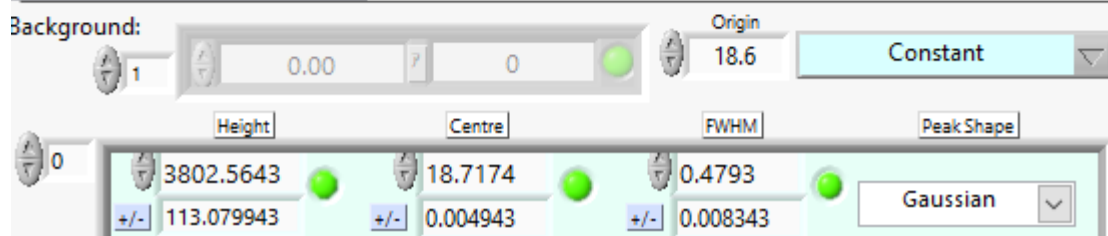
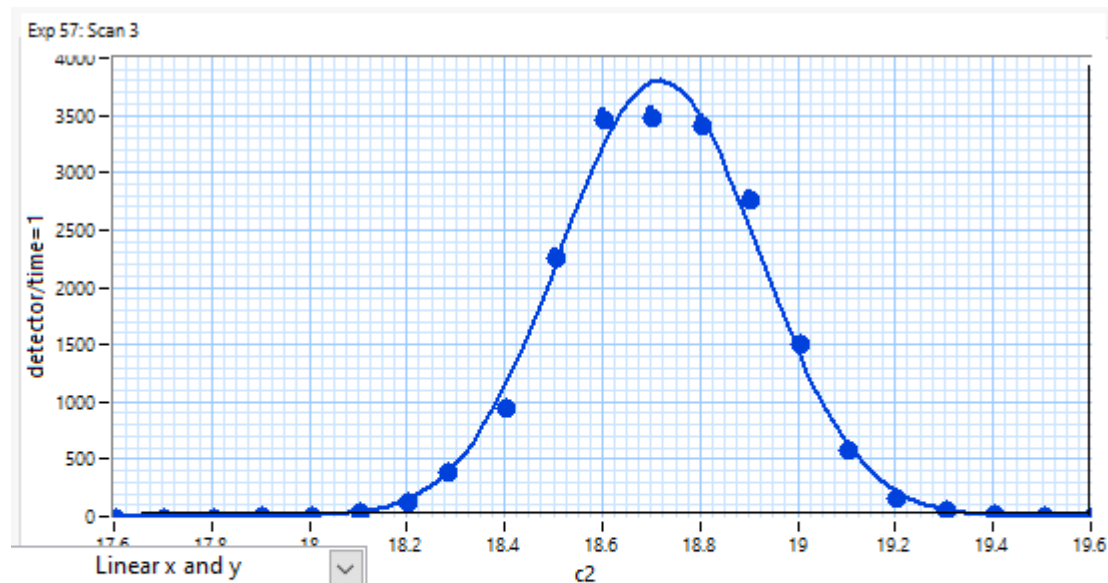
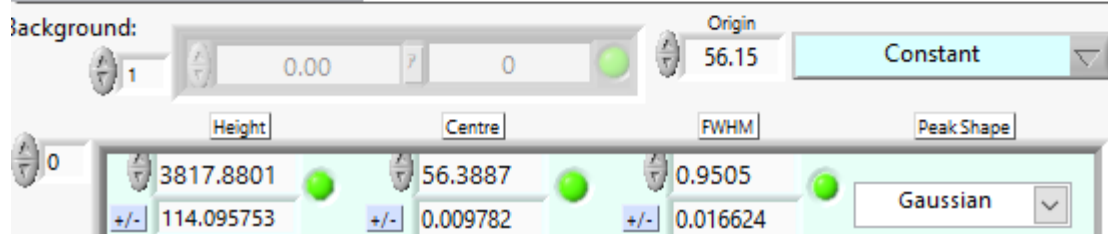
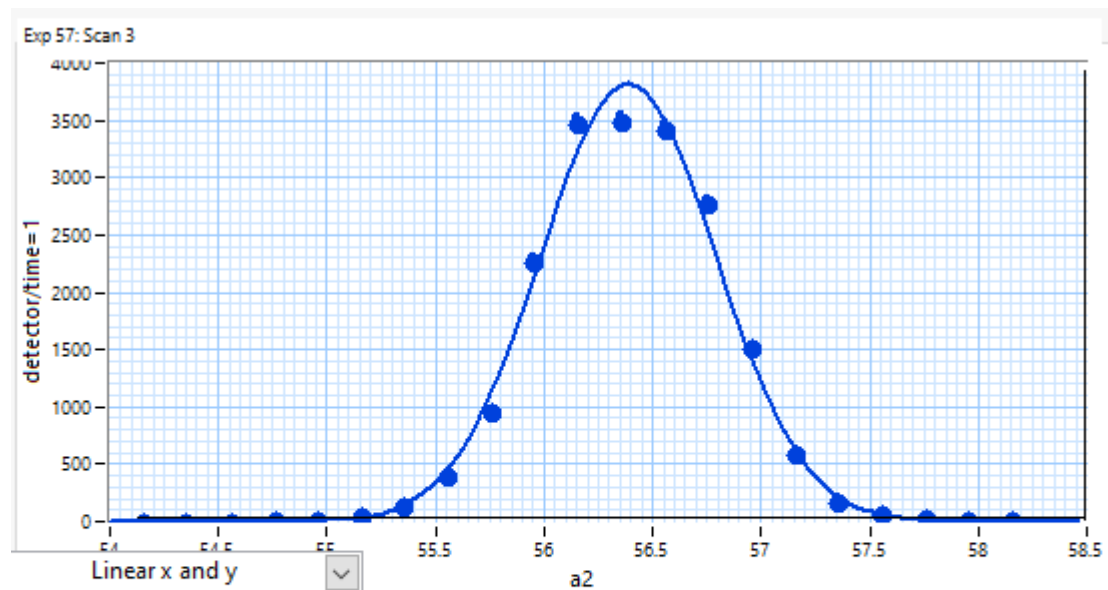
(2 0 0) check

drive a2 56.153

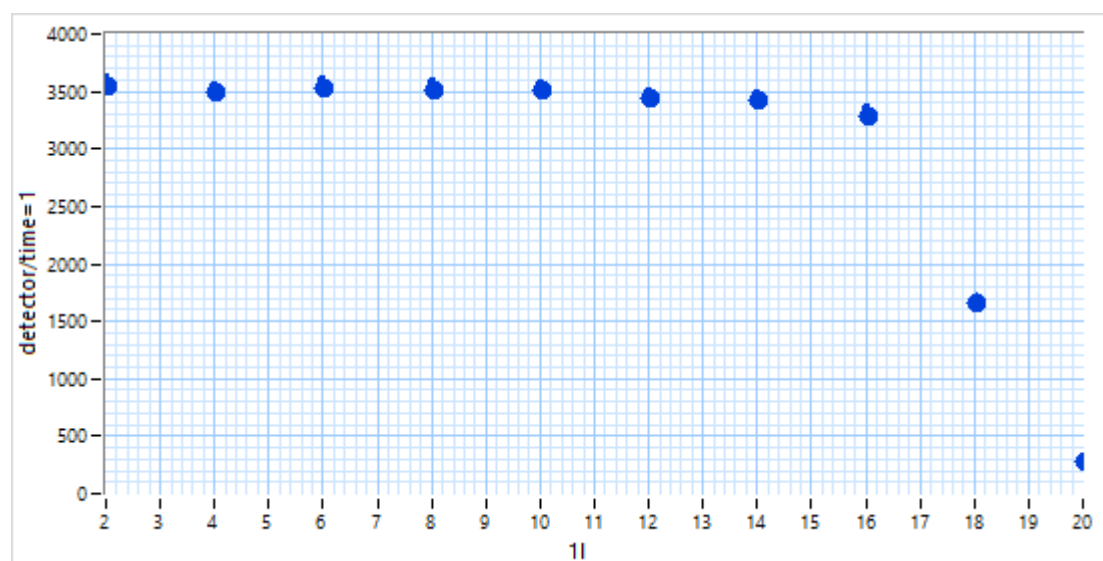
#2 scanrelt c2 -2 2 0.2 1 @(2 0 0)



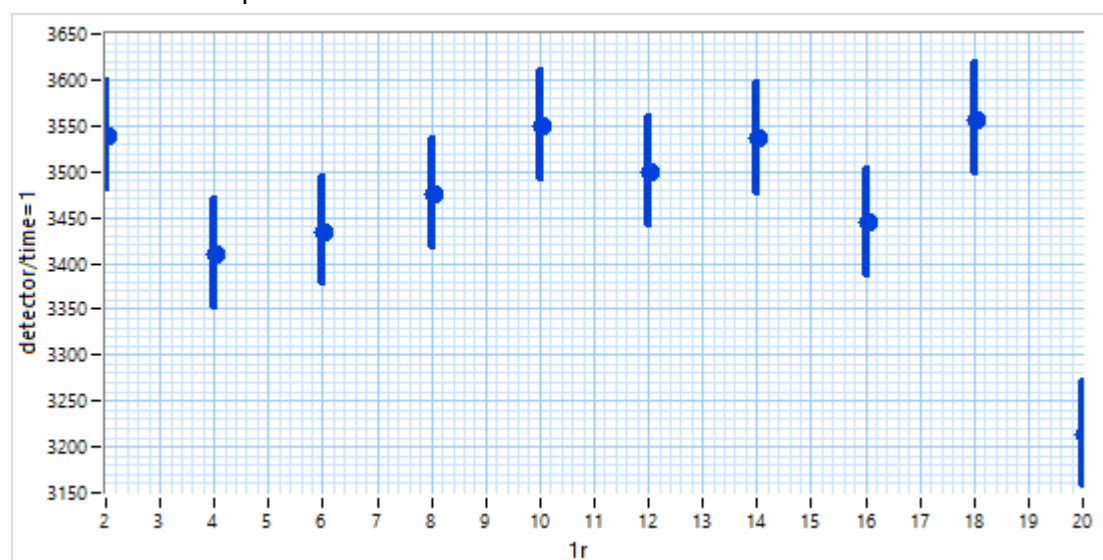
drive c2 18.6
#3 th2tht -2 2 0.2 1



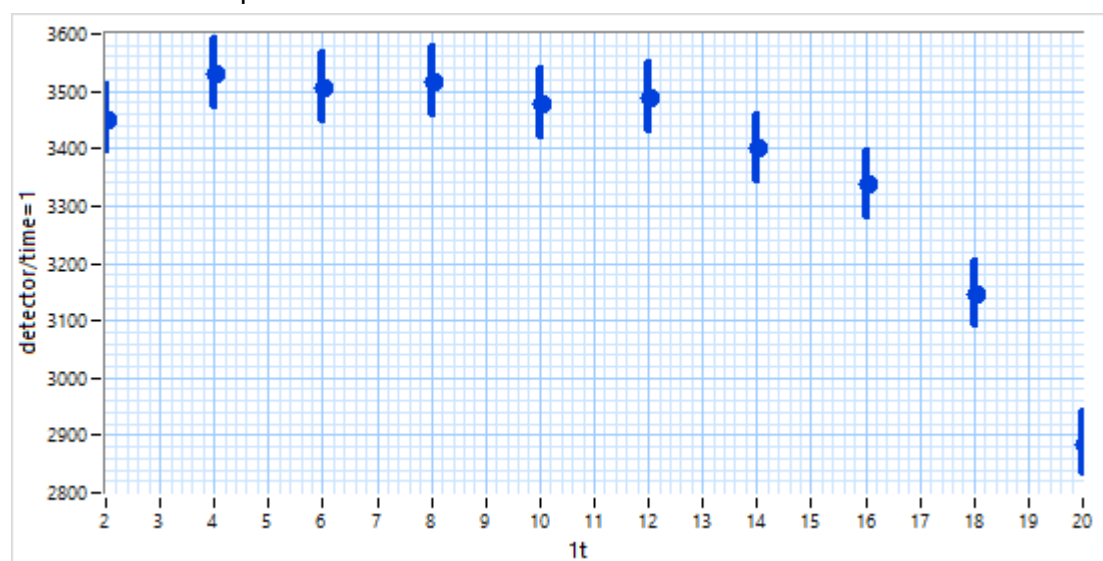
a=8.56119A, @a2=56.3887
 drive a2 56.3887 c2 18.7174
 drive xs -1.350 ys 1.800
 #7 scan 11 2 20 2 preset time 1



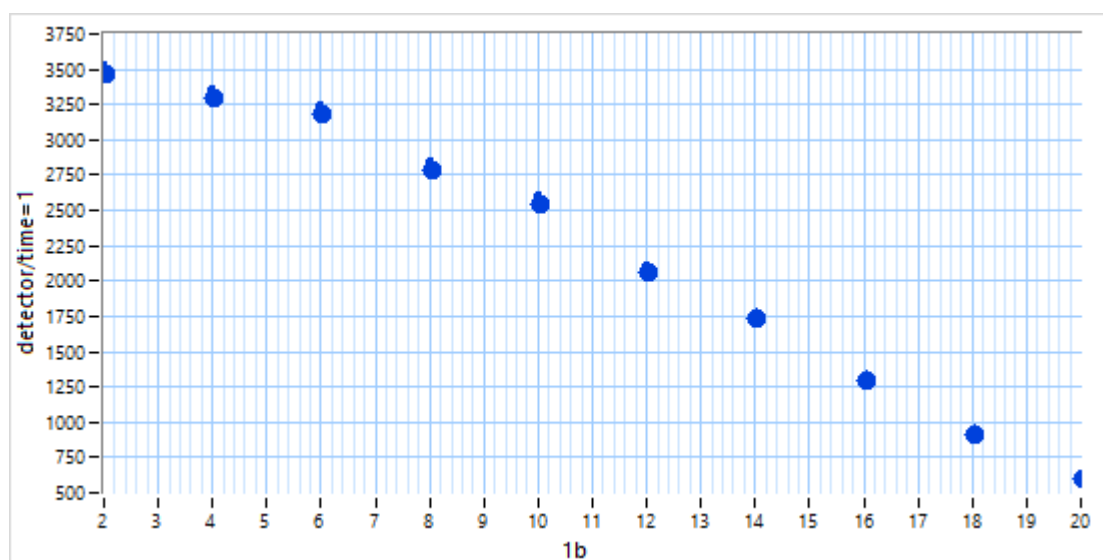
#8 scan 1r 2 20 2 preset time 1



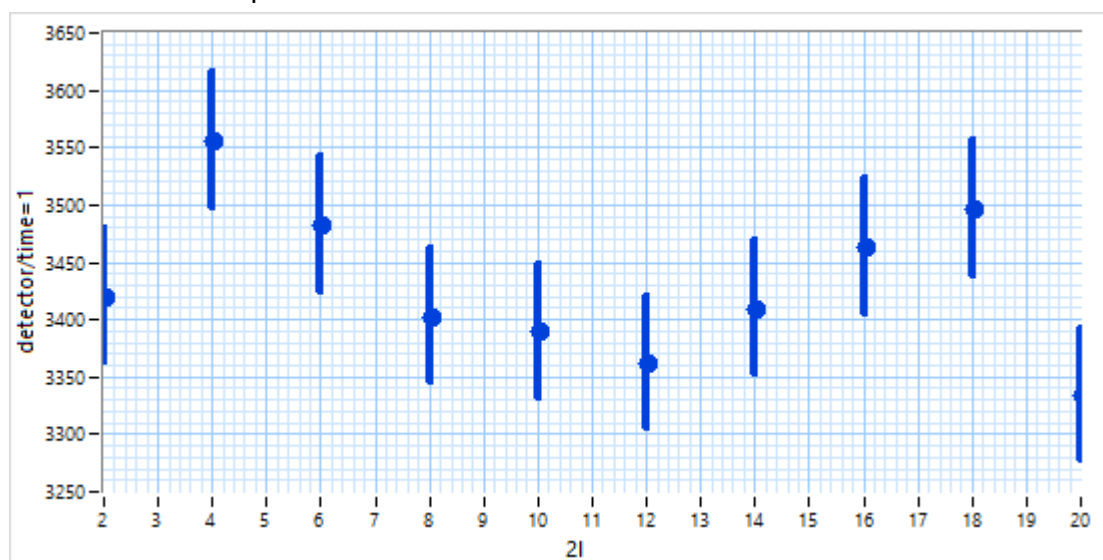
#9 scan 1t 2 20 2 preset time 1



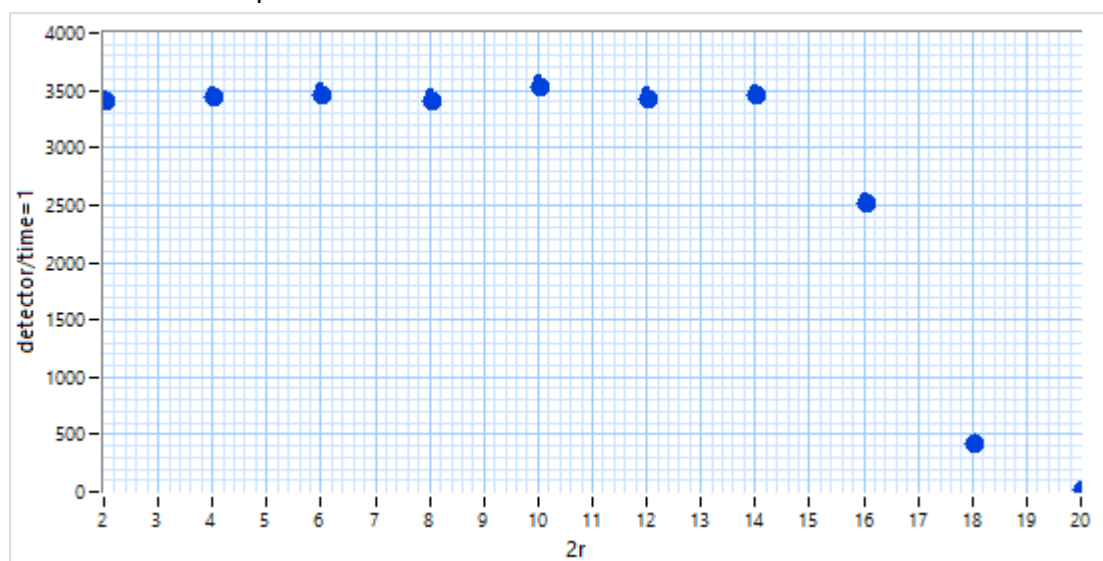
#10 scan 1b 2 20 2 preset time 1



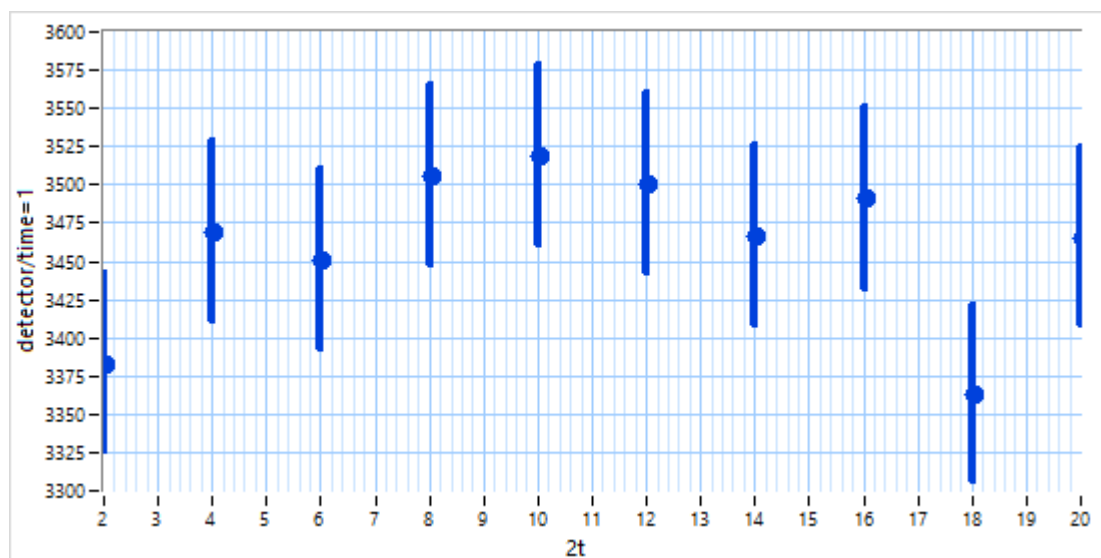
#11 scan 2l 2 20 2 preset time 1



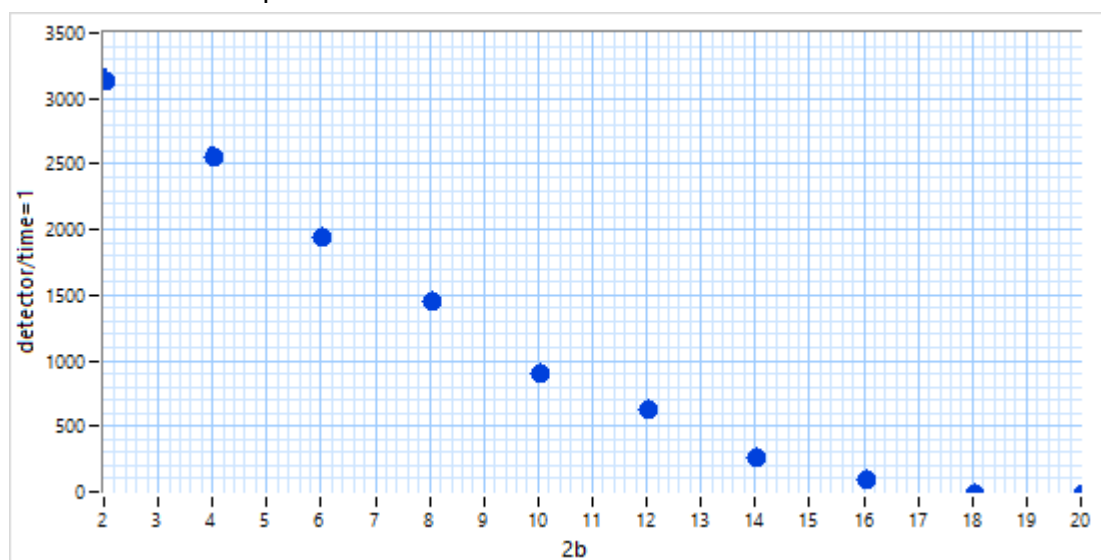
#12 scan 2r 2 20 2 preset time 1



#13 scan 2t 2 20 2 preset time 1



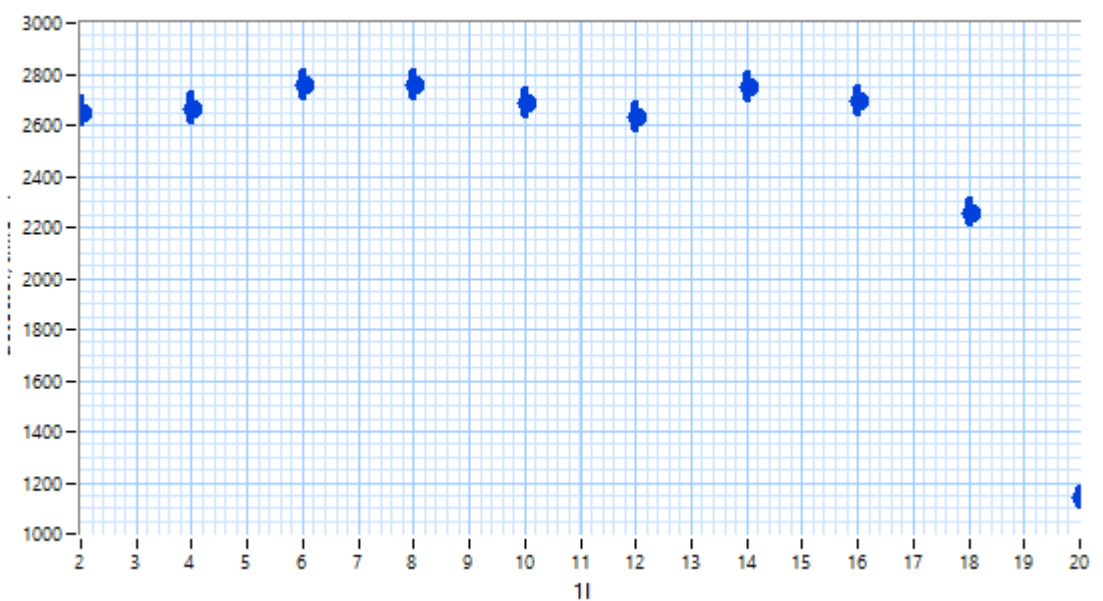
#14 scan 2b 2 20 2 preset time 1



drive xs 0 ys 0

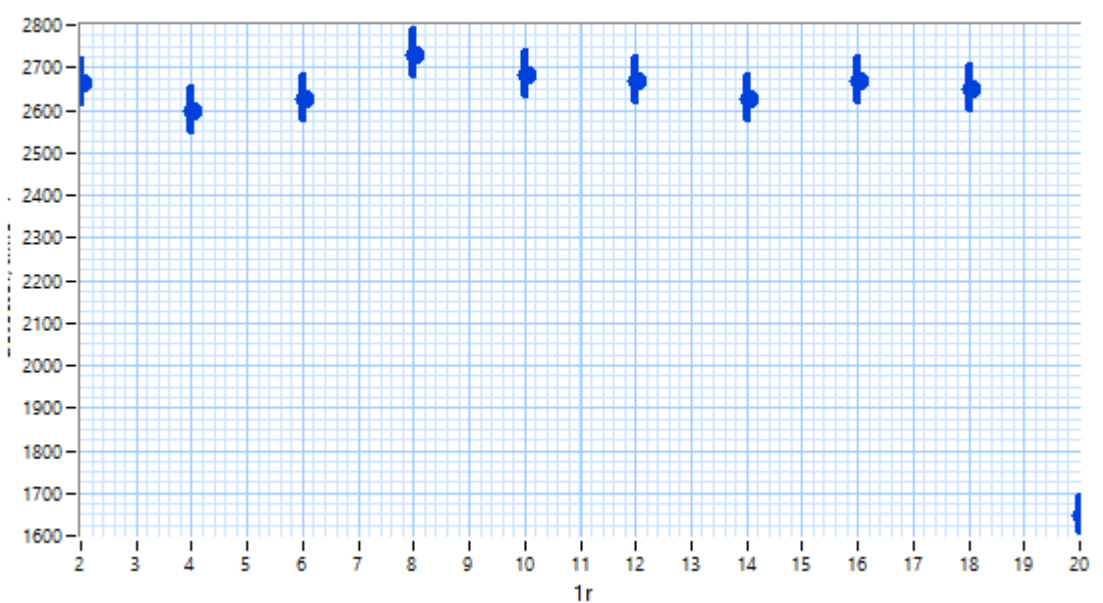
#15 scan 1l 2 20 2 preset time 1

HER Exp 57: Scan 15



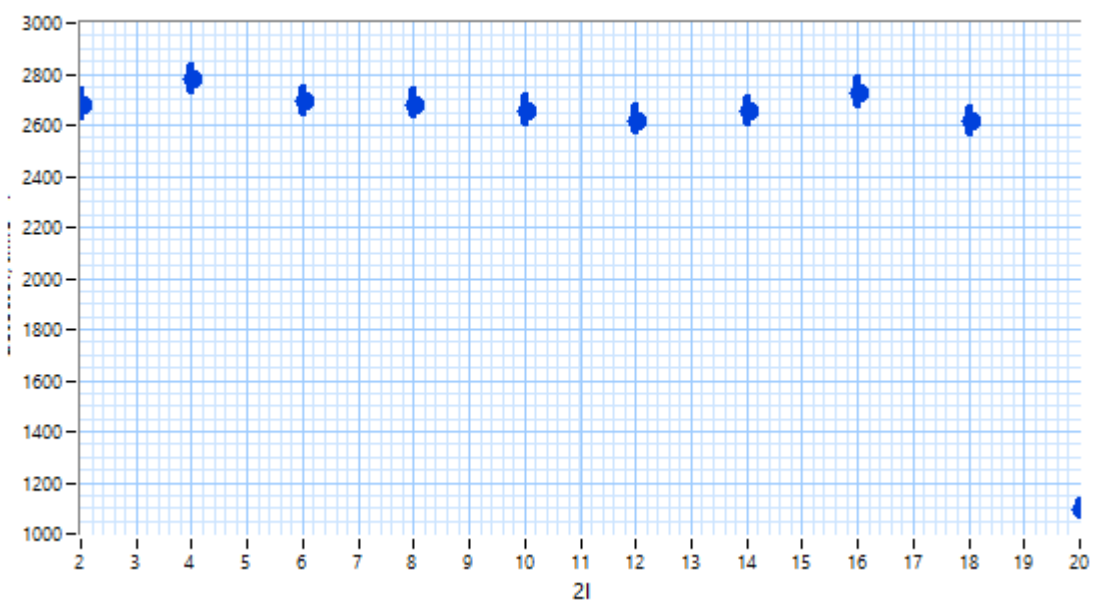
#16 scan 1r 2 20 2 preset time 1

HER Exp 57: Scan 16

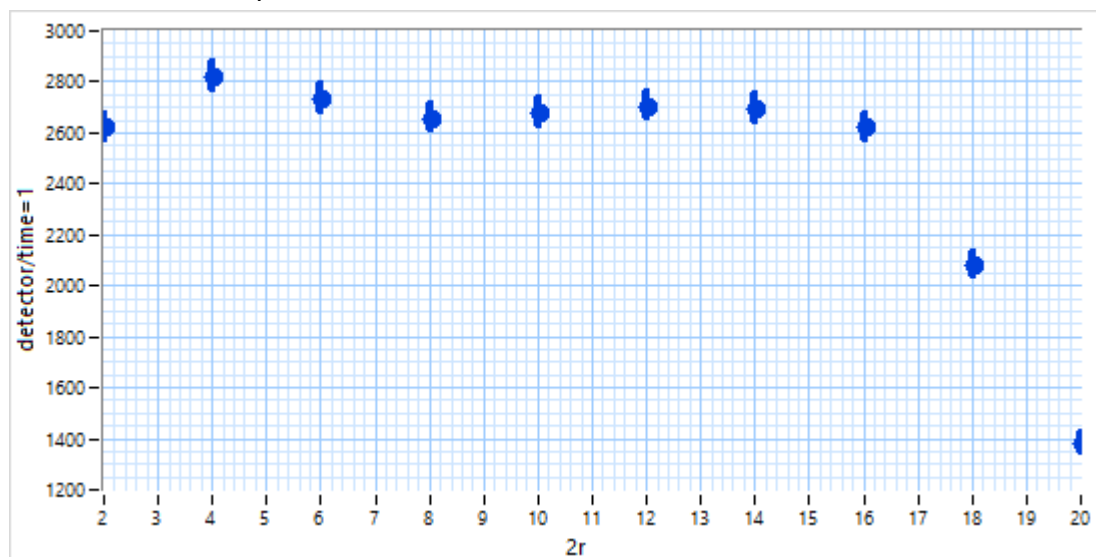


#19 scan 2l 2 20 2 preset time 1

HER Exp 57: Scan 19



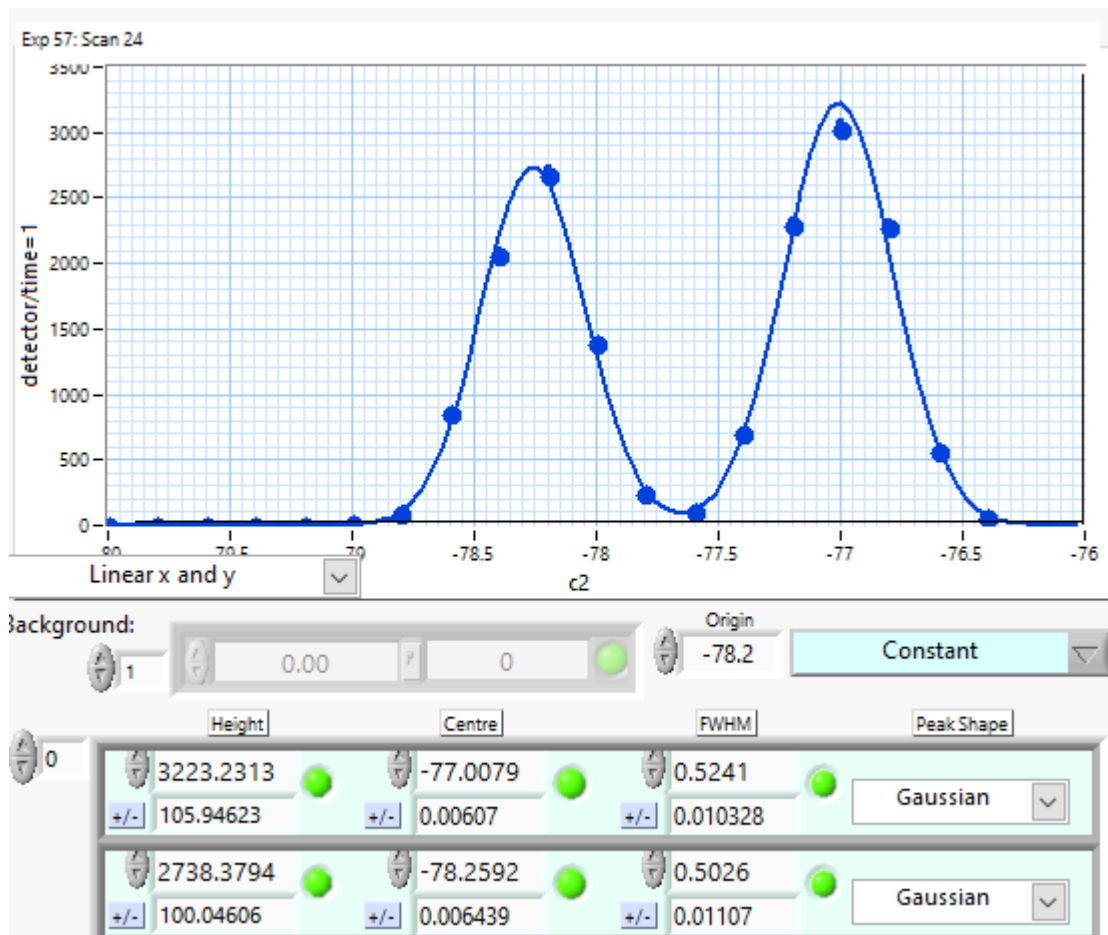
#20 scan 2r 2 20 2 preset time 1



axis check @ (0 0 1)

drive a2 42.94635

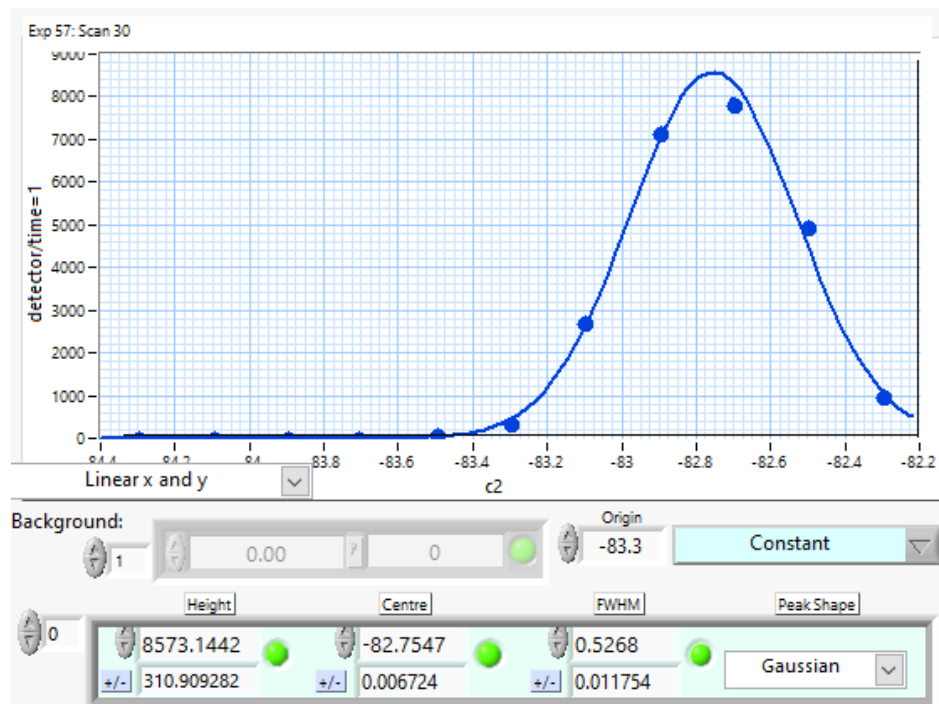
#24 scanrelt c2 -2 2 0.2 1



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

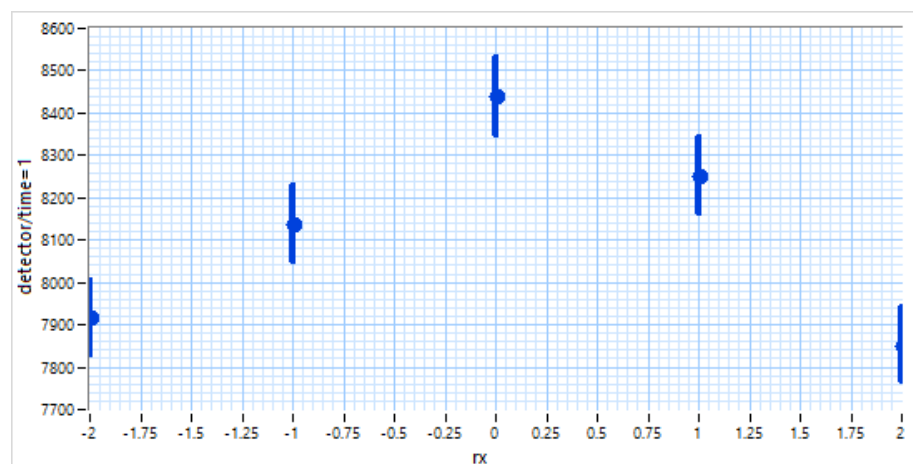
xs -1.35, ys -1.35, (001) // RX

#30 scanrelt c2 -2 2 0.2 1 @ (001) a2 42.944

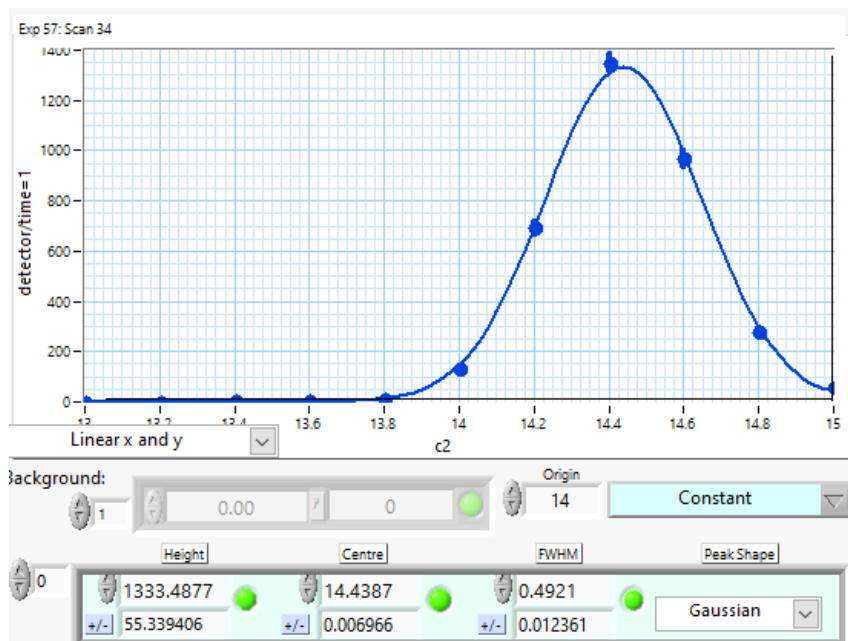


ピークが1つだけであることを確認。
drive c2 -83.2957

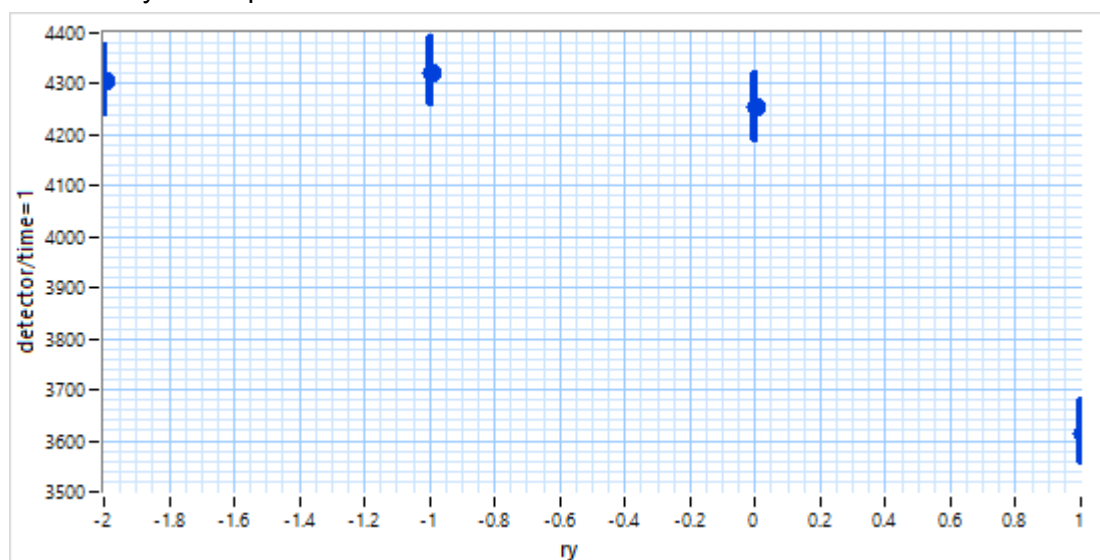
tilt調整



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



#43 scan ry -2 2 1 preset time 1



tilt 調整完了

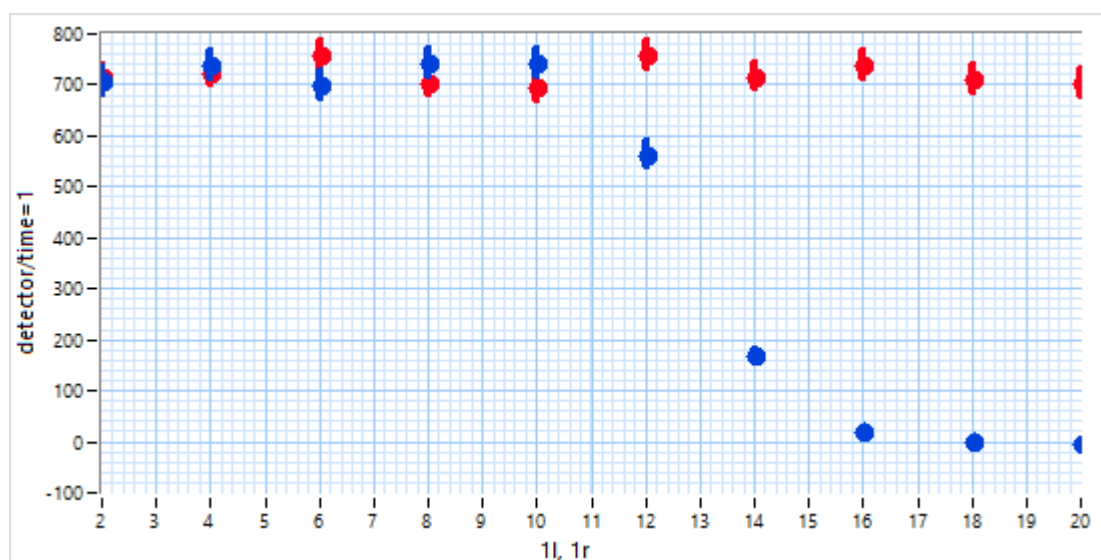
(001) a2 42.94 c2 -86.23、(count preset time 1) 8000

(200) a2 56.16212 c2 11.544、(count preset time 1) 4400

narrower scan @ (200)

#46 scan 1l 2 20 2 preset time 1

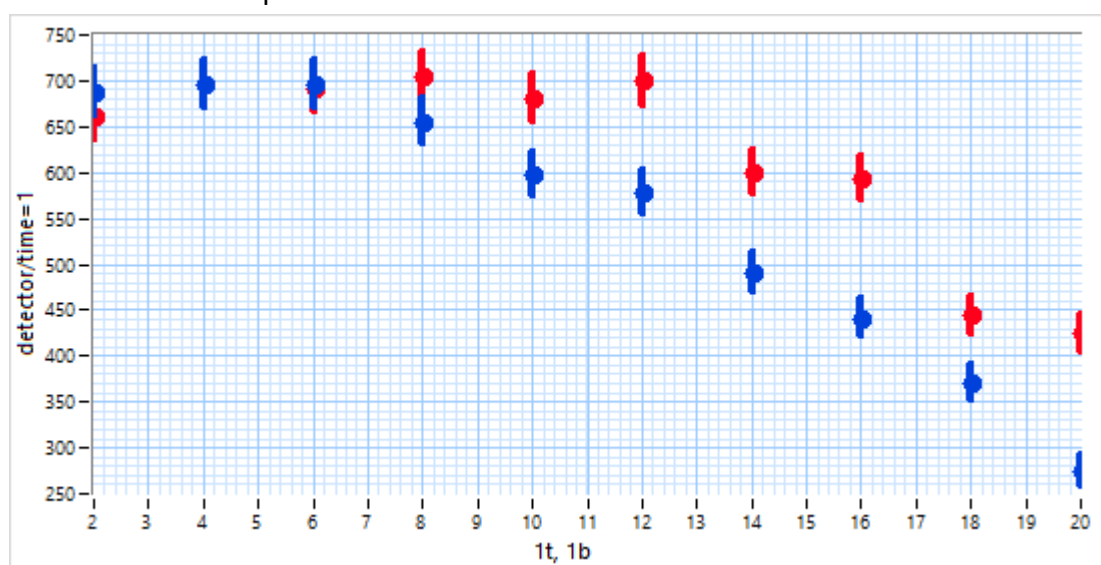
#47 scan 1r 2 20 2 preset time 1



#46 blue, #47 red

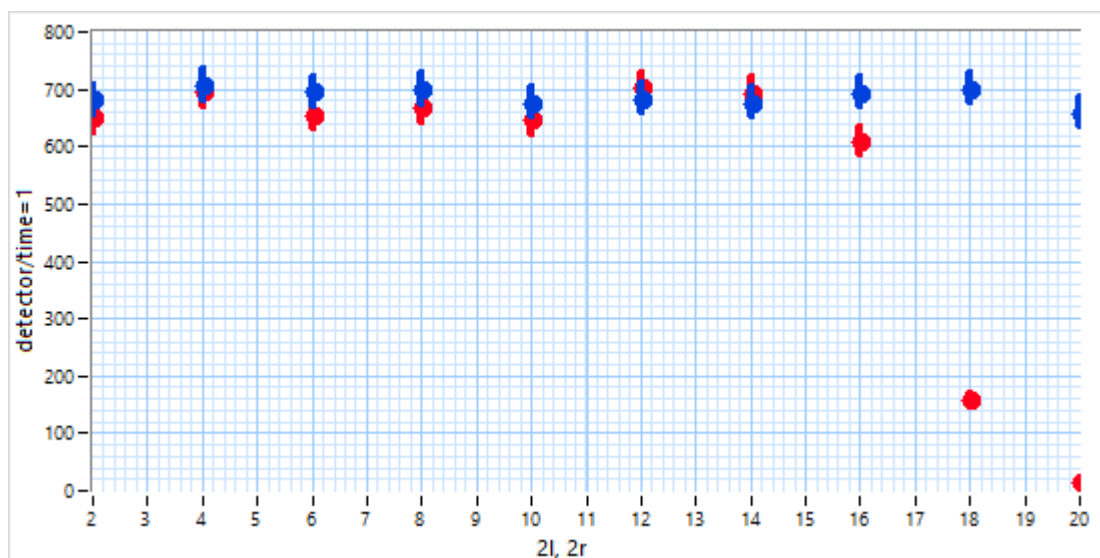
#48 scan 1t 2 20 2 preset time 1

#49 scan 1b 2 20 2 preset time 1



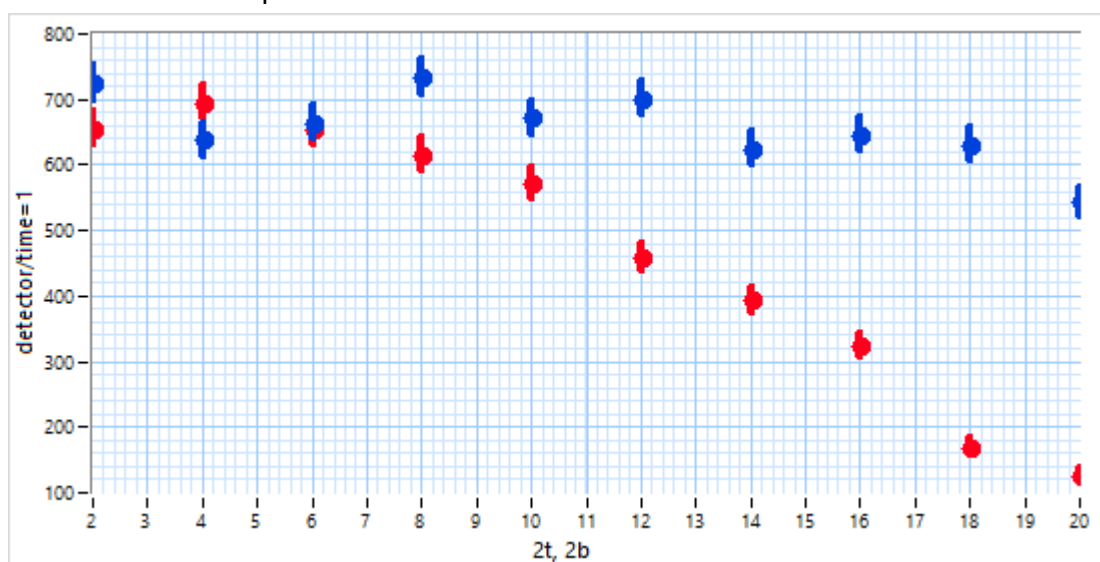
#50 scan 2l 2 20 2 preset time 1

#51 scan 2r 2 20 2 preset time 1



#52 scan 2t 2 20 2 preset time 1

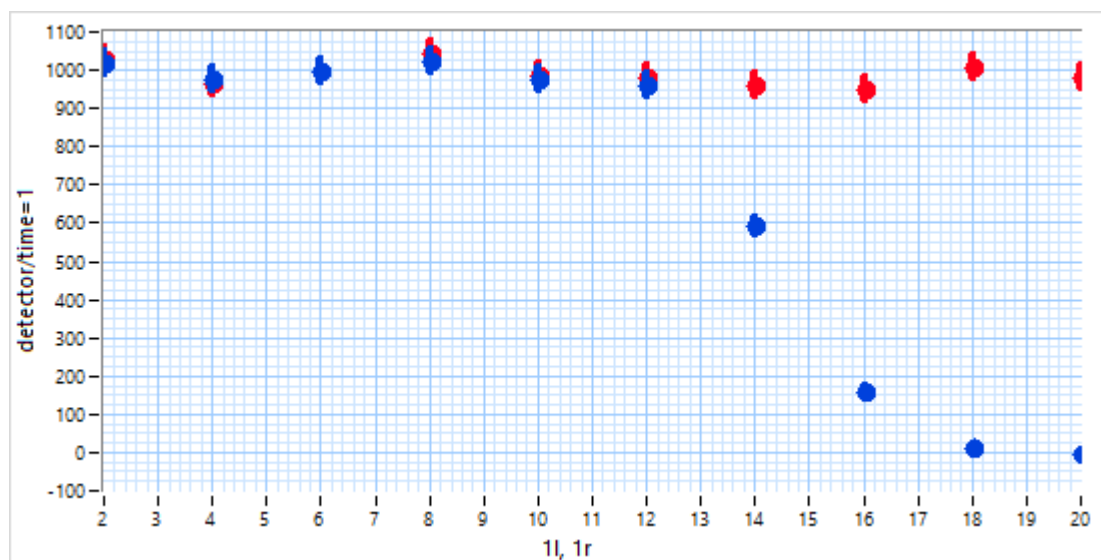
#53 scan 2b 2 20 2 preset time 1



drive xs 0 ys 0

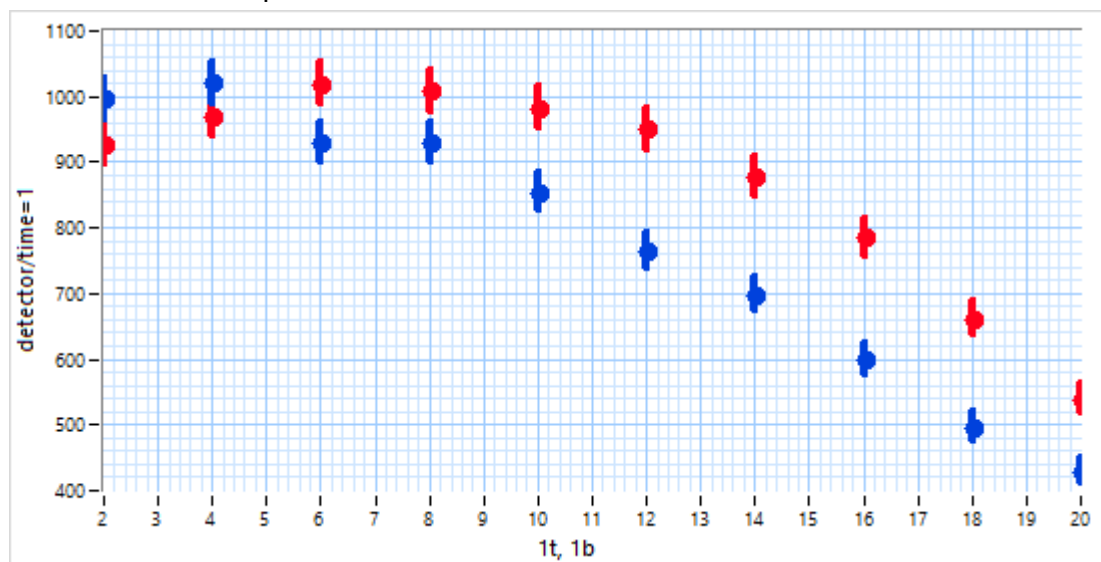
#54 scan 1l 2 20 2 preset time 1

#55 scan 1r 2 20 2 preset time 1



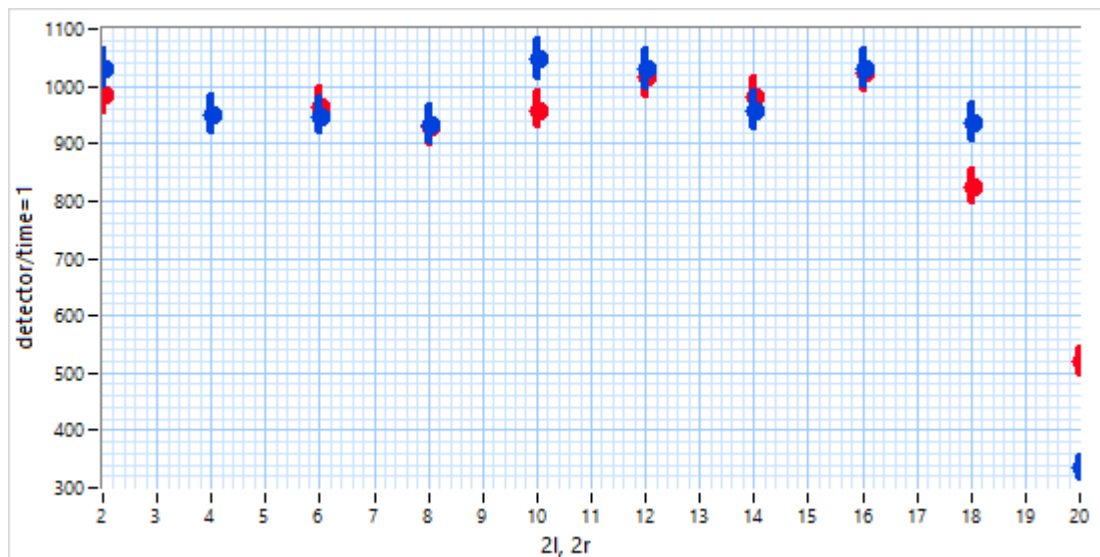
#56 scan 1t 2 20 2 preset time 1

#57 scan 1b 2 20 2 preset time 1



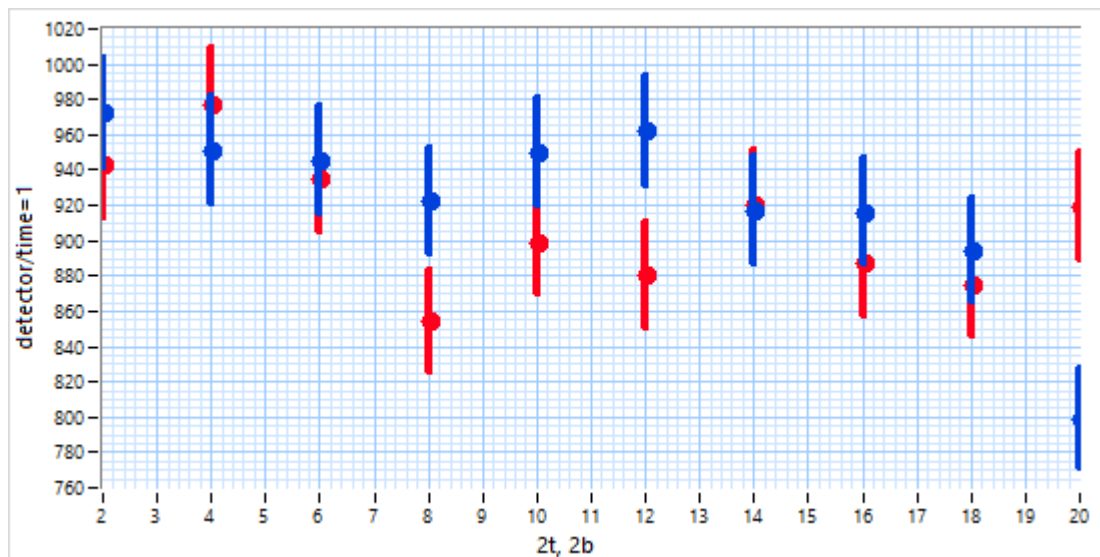
#58 scan 2l 2 20 2 preset time 1

#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。

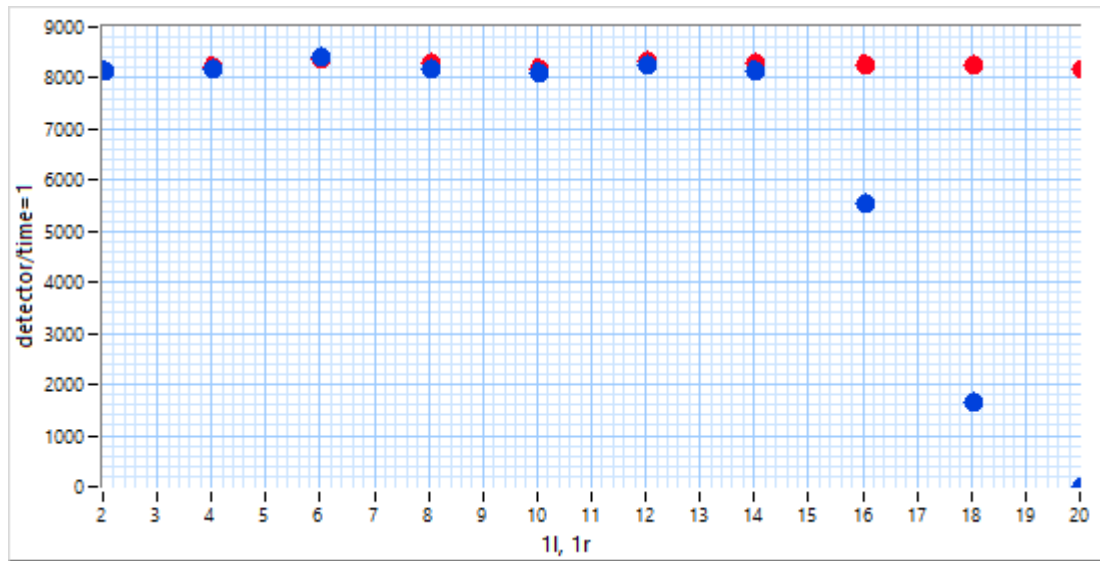
2Tと2Bが変な値に。全開であるのに、18.48, 12.594(CCW)。

drive xs -1.35

drive ys 1.800

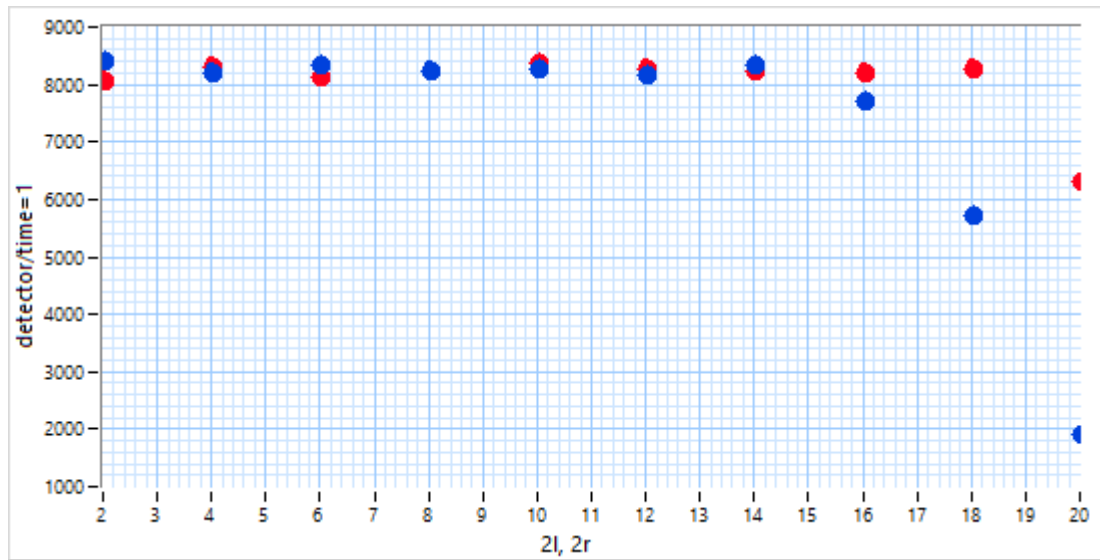
#74 scan 1l 2 20 2 preset time 1

#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

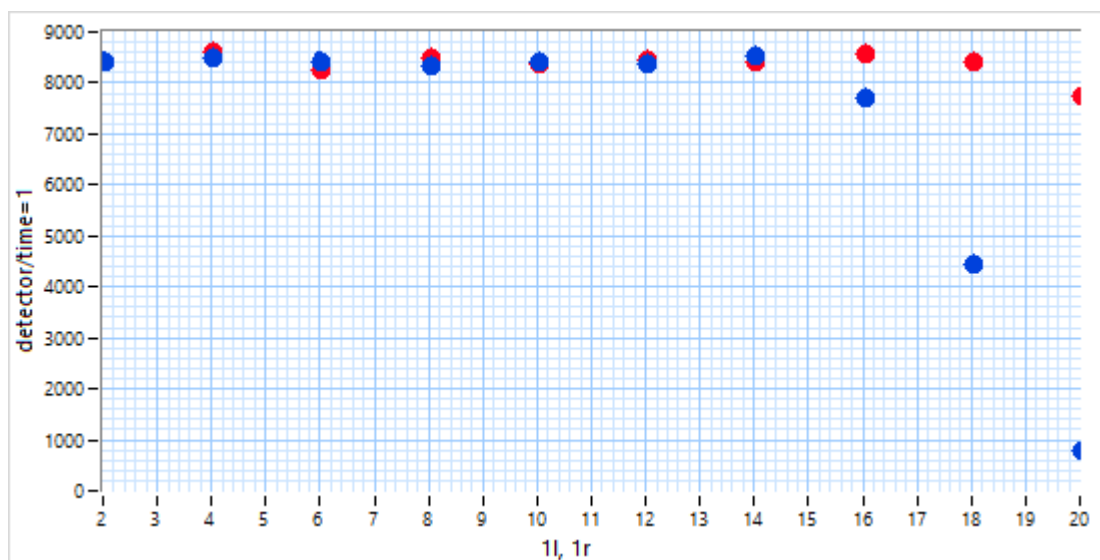


drive xs 0 ここでコマンドが止まった。目標値に達したのに、認識しなかった。

drive ys 0

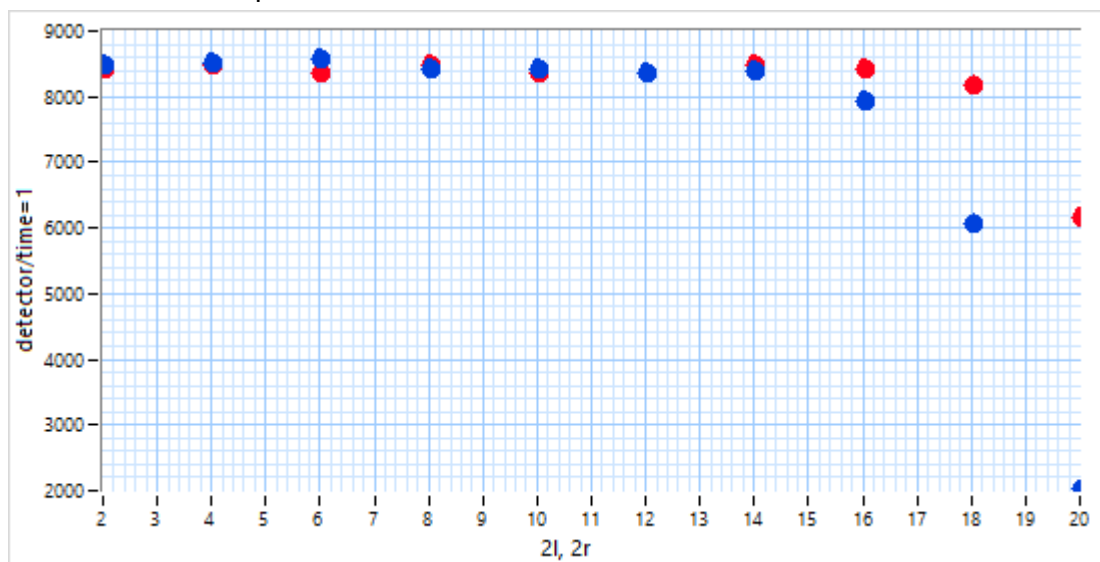
#78 scan 1l 2 20 2 preset time 1

#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

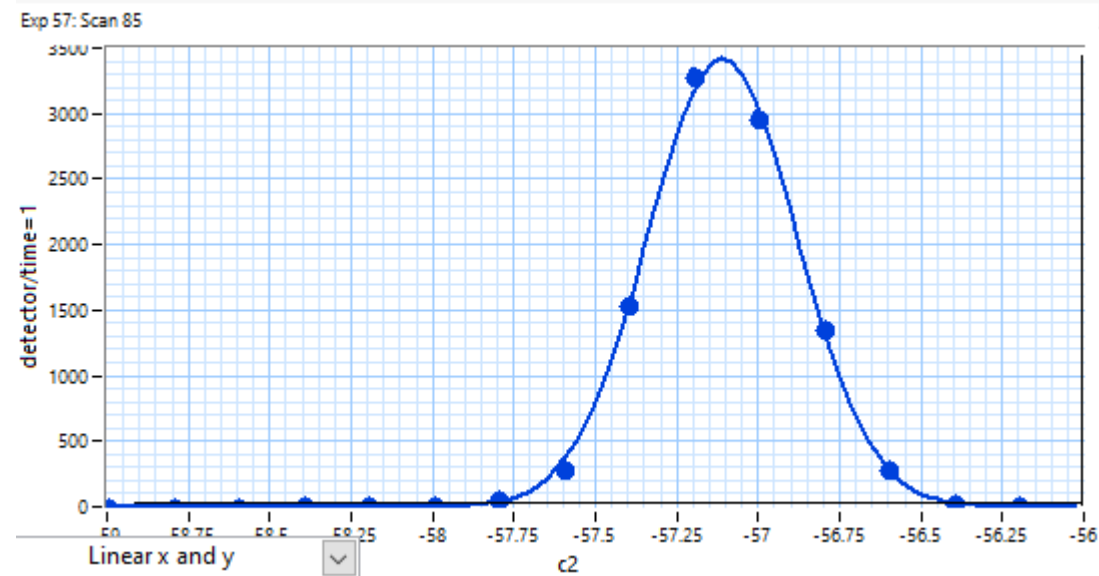
scan ei 2.888+3.6-0.4 2.888+3.6+0.4 0.05 preset mcu 2

20:30 stop scan#84

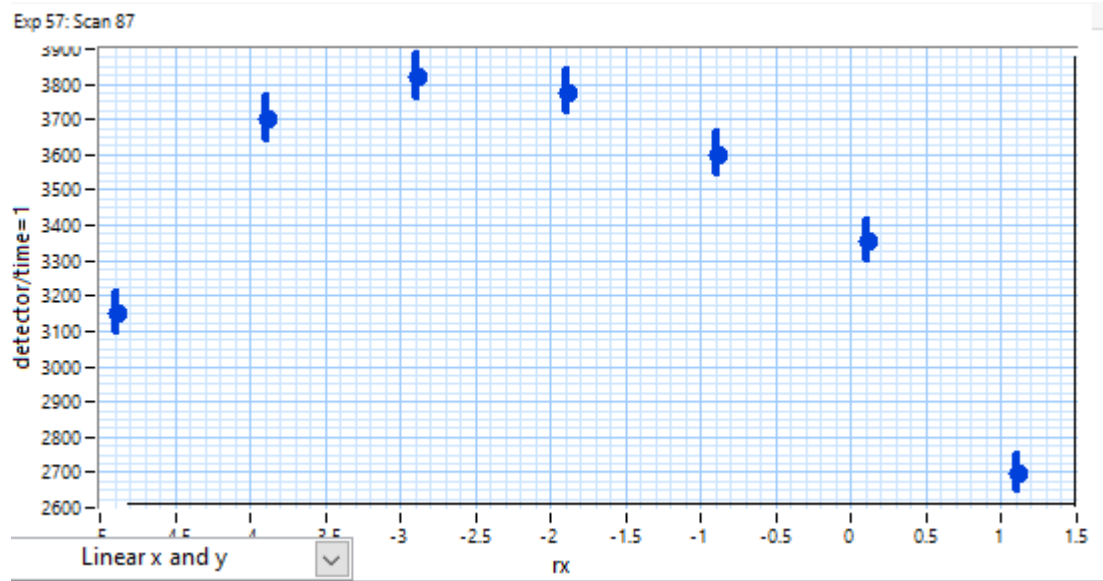
Cryostat installed on goniometer

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

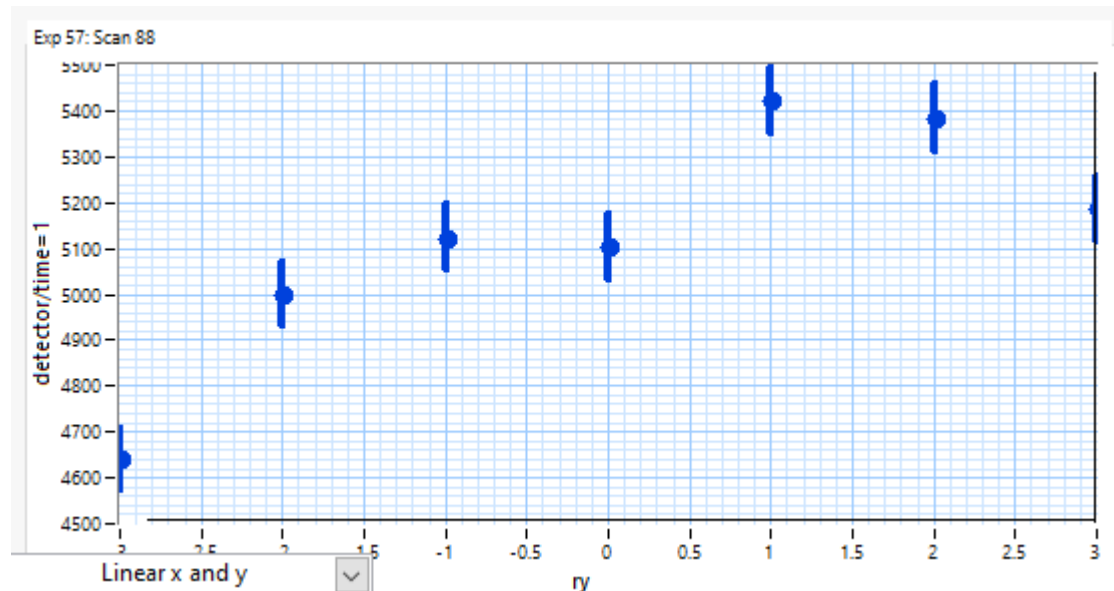
Scan#85 scanrelt c2 -2 2 0.2 1 @(200)



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

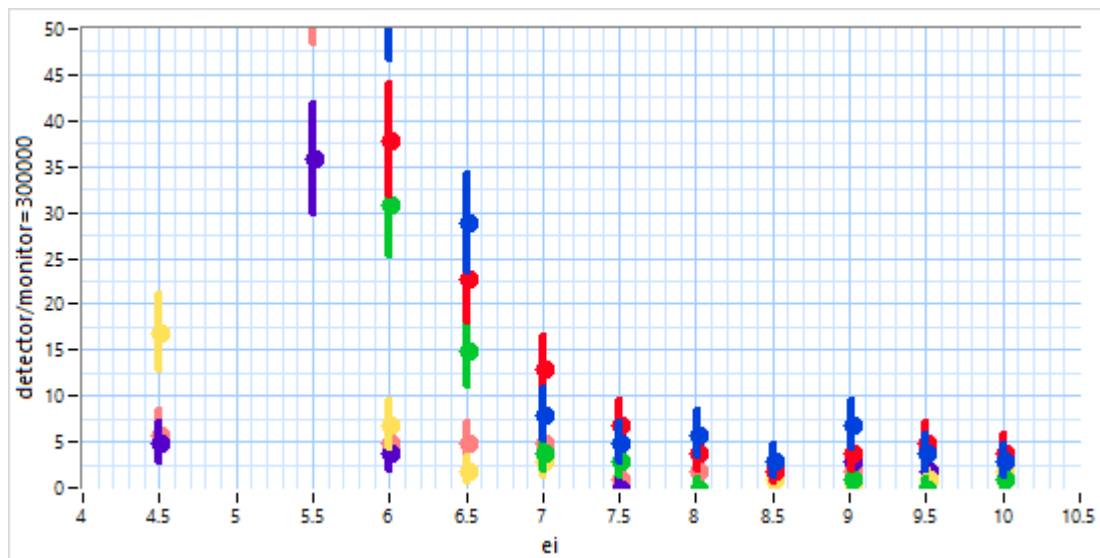
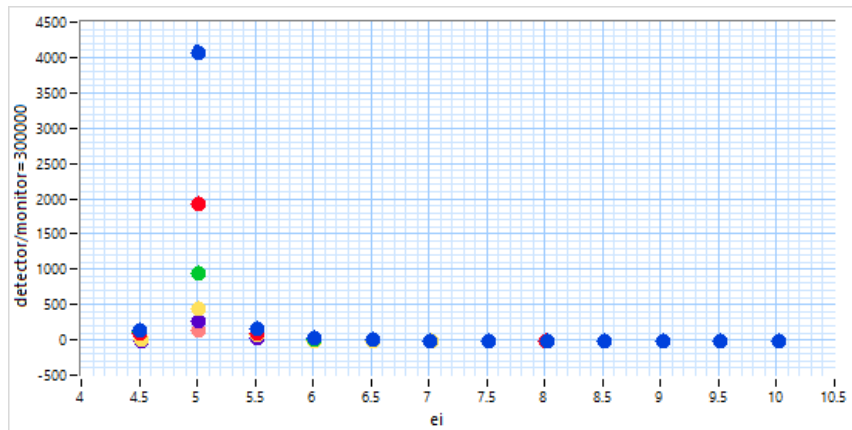
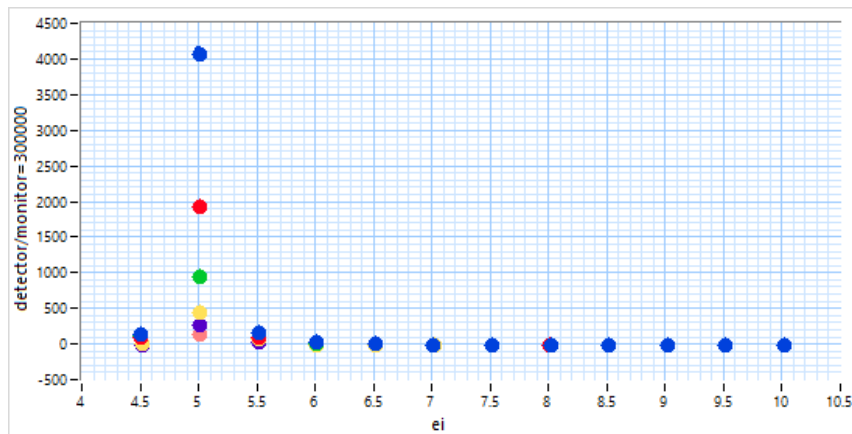
#92 scan ei 4.5 10 0.5 preset mcu 2

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)

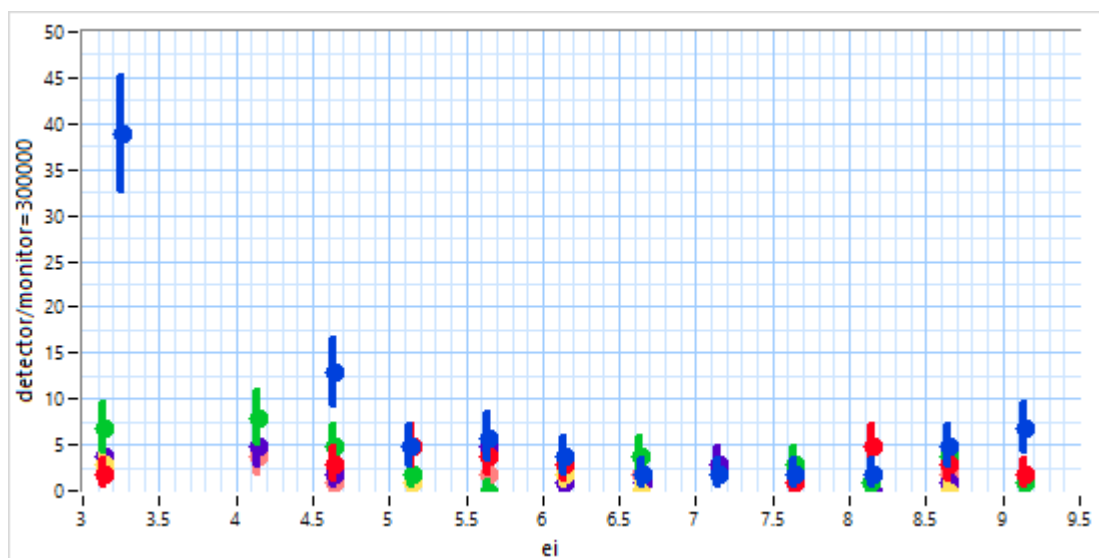
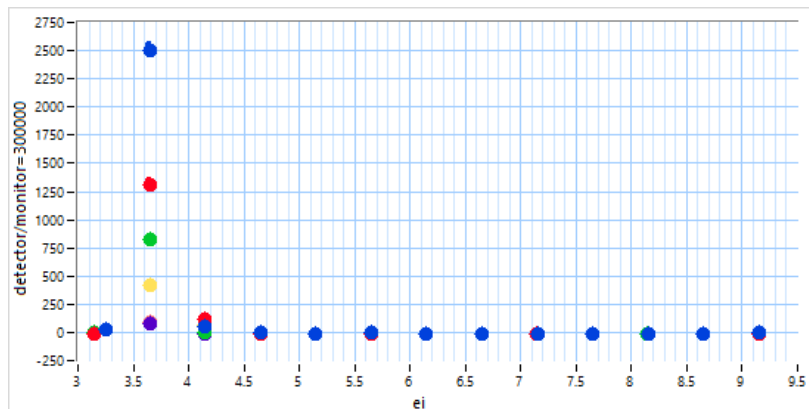
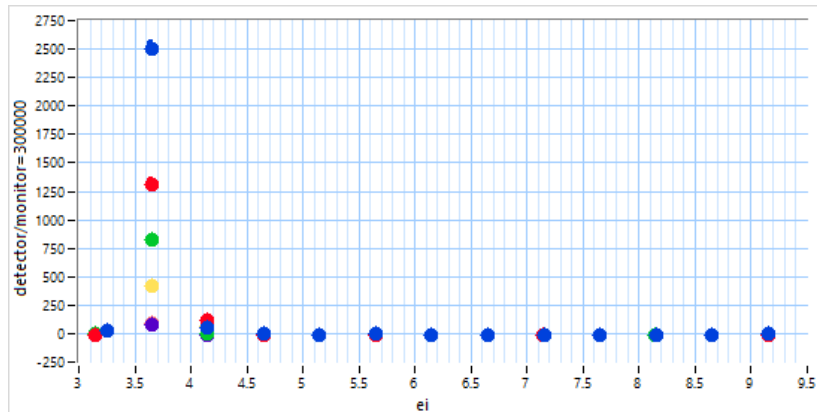
drive ef 3.635

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)

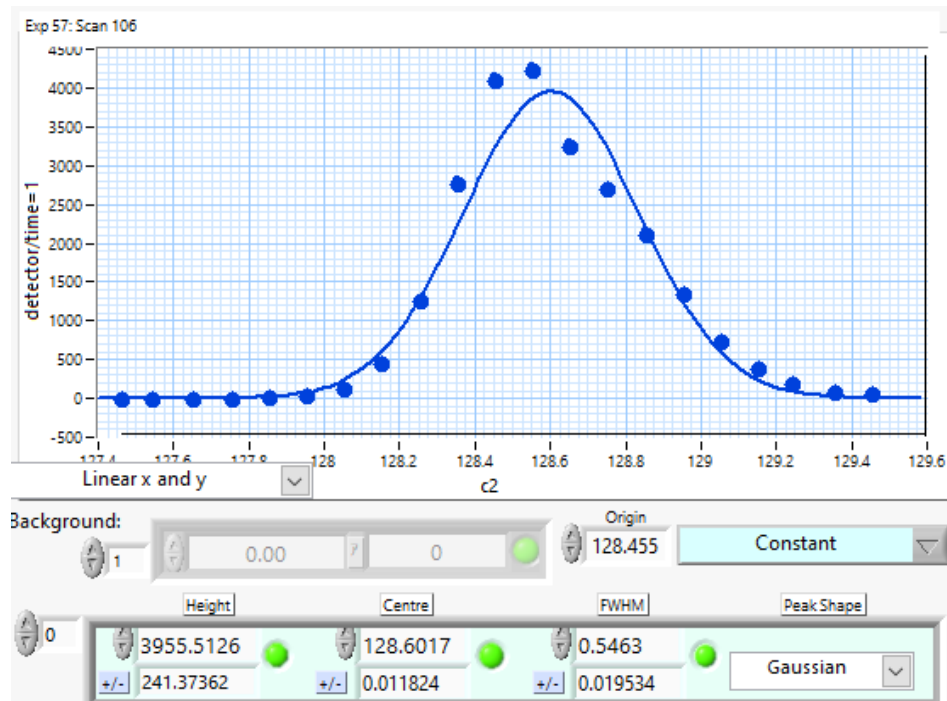
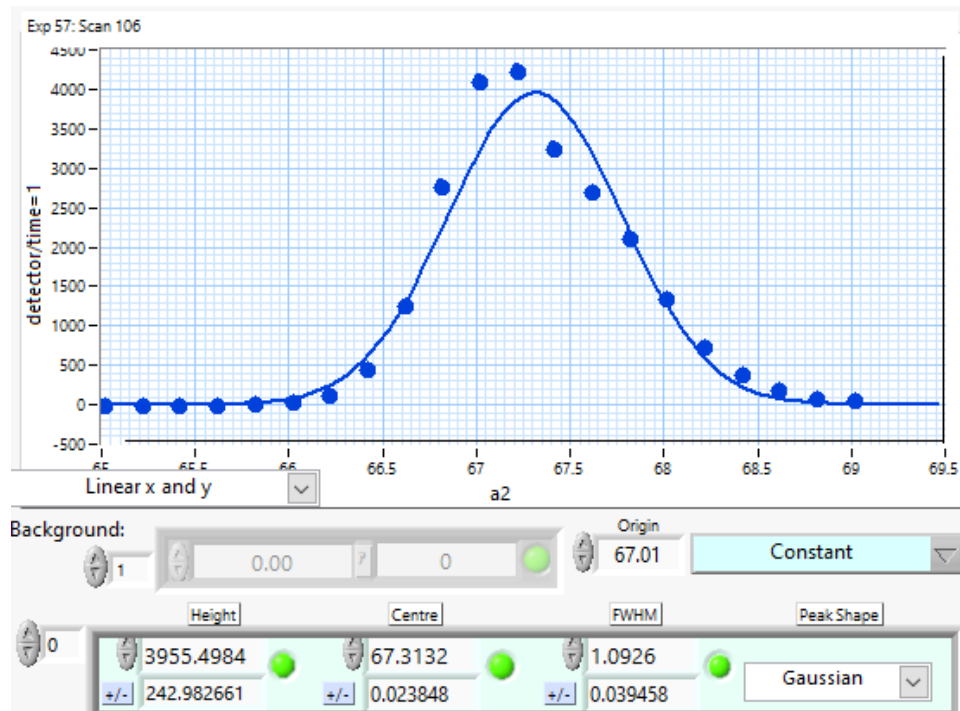
11/8 10:19 lattice constant define

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)

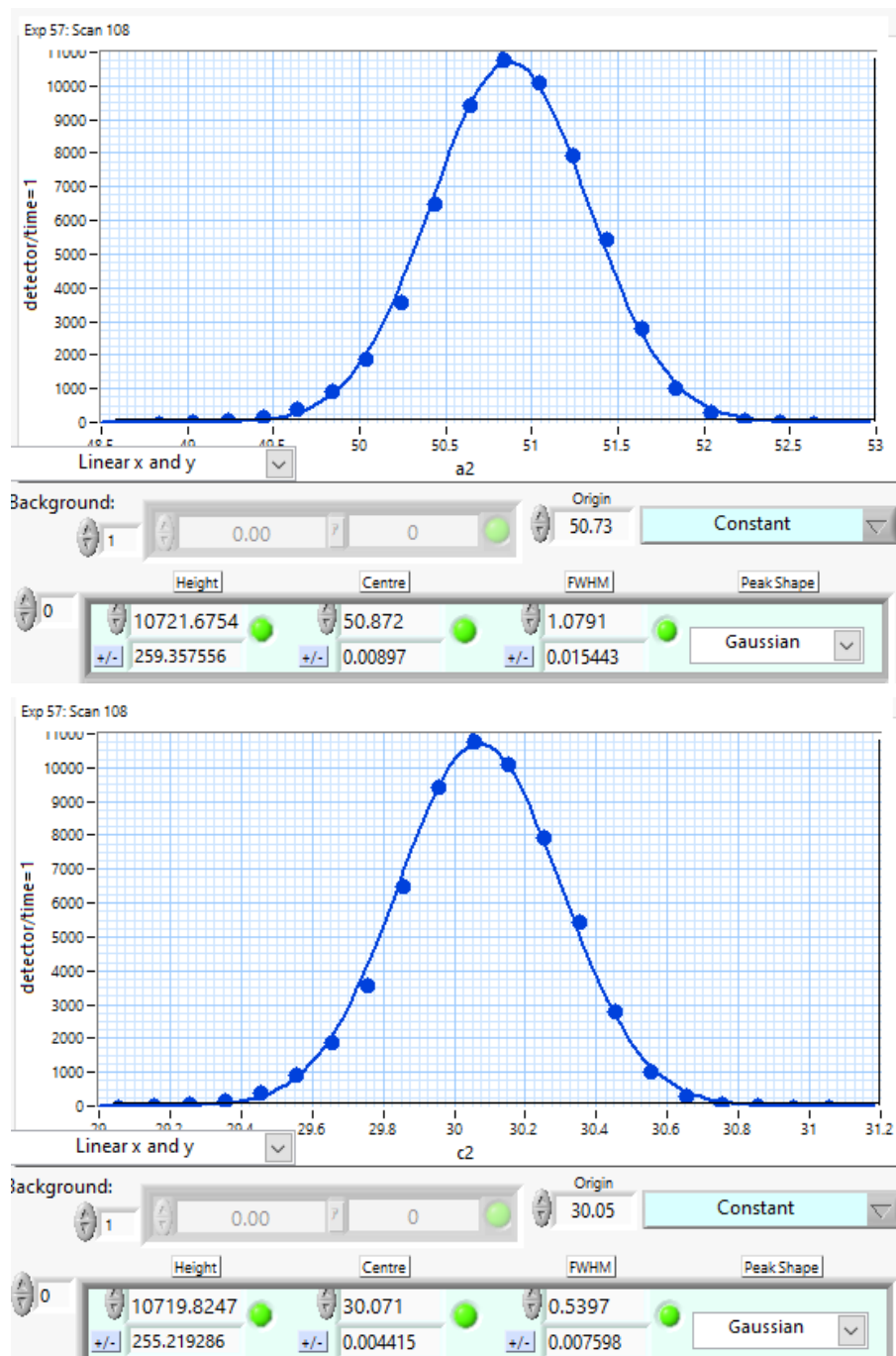


a=8.55969A

drive h 0 k 0 l 1

#107 scanrelt c2 -1 1 0.2 1@(001)

#108 th2ht -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									

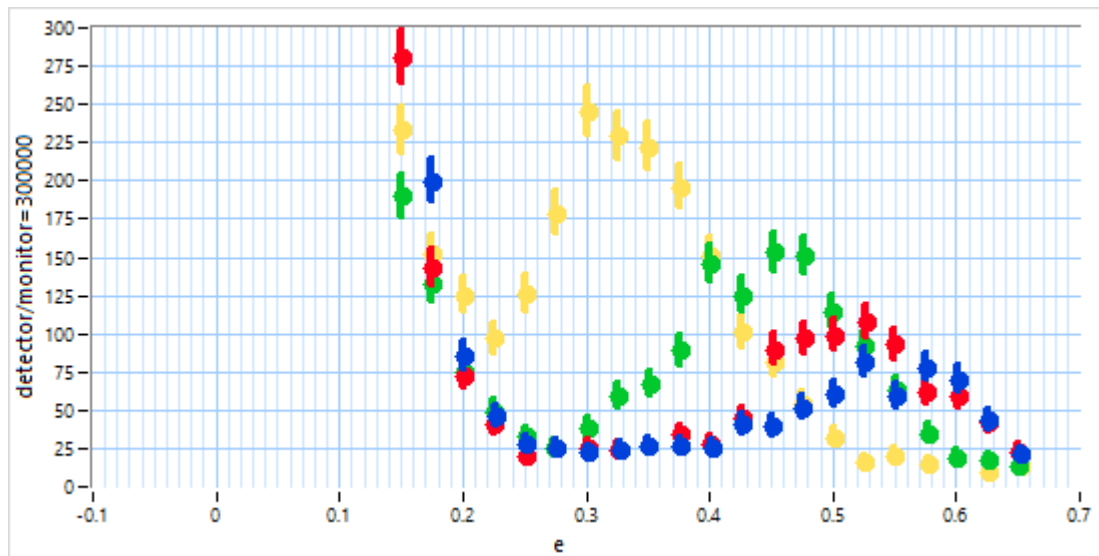
11:15

#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



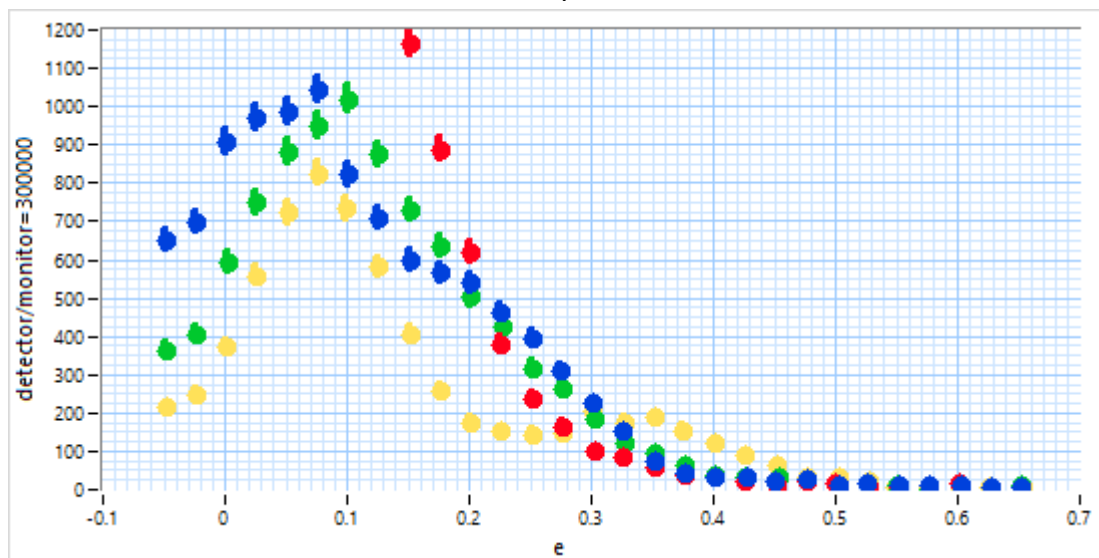
blue #109, red #110, green #111, yellow #112

#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



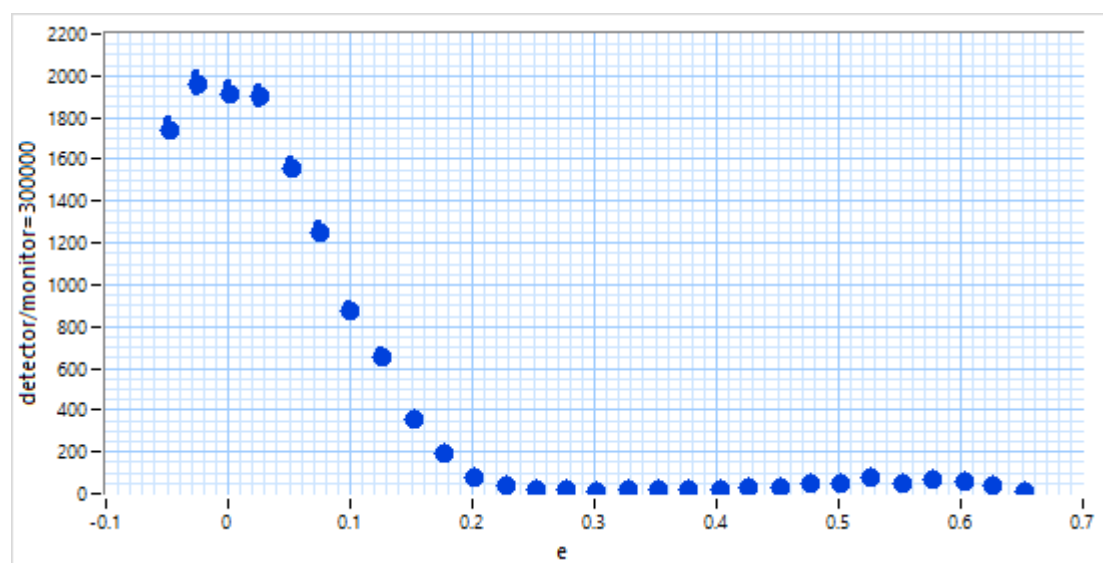
blue #113, red #114, green #115, yellow #116

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

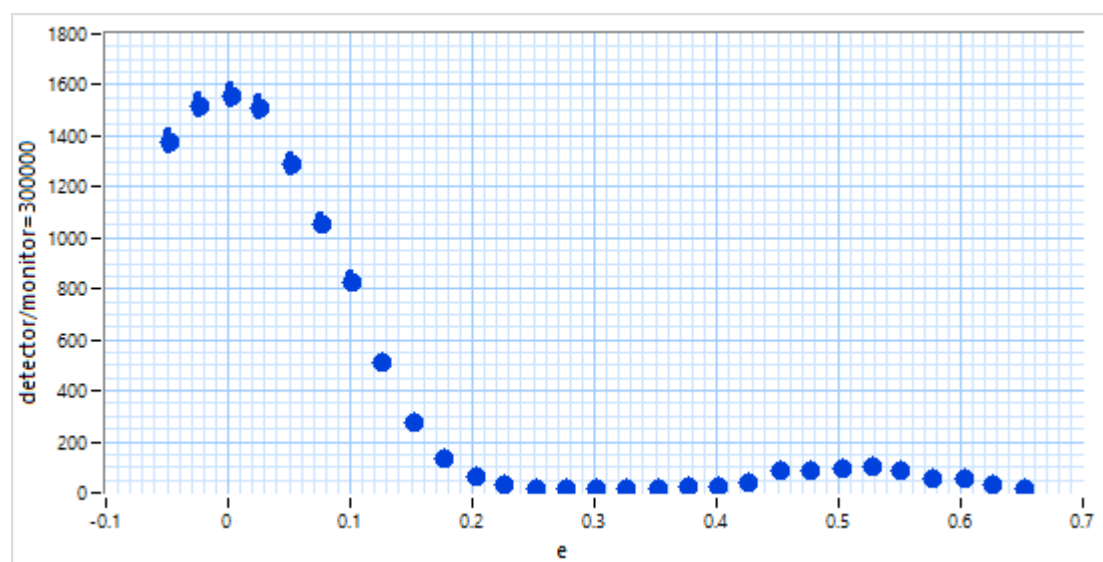
#118 scan h -1.4 k 0 l 0 e -0.05 0.65 0.025 preset mcu 2

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

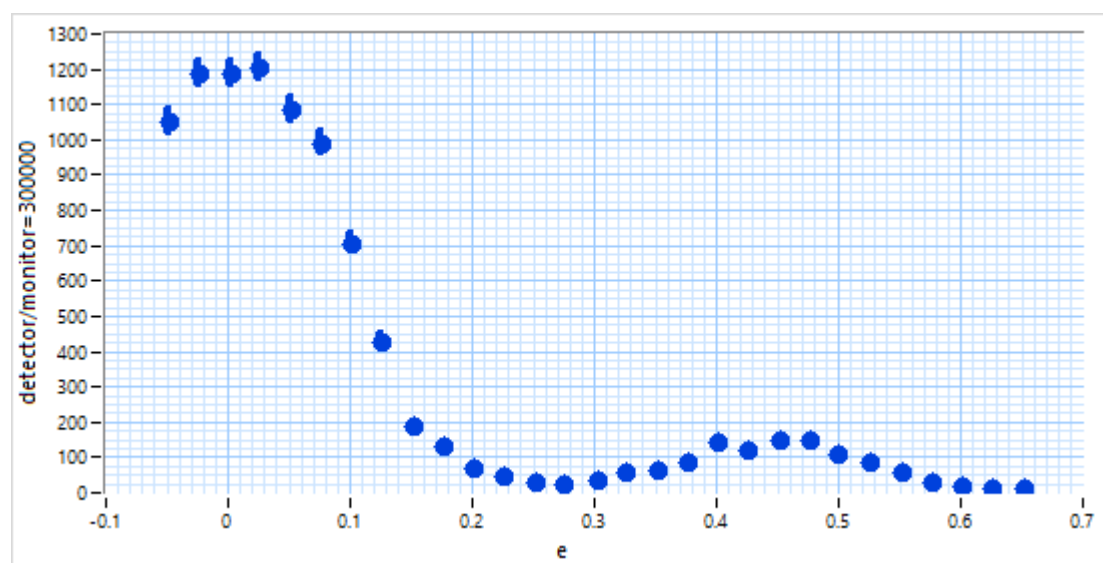
#109 h -0.5



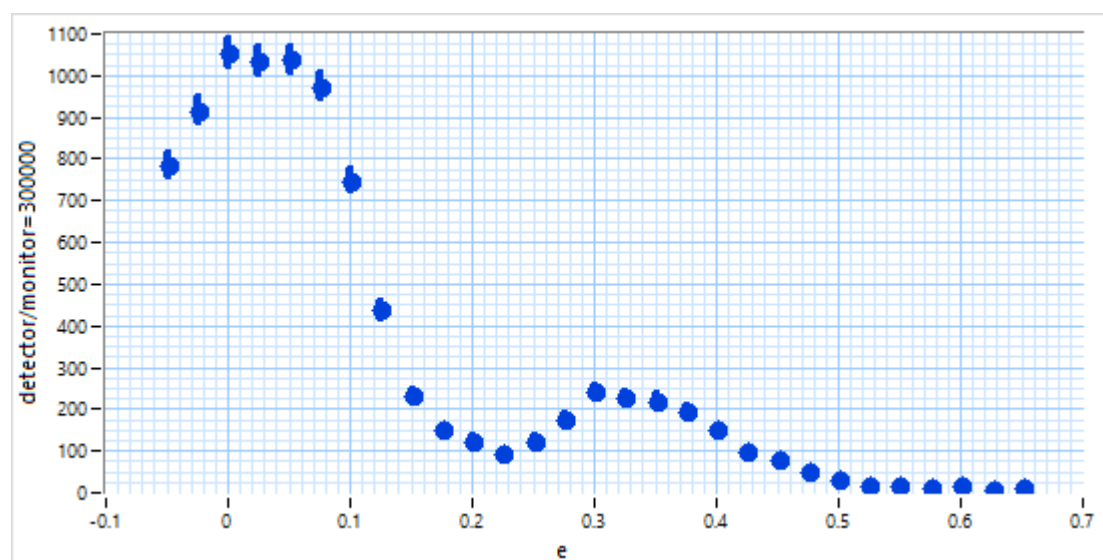
#110 h -0.6



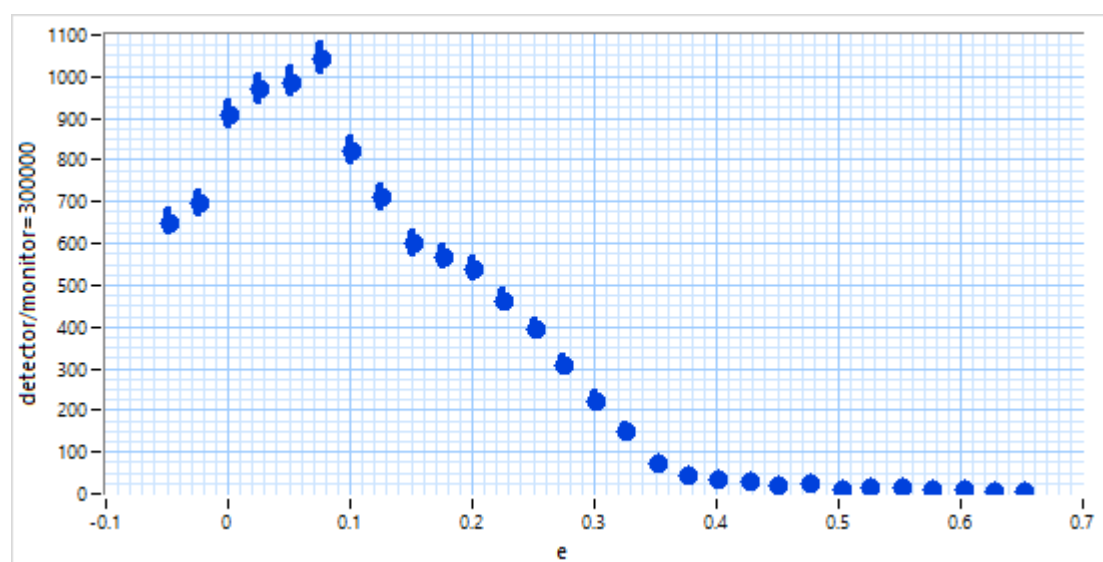
#111 h -0.7



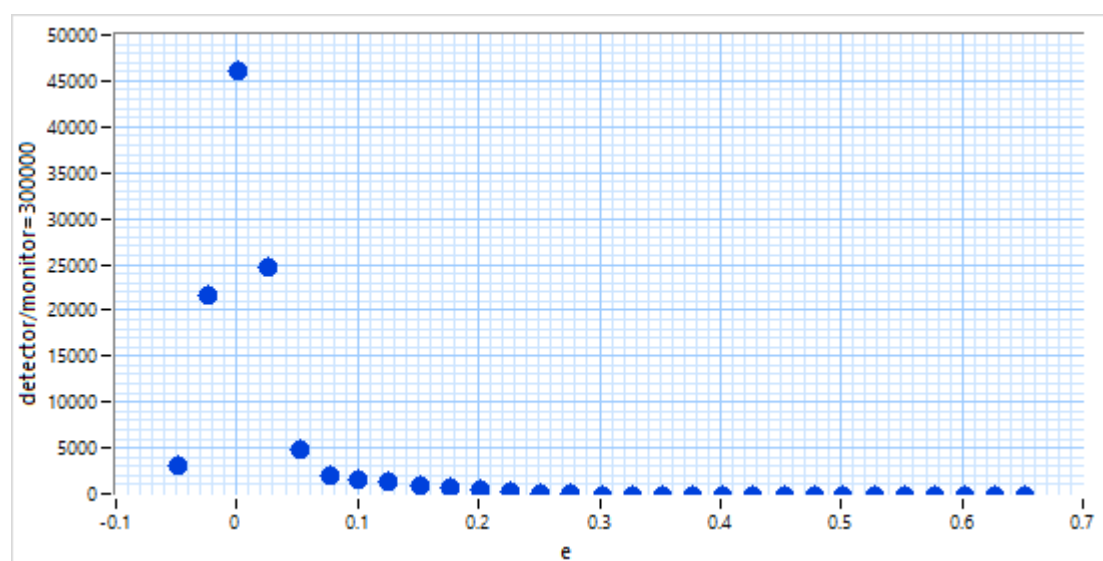
#112 h -0.8



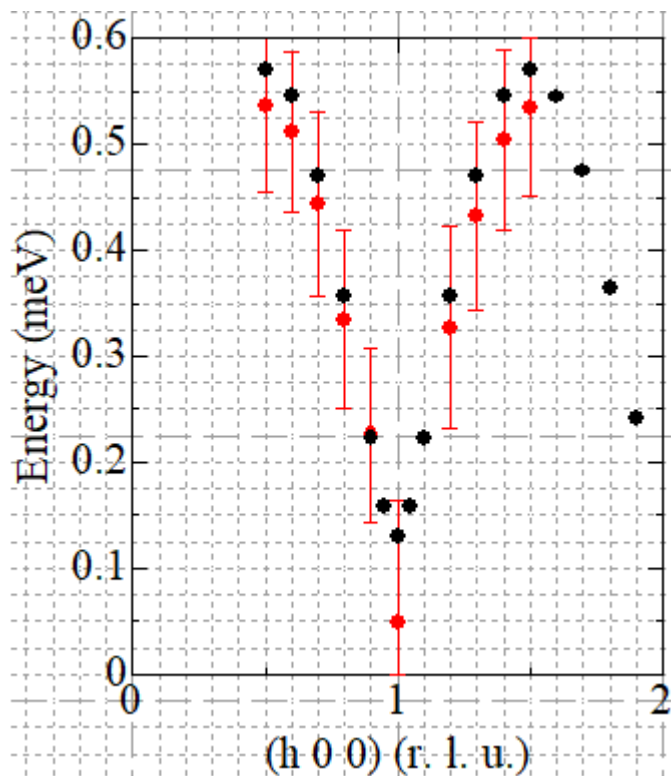
#113 h -0.9



#114 h -1.0



fitting (flat mode, $E_f=3.635\text{meV}$)

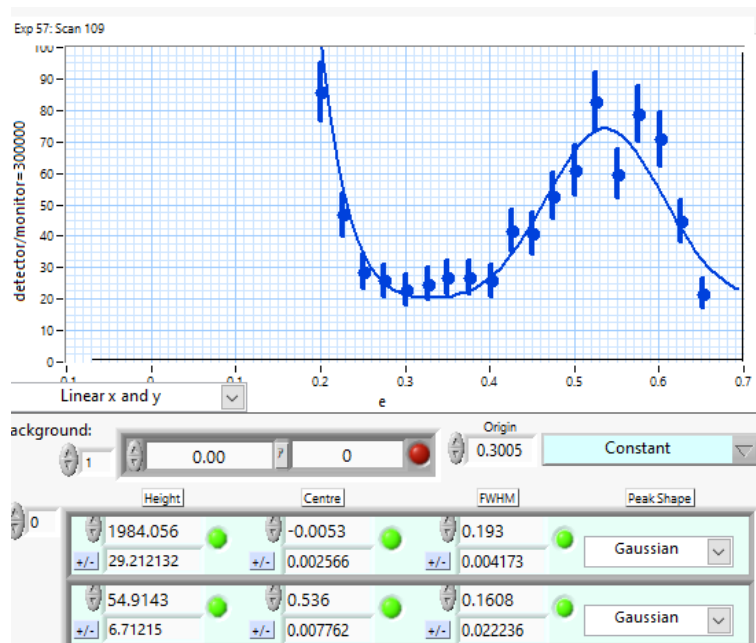


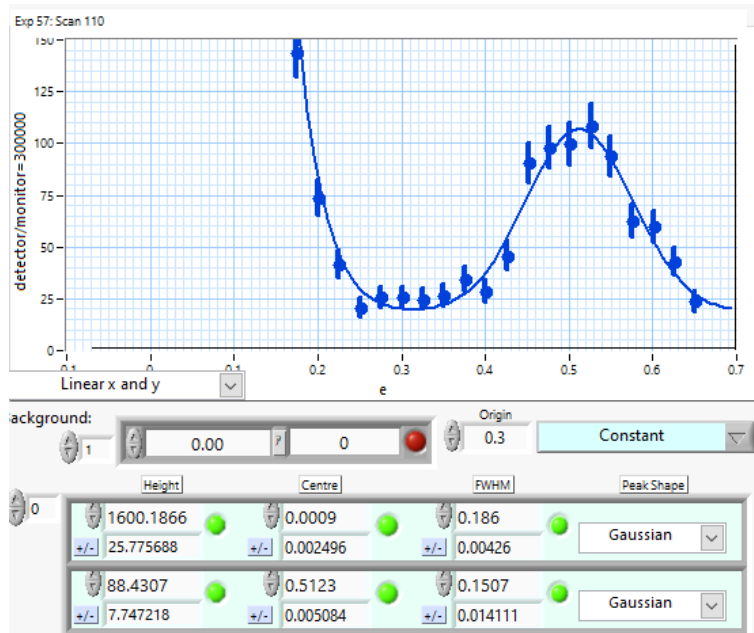
red : this experiment($E_f=3.635\text{meV}$,guide-open-80'-open, $T=2.468\text{K}$),

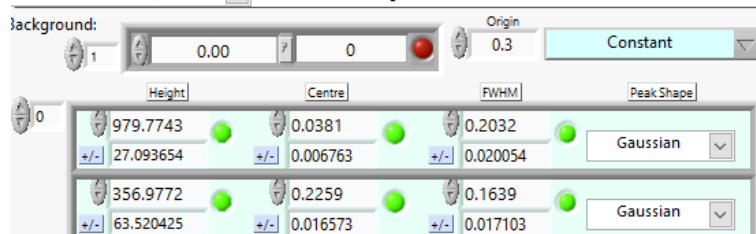
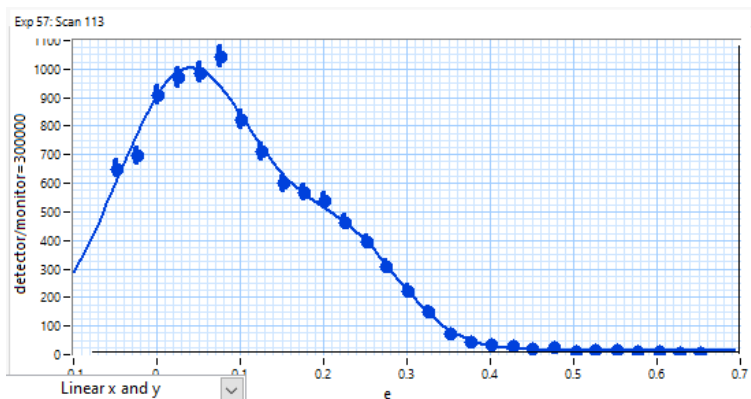
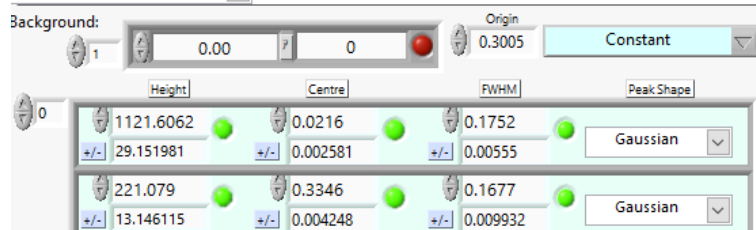
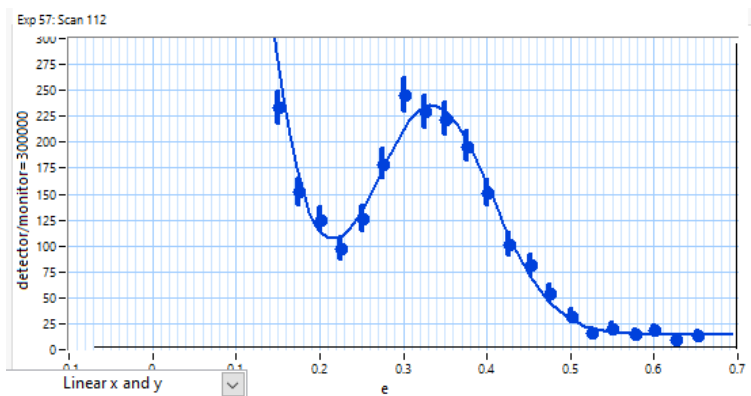
black : previous data($E_f=3\text{meV}$,guide-open-80'-80', $T=1.7\text{K}$)

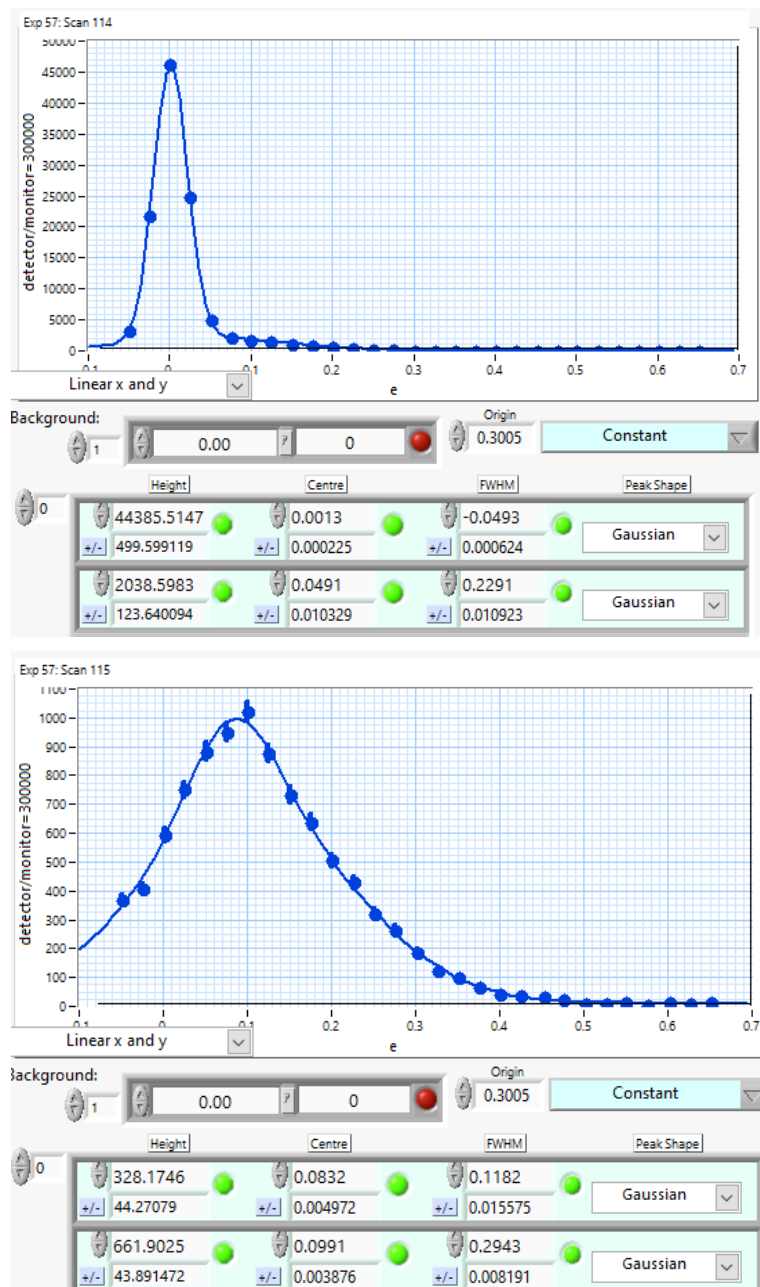
moment sizeが先行研究の実験条件時の8割程度になっている為、分散が低くなった。

#109~#119

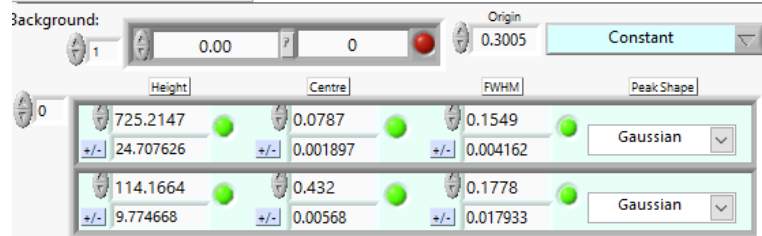
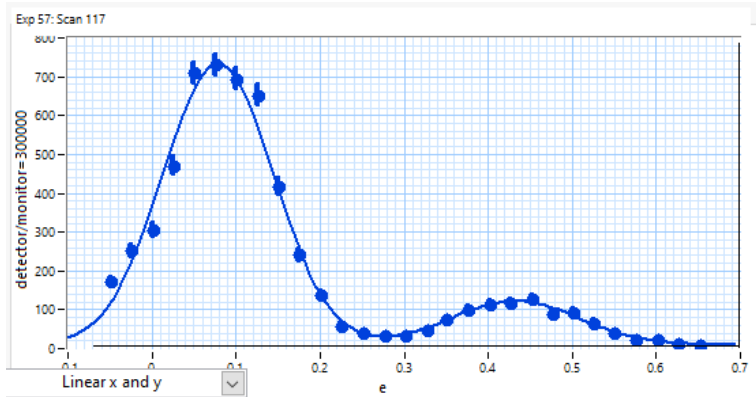
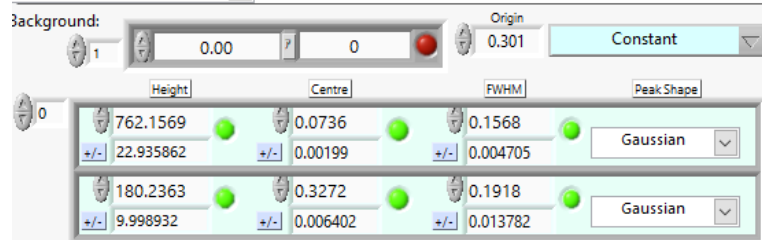
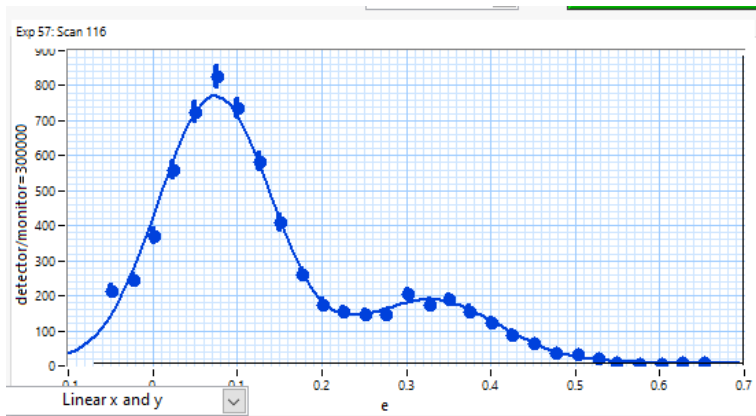


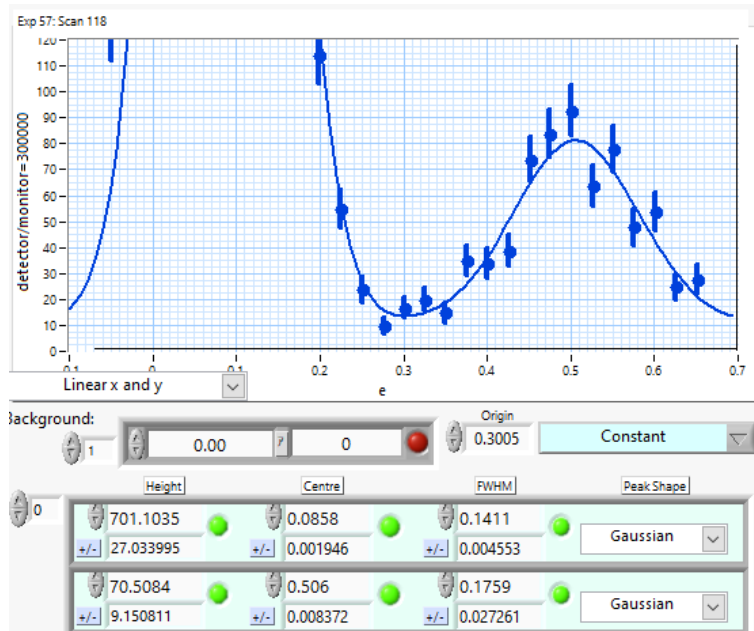
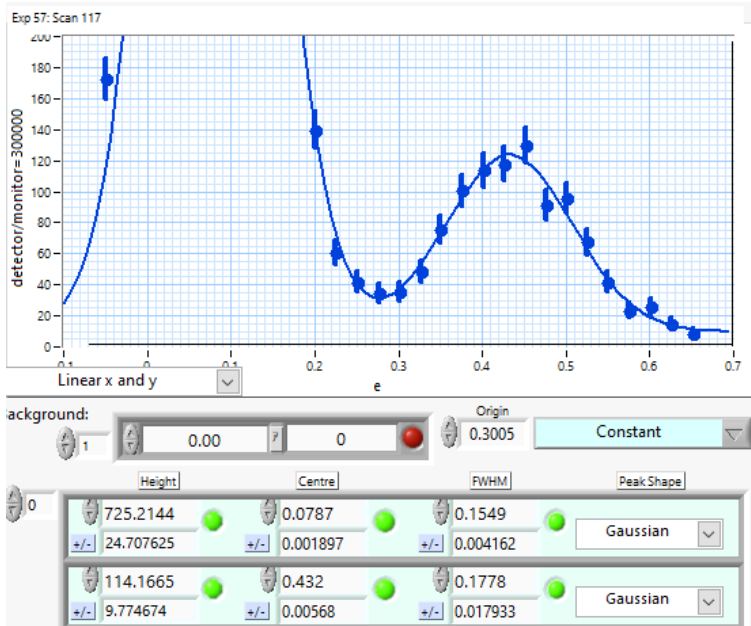


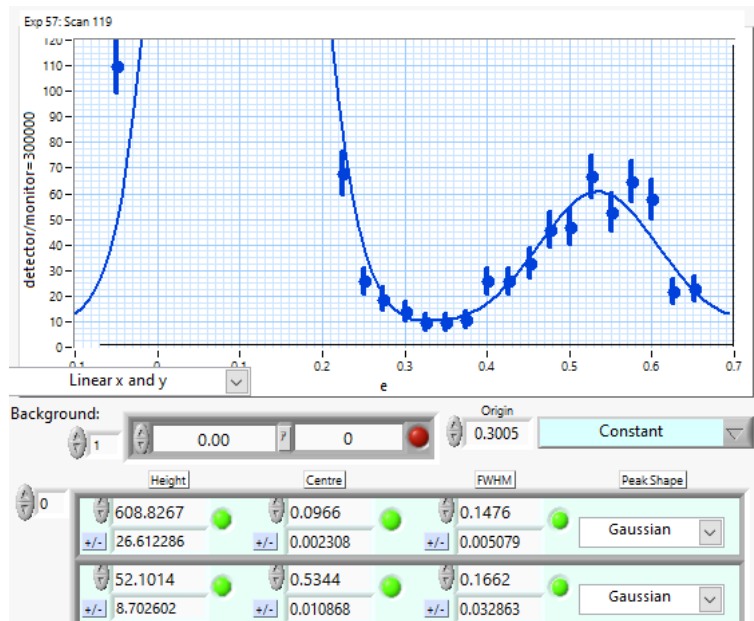




これについては除外する。







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

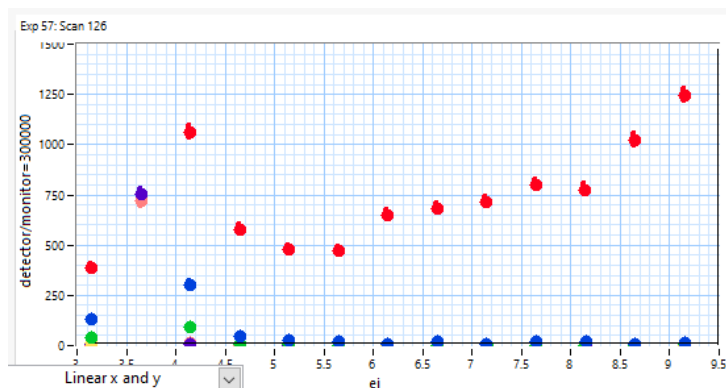
#125 scan ei 3.135 9.135 0.5 preset mcu 2

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.

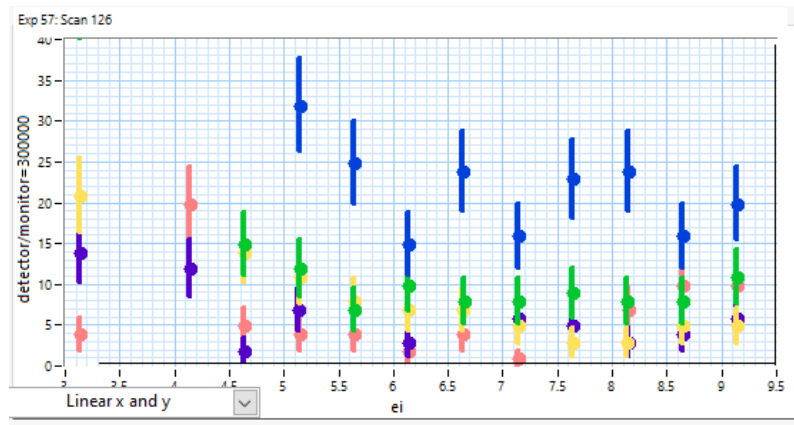


Direct beam cathar is modified.

3 plates of Cd, 25cm x 25 cm, thickness 1mm + B4C rubber

#121-#126

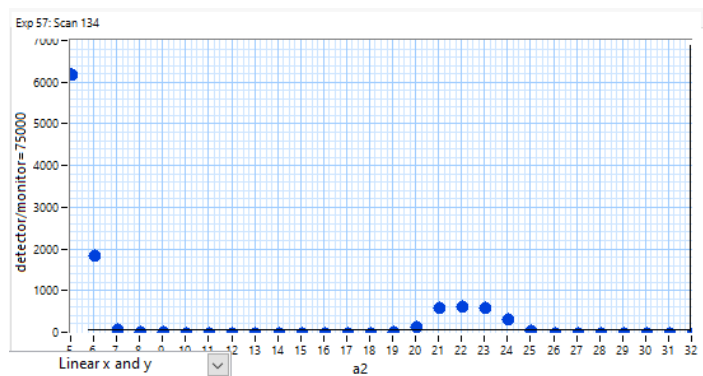
Blue: #121, a2=10deg
 Red: #122, a2=20deg
 Green: #122, a2=30deg
 Yellow: #122, a2=40deg
 purple: #122, a2=60deg
 pink: #122, a2=70deg

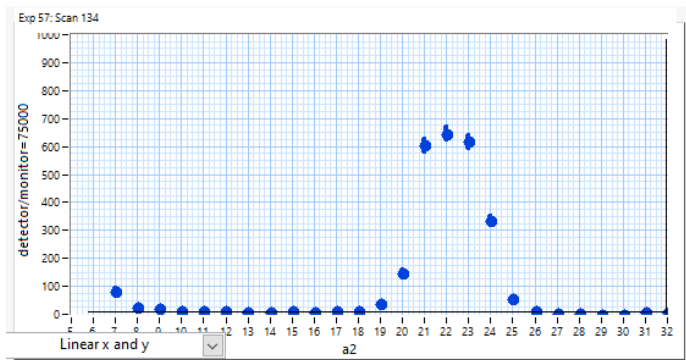


#127 scan h -0.5 k 0 l 0 e -0.05 0.65 0.025 preset mcu 1
 #128 scan h -0.6 k 0 l 0 e -0.05 0.65 0.025 preset mcu 1
 #129 scan h -0.7 k 0 l 0 e -0.05 0.65 0.025 preset mcu 1
 #130 scan h -0.8 k 0 l 0 e -0.05 0.65 0.025 preset mcu 1
 #131 scan h -0.9 k 0 l 0 e -0.05 0.65 0.025 preset mcu 1

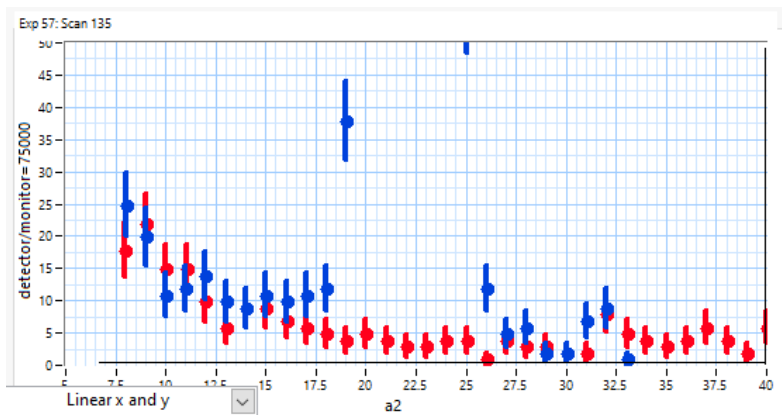
Terminate #131 at e=0.2 meV

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

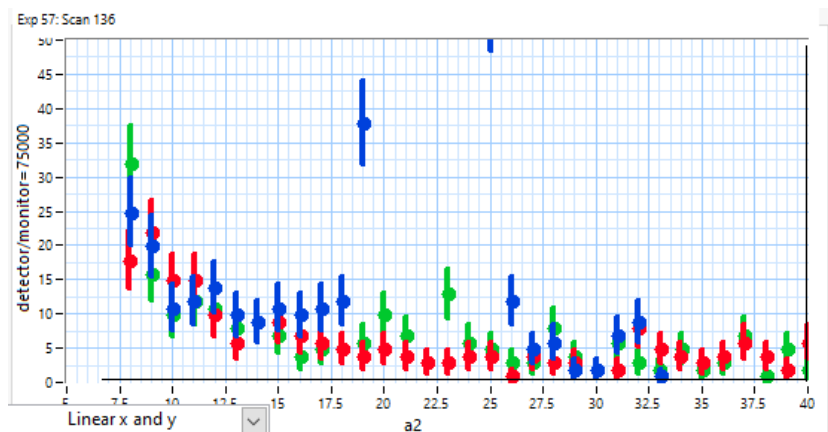




#135 scan a2 5 40 1 preset mcu 0.5 at $E_i=4.634$ and $E_f=3.635$ meV using revised direct beam catcher above



#136 scan a2 5 40 1 preset mcu 0.5 at $E_i=4.634$ and $E_f=3.635$ 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

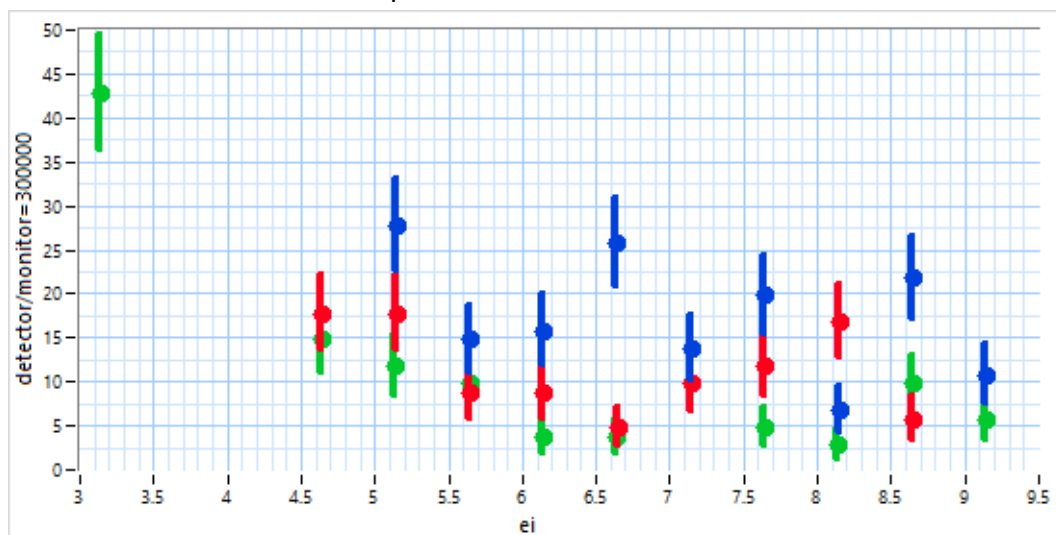
#138 scan ei 3.135 9.135 0.5 preset mcu 2

drive a2 20

#139 scan ei 3.135 9.135 0.5 preset mcu 2

drive a2 30

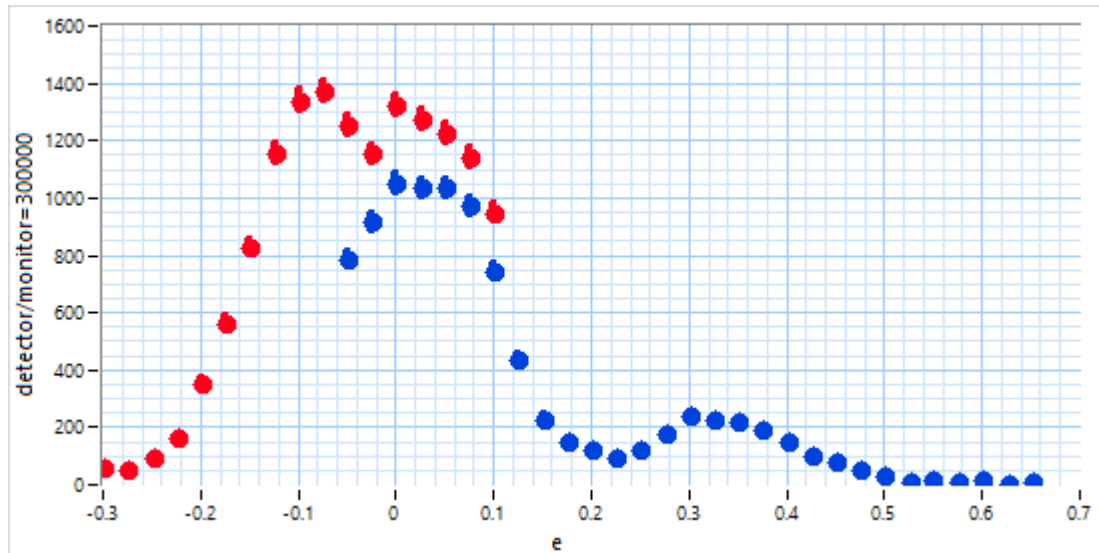
#140 scan ei 3.135 9.135 0.5 preset mcu 2



blue #138, red #139, green #140

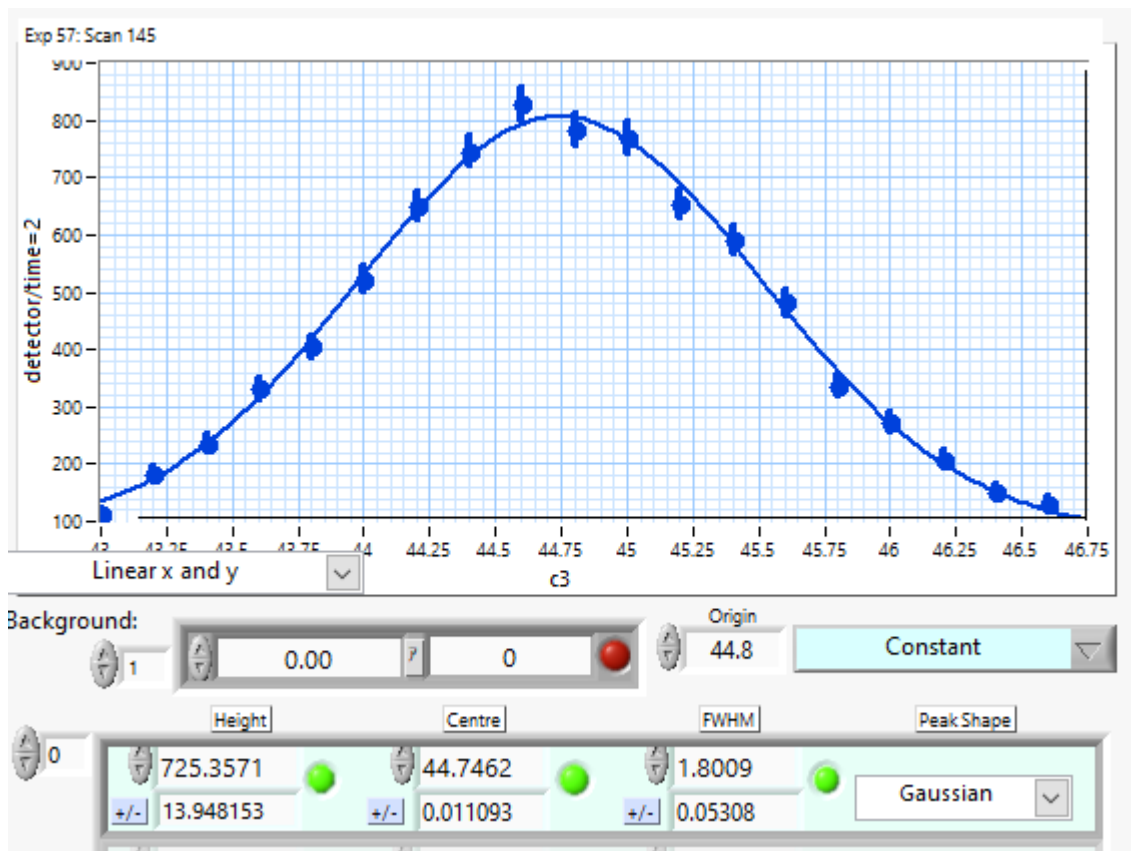
guide-open-Be/PG filter-sample-80'-Be-falt ana-open,
Narrowers full open for 1, spacer off

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

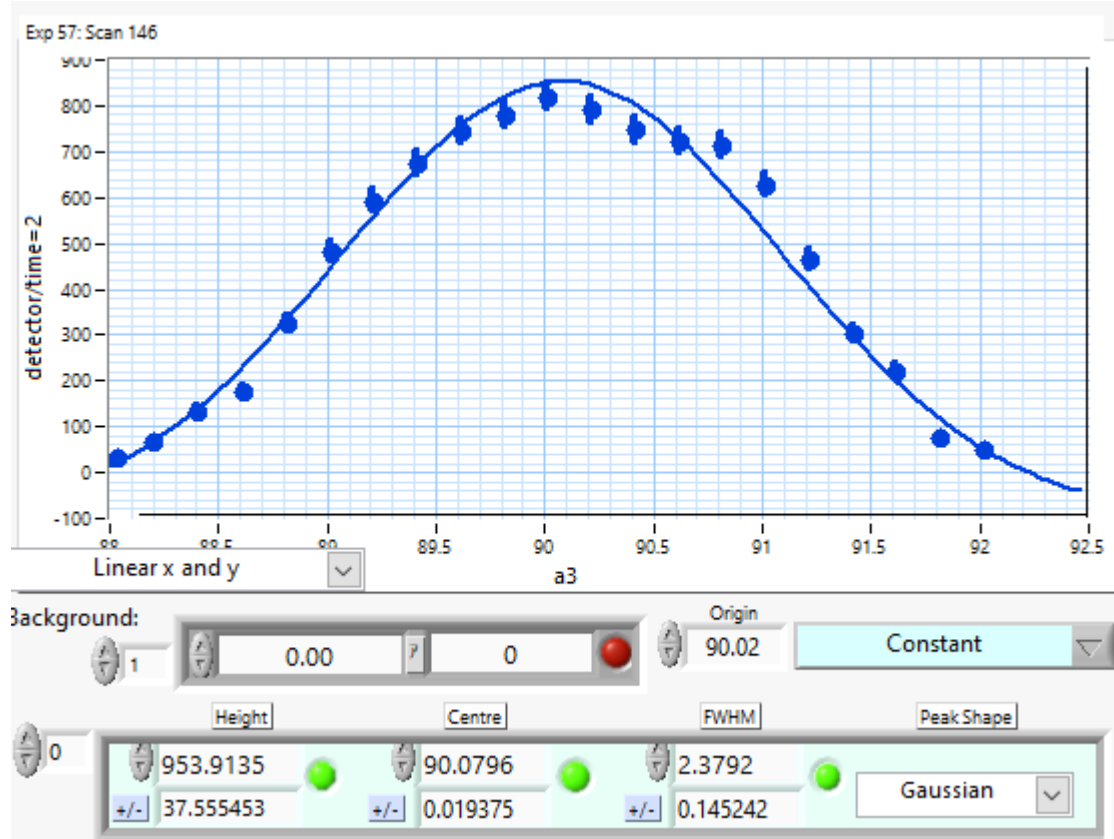
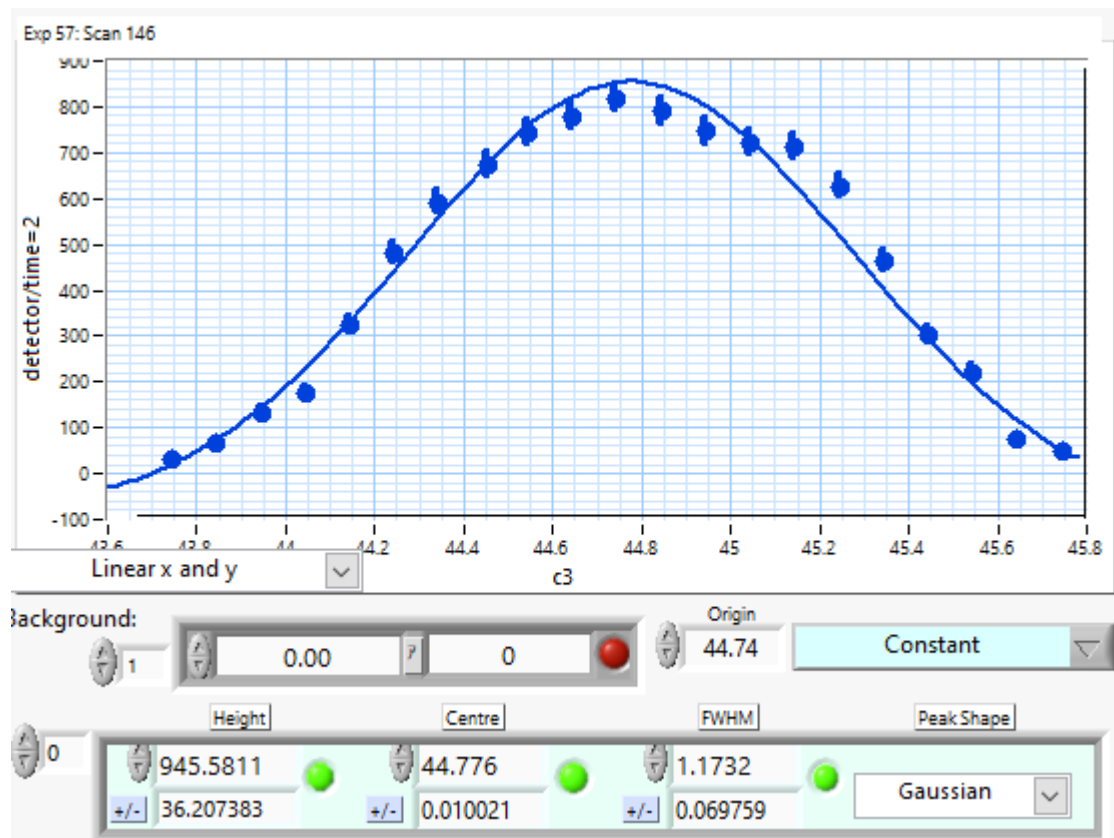


flatになっているか、確認するためc3-a3スキャン。

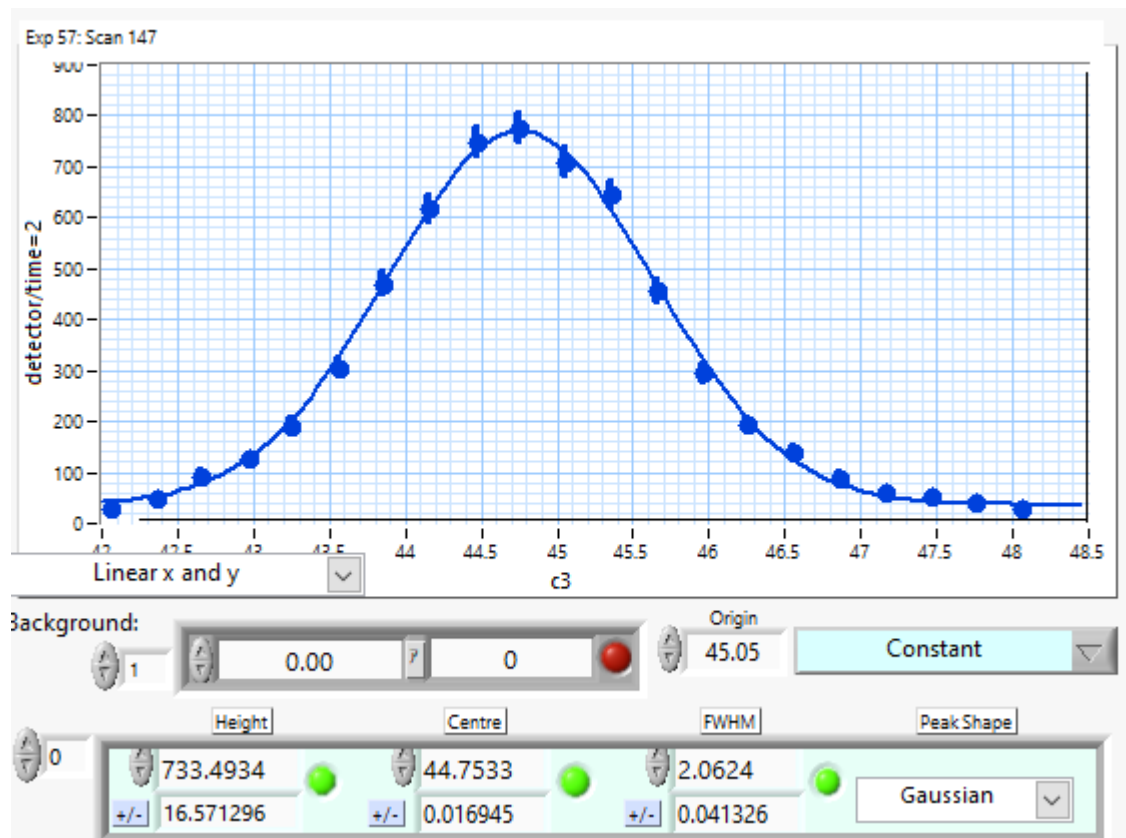
#145 scan c3 @(c3)-2 @(c3)+2 0.2 preset time 2 @(-1 0 0)



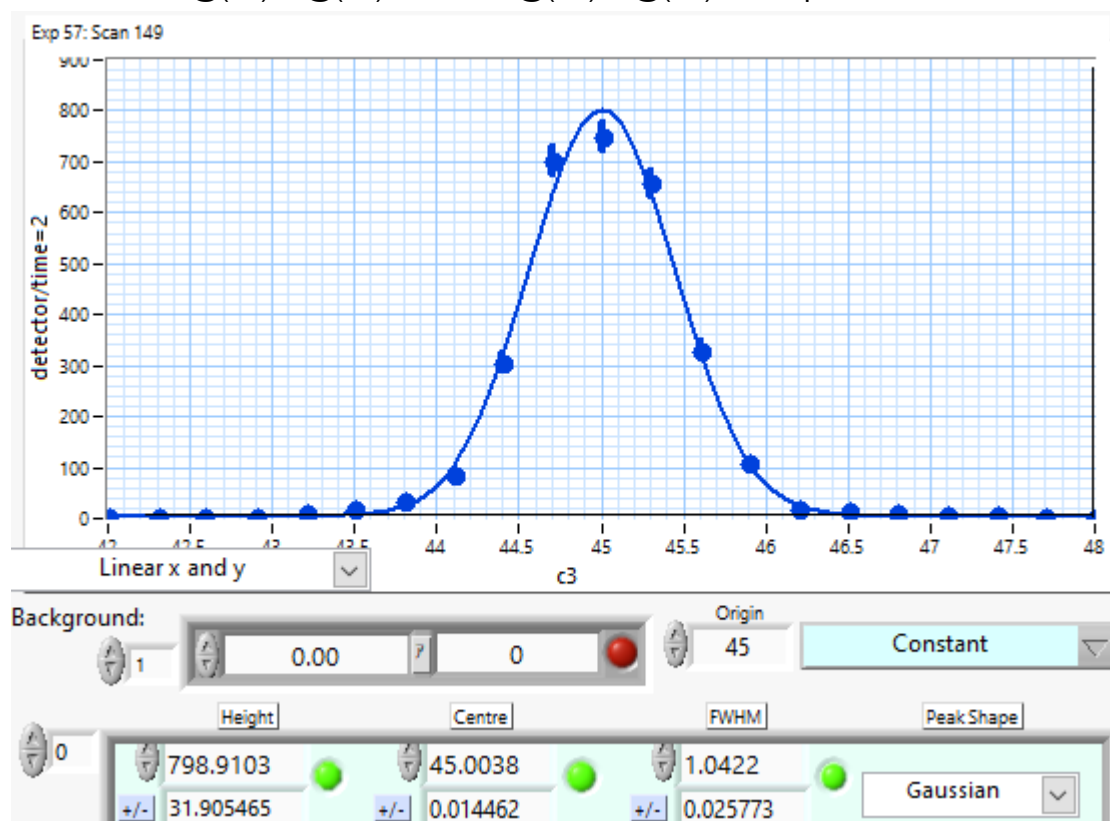
#146 scan c3 @(c3)-1 @(c3)+1 0.1 a3 @(a3)-2 @(a3)+2 0.2 preset time 2

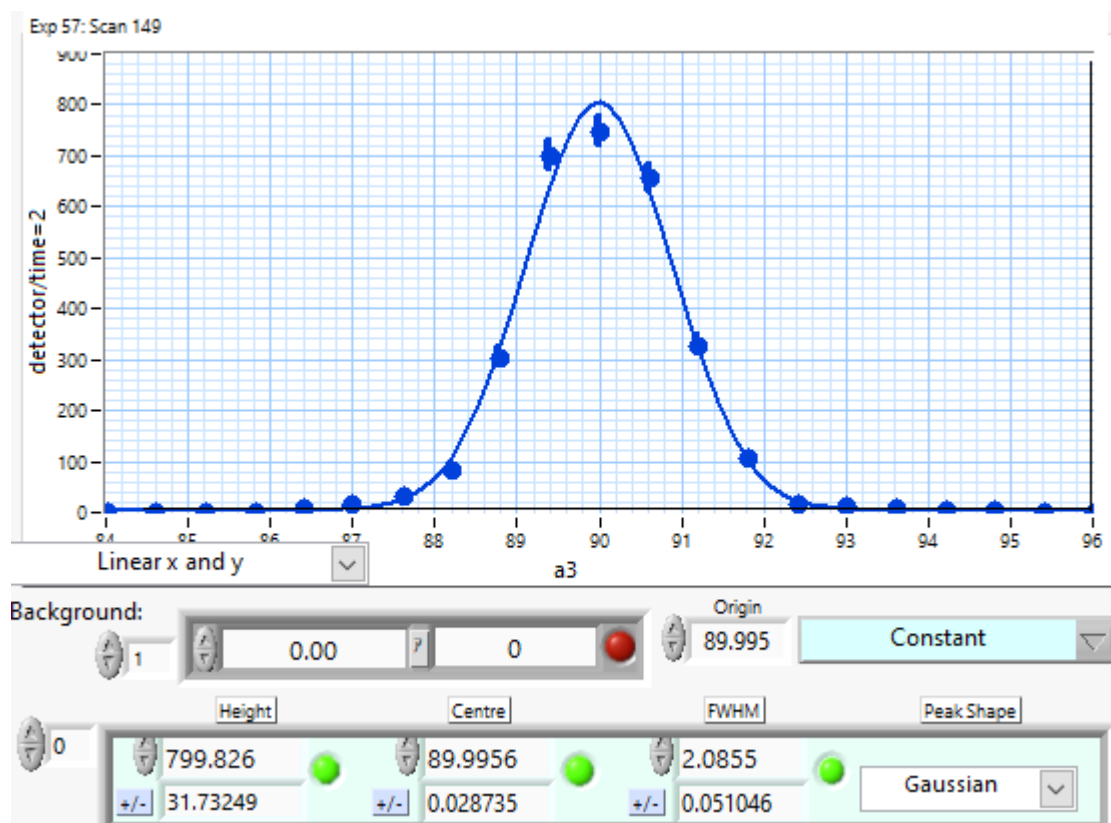


#147 scan c3 @(c3)-3 @(c3)+3 0.3 preset time 2



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





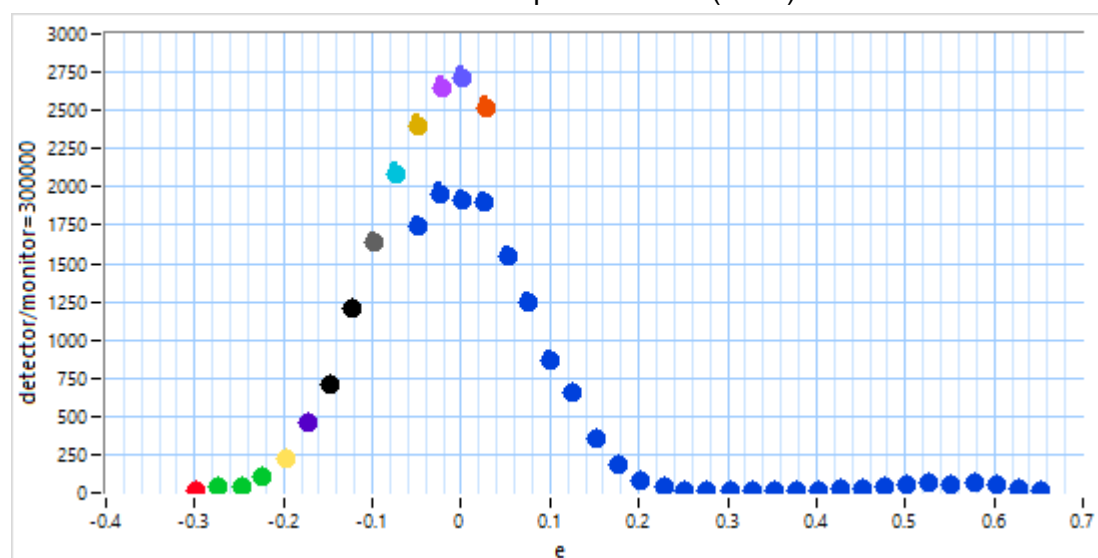
Setting the following motor zeros:

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

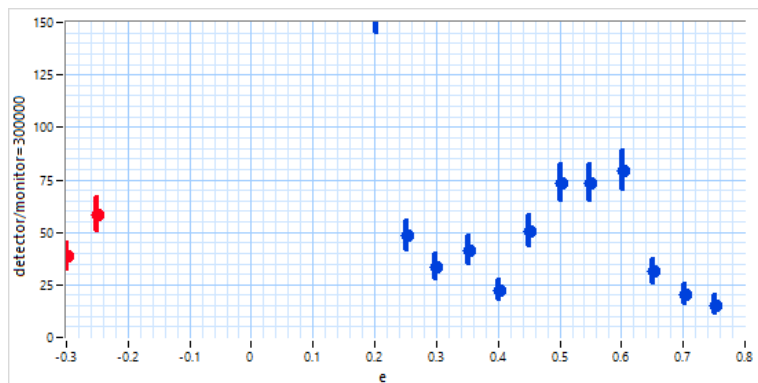
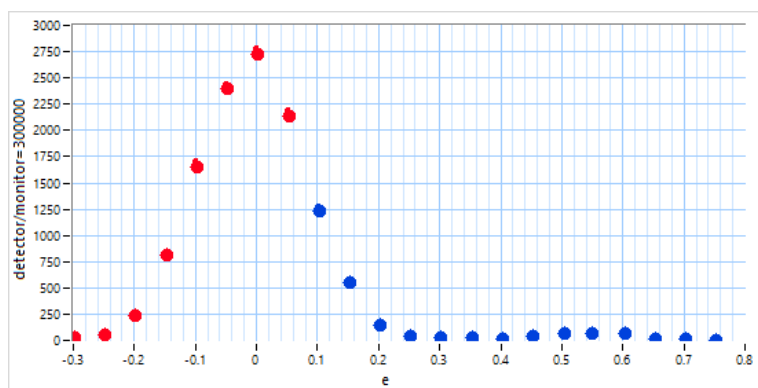
Setting the following motor zeros:

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)

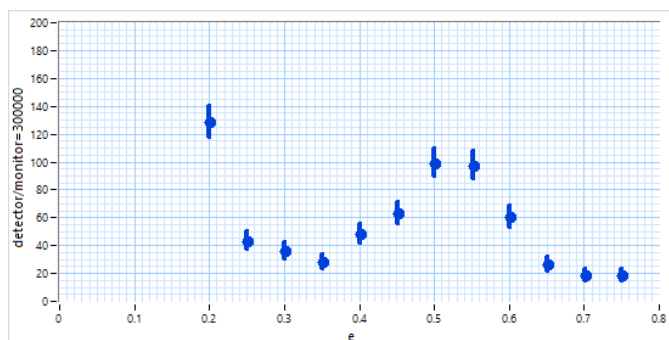
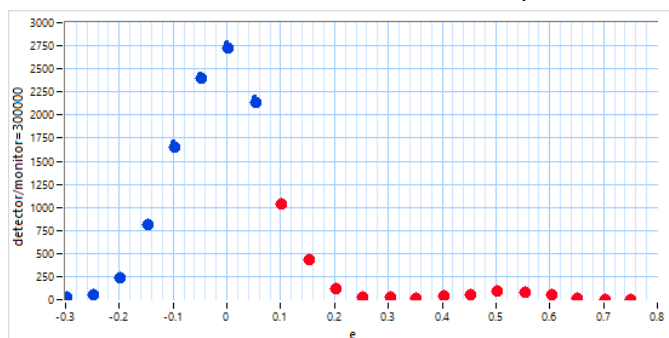


#159 scan h -0.5 k 0 l 0 e 0.1 0.75 0.05 preset mcu 2 (#154)

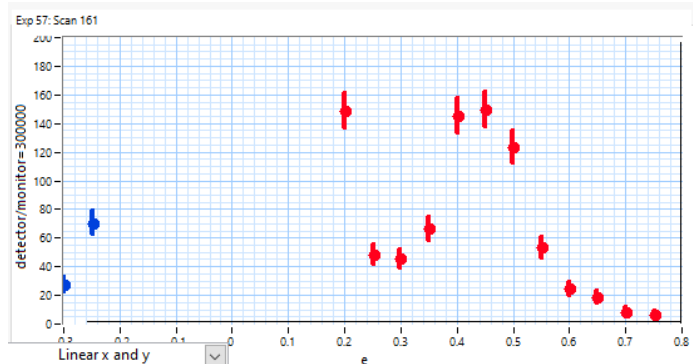
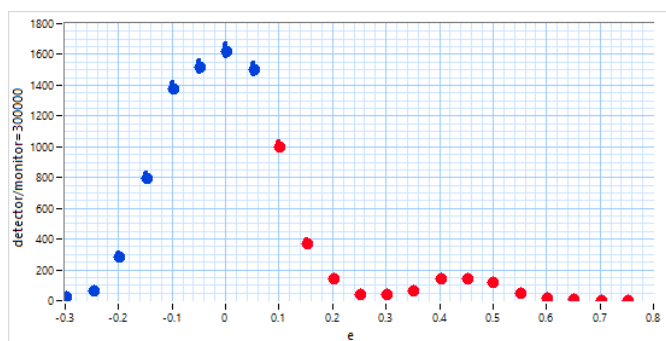


22:46

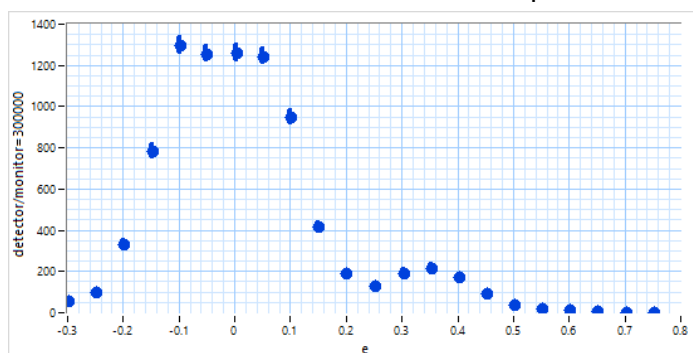
#160 scan h -0.6 k 0 l 0 e 0.1 0.75 0.05 preset mcu 2 (›) (35min)



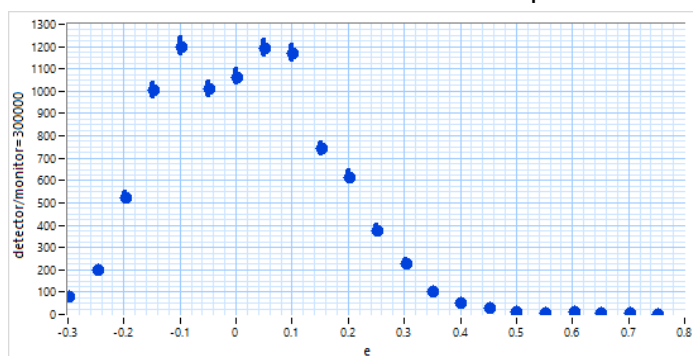
#161 scan h -0.7 k 0 l 0 e 0.1 0.75 0.05 preset mcu 2 (œ)



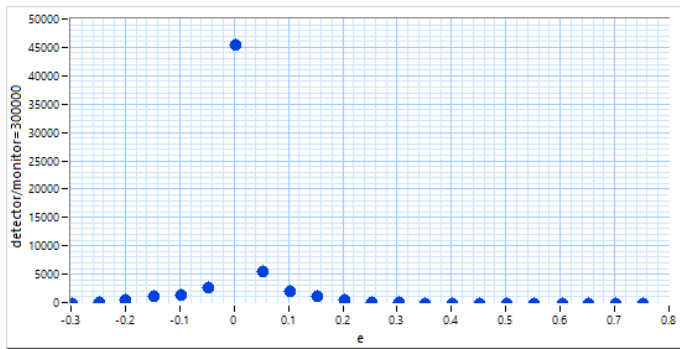
#162 scan h -0.8 k 0 l 0 e -0.3 0.75 0.05 preset mcu 2(55min)



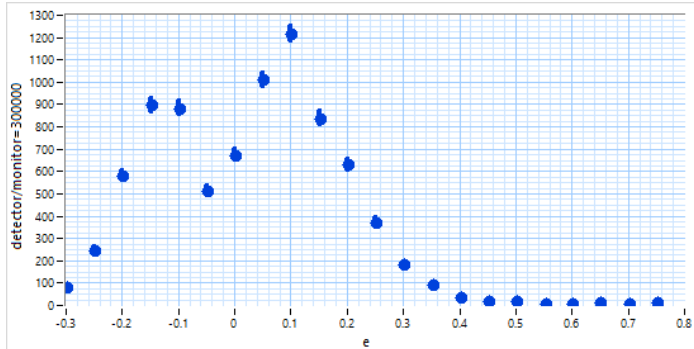
#163 scan h -0.9 k 0 l 0 e -0.3 0.75 0.05 preset mcu 2



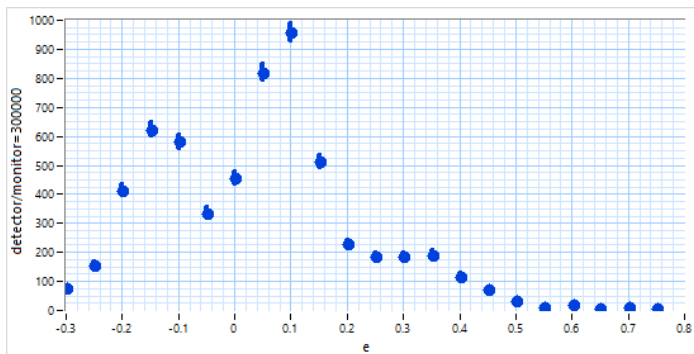
#164 scan h -1.0 k 0 l 0 e -0.3 0.75 0.05 preset mcu 2



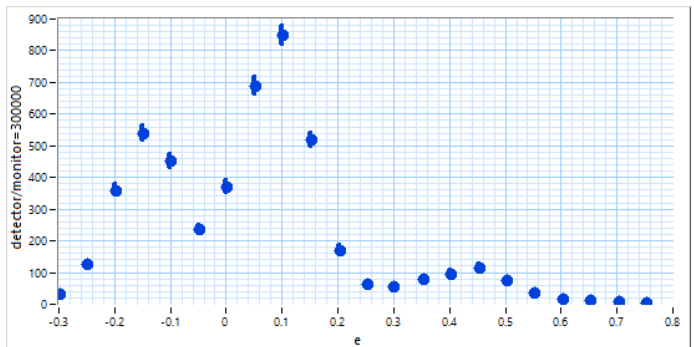
#165 scan h -1.1 k 0 l 0 e -0.3 0.75 0.05 preset mcu 2



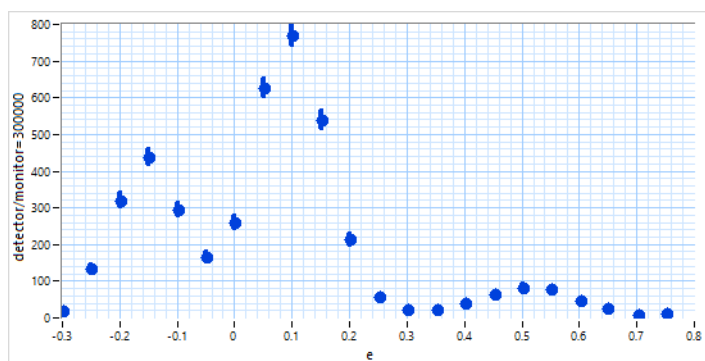
#166 scan h -1.2 k 0 l 0 e -0.3 0.75 0.05 preset mcu 2



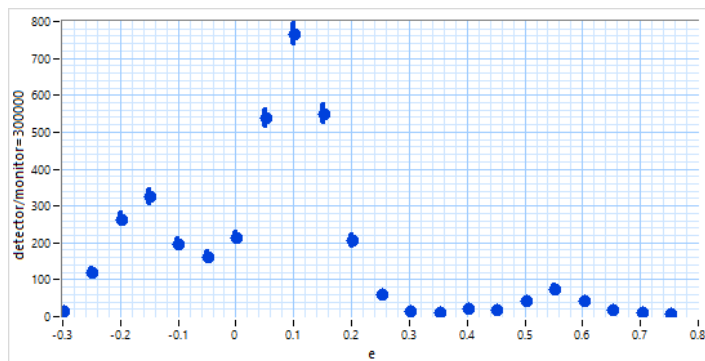
#167 scan h -1.3 k 0 l 0 e -0.3 0.75 0.05 preset mcu 2



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



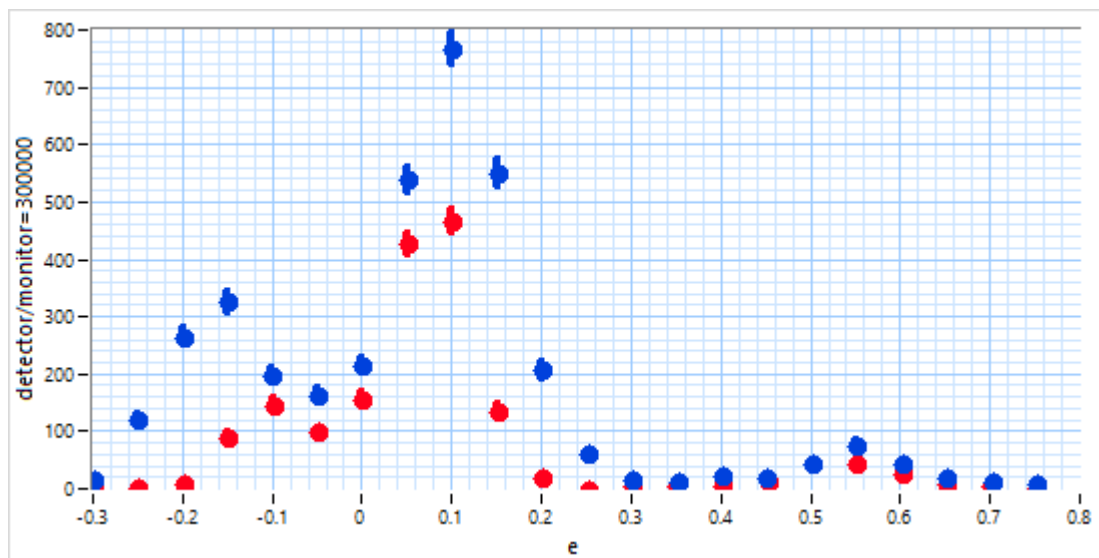
#169 scan h -1.5 k 0 l 0 e -0.3 0.75 0.05 preset mcu 2

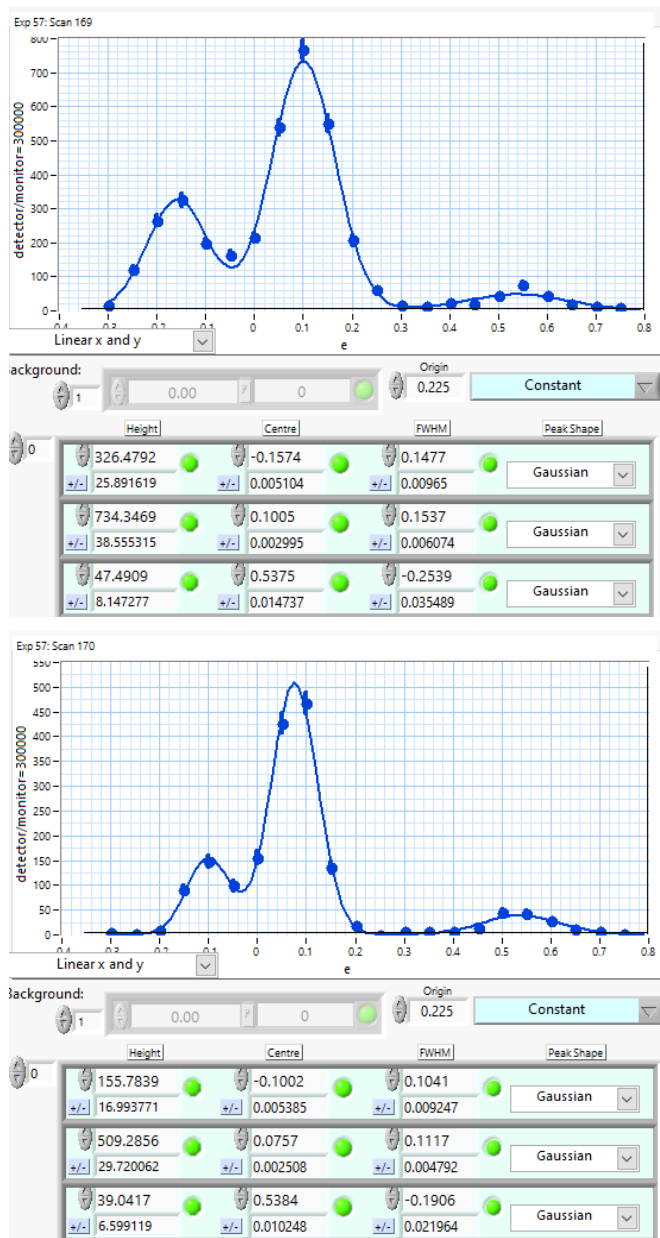


11/10

guide-open-Be/PG filter-sample-80'-Be-falt ana-open, $E_f=3\text{meV}$

#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

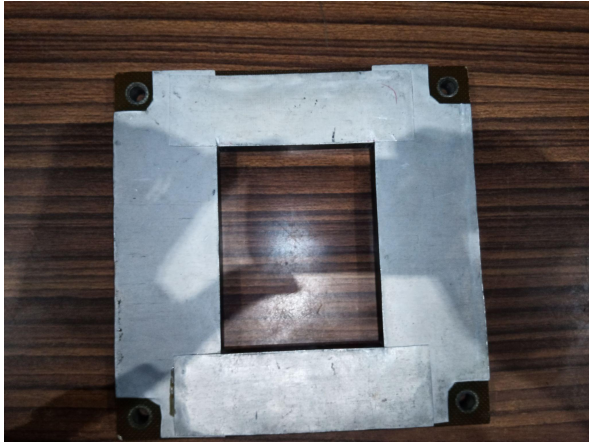
drive a2 10

#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.

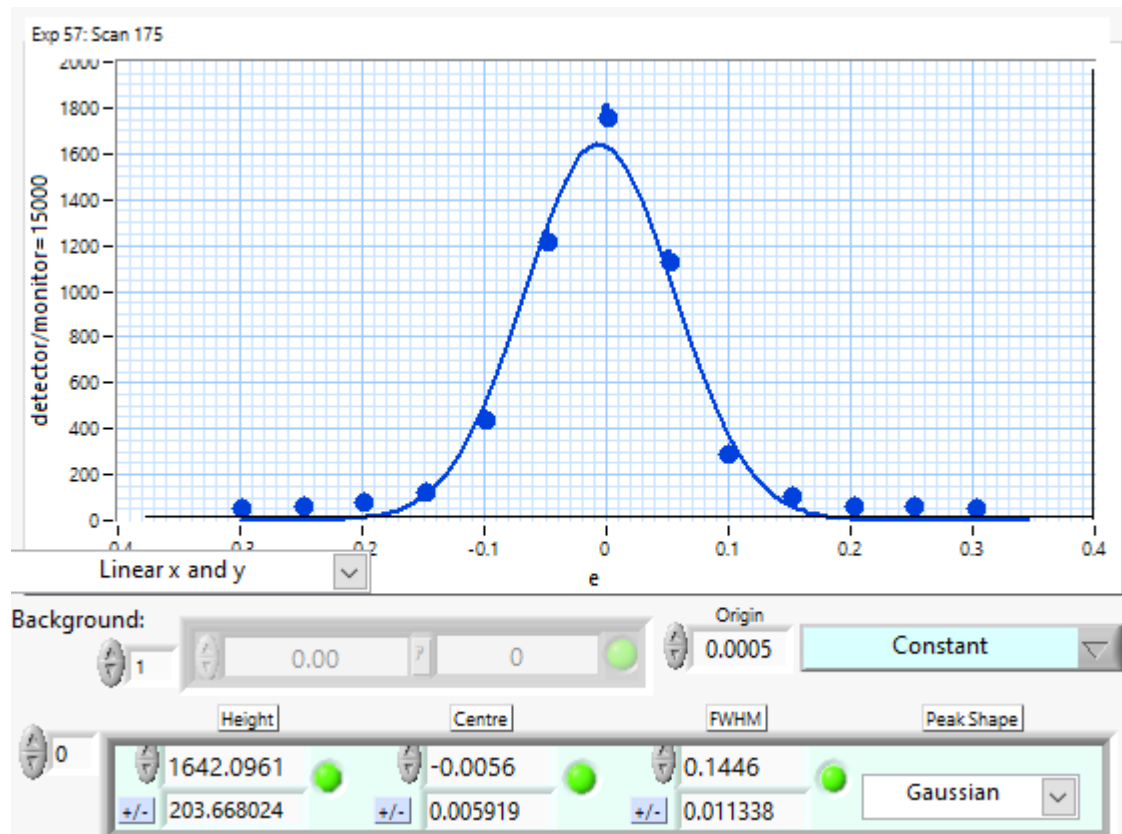
#174 scan ei 3.135 9.135 0.5 preset mcu 2

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, $E_f=3.635\text{meV}$ でエネルギー स्क्यान(c3-a3 स्क्यानは昨日夜行った為)

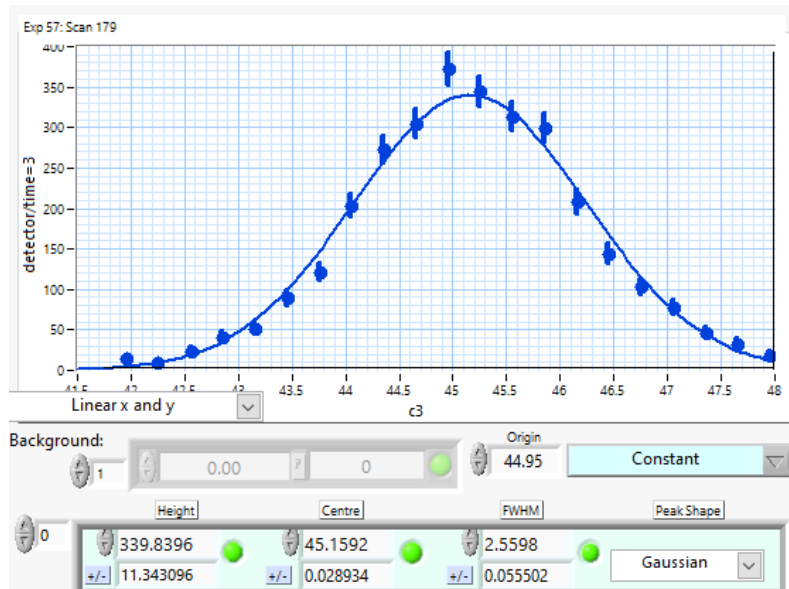
#175 scan e -0.3 0.3 0.05 preset mcu 0.1



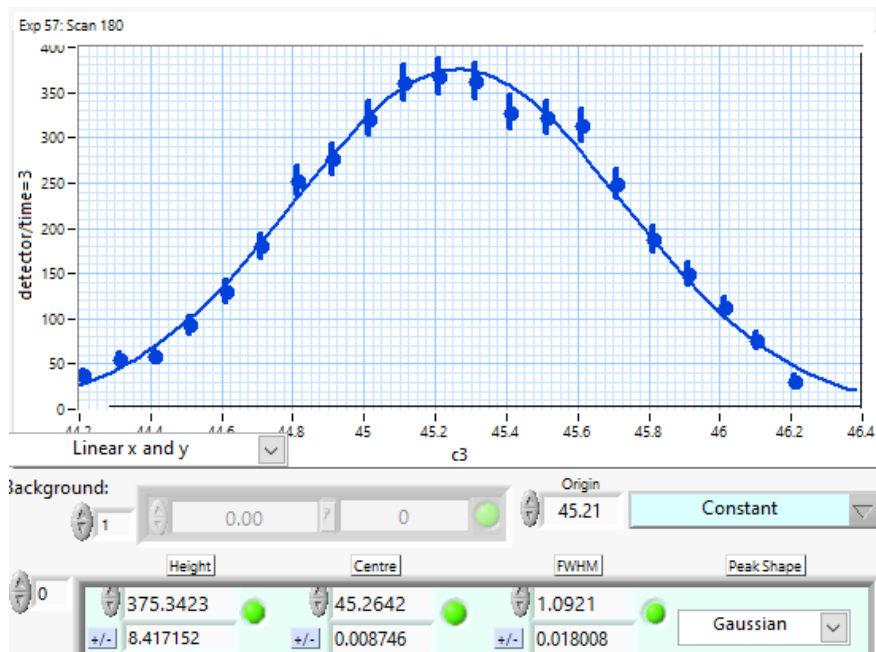
flat mode へ切り替え

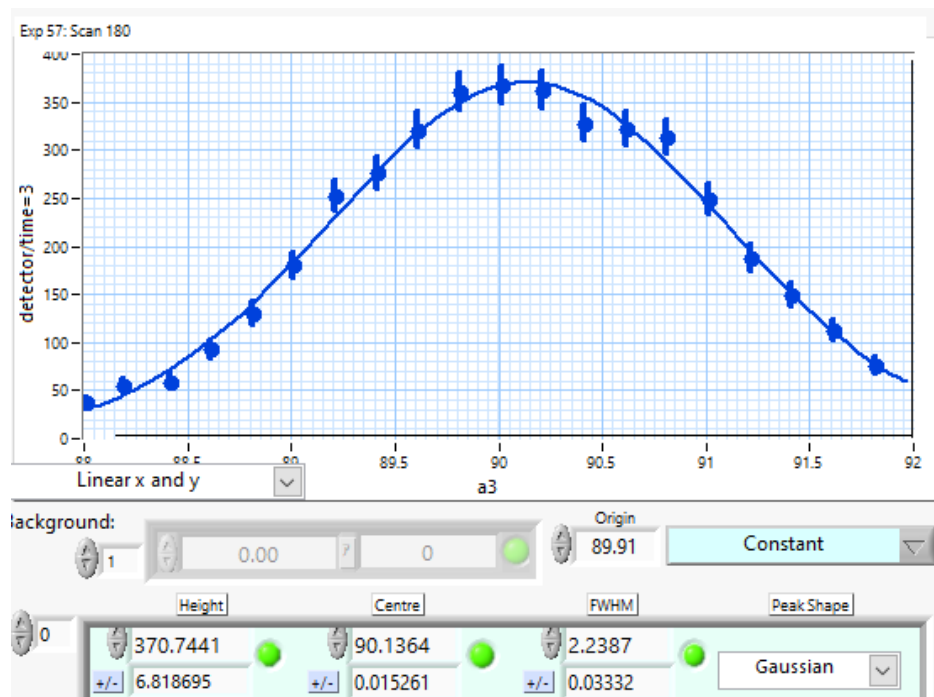
guide-open-Be/PG filter-sample-80'-Be-flat ana-open,
Ef=3.635meV, (spacer off)

#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





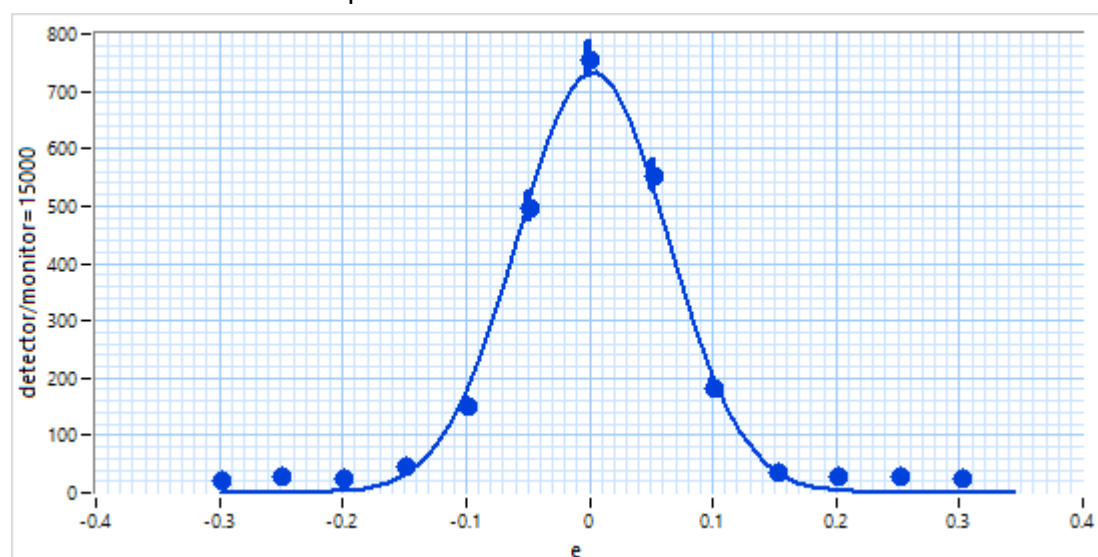
Setting the following motor zeros:

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

Setting the following motor zeros:

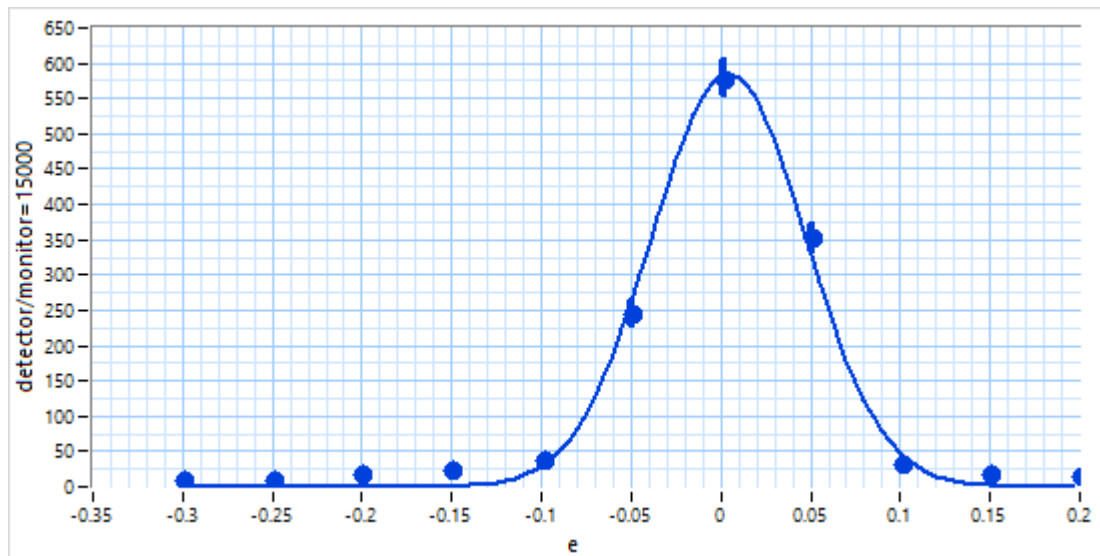
Motor Name	Motor Alias	Current angle	Set angle
a3	a3	90.1300	90.0000

#181 scan e -0.3 0.3 0.05 preset mcu 0.1



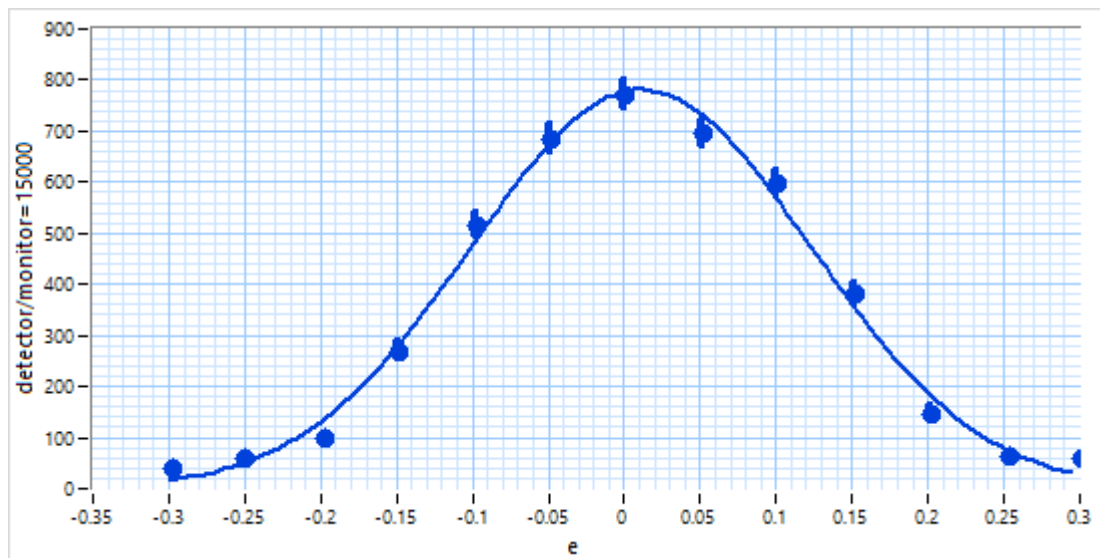
guide-open-Be/PG filter-sample-80'-Be-flat ana-open,
 $E_f=3\text{meV}$, (spacer off)

#182 scan e -0.3 0.3 0.05 preset mcu 0.1



guide-open-Be/PG filter-sample-80'-Be-flat ana-open,
 $E_f=5\text{meV}$, (spacer off)

#183 scan e -0.3 0.3 0.05 preset mcu 0.1



settingに問題なし

実験終了。

last

