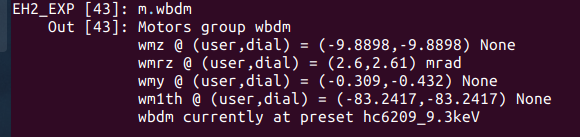
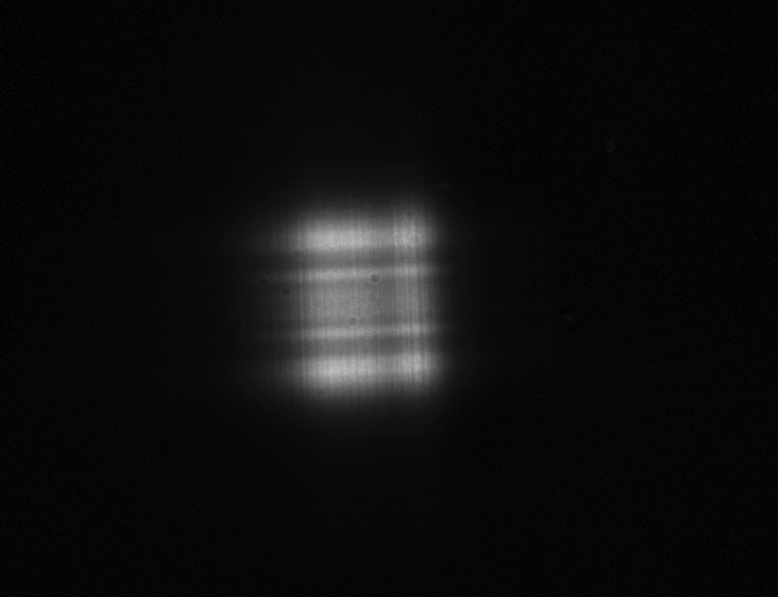
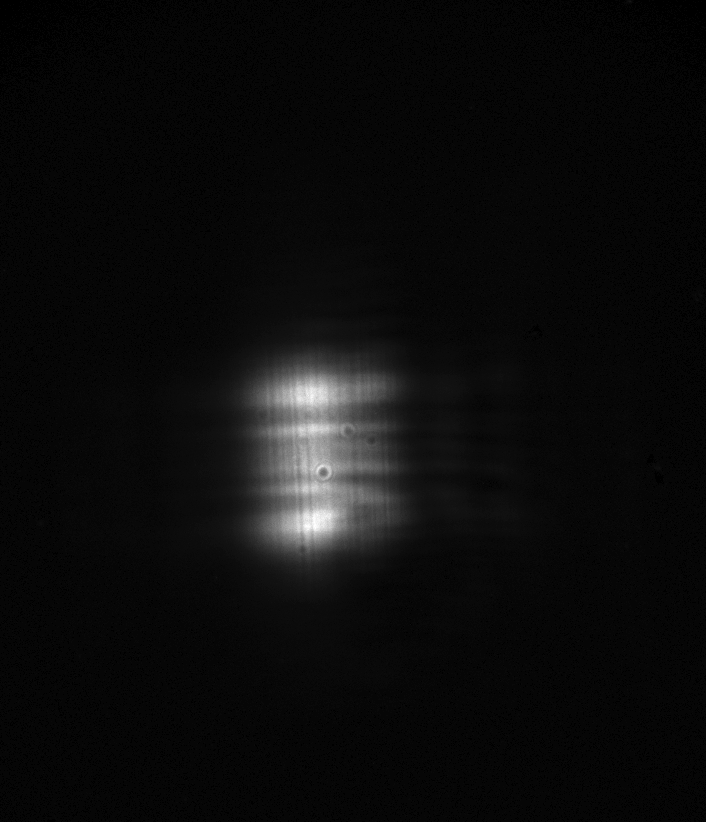
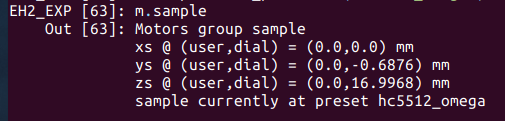
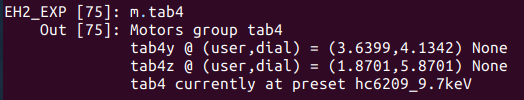
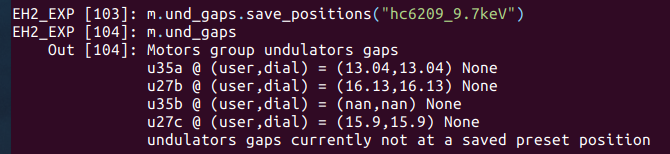
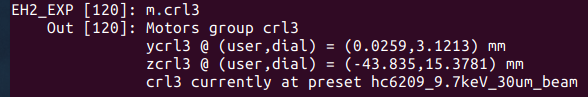
HC 6209 Logbook

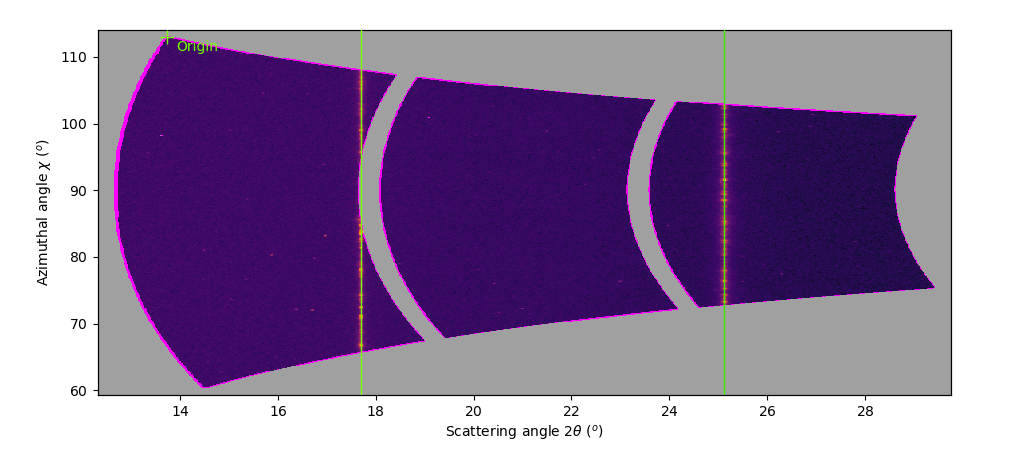
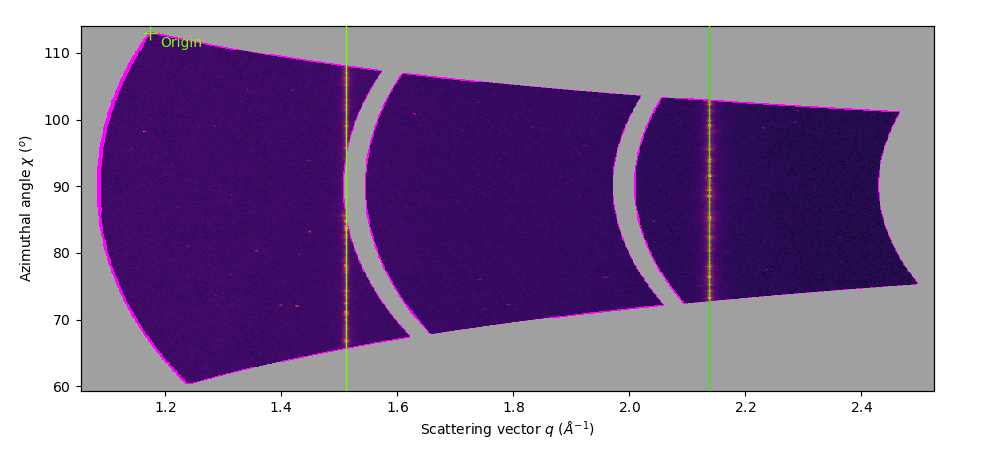
2025.04.08 - 2025.04.14

| Proposal Title: | Temperature dependence of the non-ergodicity factor of vitreous GeO2 |
| --- | --- |
| Experimental Team: |  |
| Local Contact: | FZ |
| Filling mode and emittance: | ⅞ +1 |
| X-ray mode: |  |
| Detectors: | Eiger 4M V2 |
| Sample to Detector Distance: | 7.05 m |

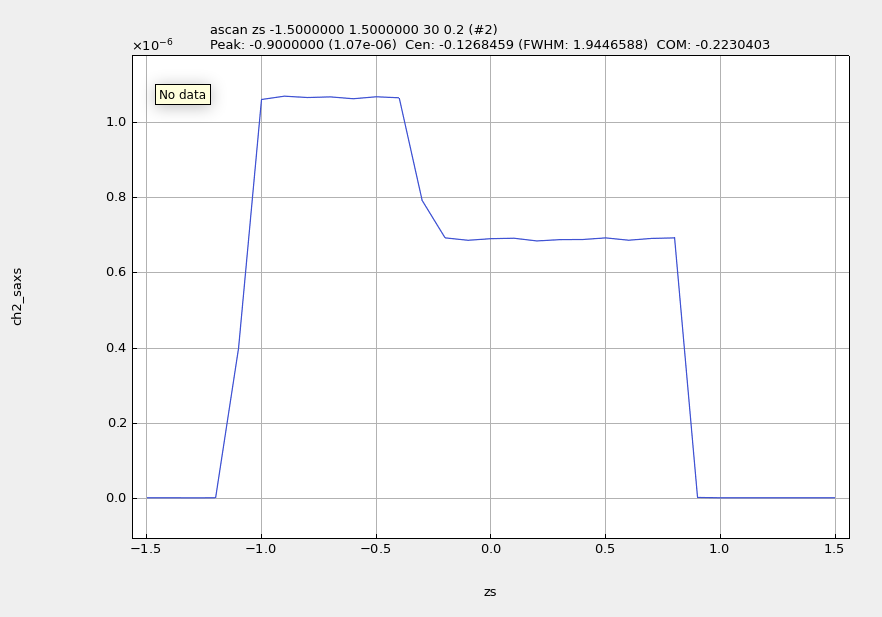
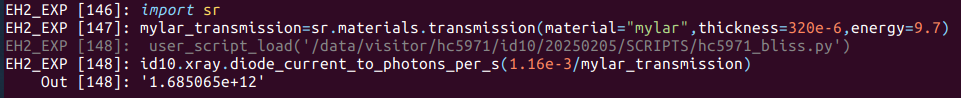
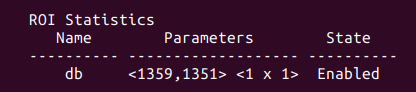
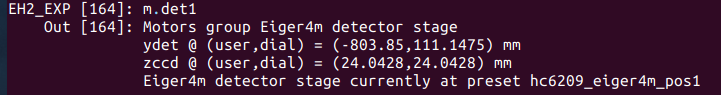
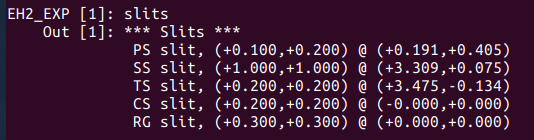
# 2025.04.08

* 8:10, Beamline alignment. The machine group informed us that the beam might have moved a bit yesterday
* Tasks:
  + Check if beam moved
    - Scan #4, Psvo
      * 
    - Scan #5, psho
      * 
  + Align undulators
  + Check contrast with Vycor
  + Pilatus calibration
* Data saved in **eh2\_exp\_0001**
* Mirror initial position
  + Wmy = 0.041, wmth1 = -88.24
* Mirror final position
  + 
  + 
  + Left: initial position, right: final position; screenshots taken using only primary at 0.2x0.2
* Quick sample alignment
  + To be sure we cleanly go through the center
  + 
* Finish beam alignment
  + Tab4 in z and y done with cs at 100um
    - 
  + TS slits centered
  + Undulators (Energy of work E=9.69999KeV)
    - 
    - Written user.restore\_undulators()
  + Lenses
    - 

## Mounted Lab6 to calibrate Pilatus

* + - Scan 27
    - 
    - 
    - Poni file saved:
      * Lab6\_eh2\_exp\_0001\_scan0027.poni

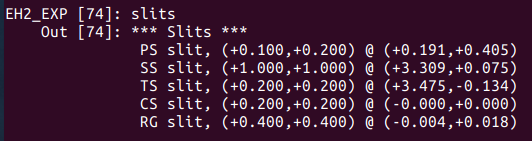
## newsample(“vycor”)

* 12:47, mounted vycor sample to check contrast
* Data in vycor\_0001
* Sample covers half of the hole. Will do scan to find edges (scan #2)
  + 
  + Scan done with 1e-3 transmission. Full beam is more than 1.07mA
  + Full beam intensity (focused): 1.68e12ph/s (@ 193mA)
  + 
* Alignment of Eige4m
  + 
  + Scan #4 and #5
  + 
  + 

# Activate delcoup

# 

Optimize RG



EH2\_EXP [72]: user\_script\_load("/data/visitor/hc6209/id10-coh/20250408/SCRIPTS/hc6209.py")

Dense XPCS:

EH2\_EXP [73]: user.take\_data\_and\_move(2\_000,dz=0.03)

ast detectors:

scanning mode = TIME

acquisition time = 0.01 sec

acquisition period = 0.0101006 sec

acq/slow points = 100

number of points = 2000 (requested 2000)

Scan 12 Tue Apr 8 15:01:08 2025 Saving in /data/visitor/hc6209/id10-coh/20250408/RAW\_DATA/vycor/vycor\_0001/vycor\_0001.h5

EH2\_EXP [82]: user.take\_data\_and\_move(2\_000,dt=0.01,dz=0.03)

Scan 13 Tue Apr 8 15:07:54 2025 Saving in /data/visitor/hc6209/id10-coh/20250408/RAW\_DATA/vycor/vycor\_0001/vycor\_0001.h5

## XPCS saving

EH2\_EXP [93]: eiger4m\_v2.processing.saving\_sparse.nb\_frames\_per\_file=5000

EH2\_EXP [94]: eiger4m\_v2.processing.saving\_dense.nb\_frames\_per\_file=2000

# DELCOUP testing vs background

EH2\_EXP [101]: delcoup.limits=(-0.5,10)

EH2\_EXP [106]: delta.limits=(-0.5,10)

EH2\_EXP [102]: ydet.position=0

'ydet` position reset from -803.8499999999999 to 0.0 ; offset changed from -914.9975 to -111.1475 (sign:1)

EH2\_EXP [103]: ypipe.position=0

'ypipe` position reset from -681.156 to 0.0 ; offset changed from -753.72700 to -72.57100 (sign:1)

Test background (zs=-0.75)

eh2\_att(1)

Delcoup = 0.5

Roi1\_avg =0.50 cps/pixel

Delcoup = 1 (some diffuse rings)

Roi1\_avg =2.81 cps/pixel

sct(1) scan 15

Delcoup = 1.5

Roi1\_avg =0.00 cps/pixel

sct(1) scan 16

**Delcoup = 1.75 (q=0.15 A-1)**

**Roi1\_avg =0.00025 cps/pixel !!! zs = -0.75 - Vycor OUT**

**sct(1) scan 18**

Delcoup = 1.75 (q=0.15 A-1)

Roi1\_avg =15.75 cps/pixel !!! zs = 0.50 - Vycor IN

sct(1) scan 19

Delcoup = 2.33 (q=0.2 A-1)

Roi1\_avg =0.0035 cps/pixel

sct(1) scan 17

At delcoup=1.75 (q=0.15 A-1) the background is in the 10-4 cps/px range !

# GeO2\_6

EH2\_EXP [168]: newsample("GeO2\_6")

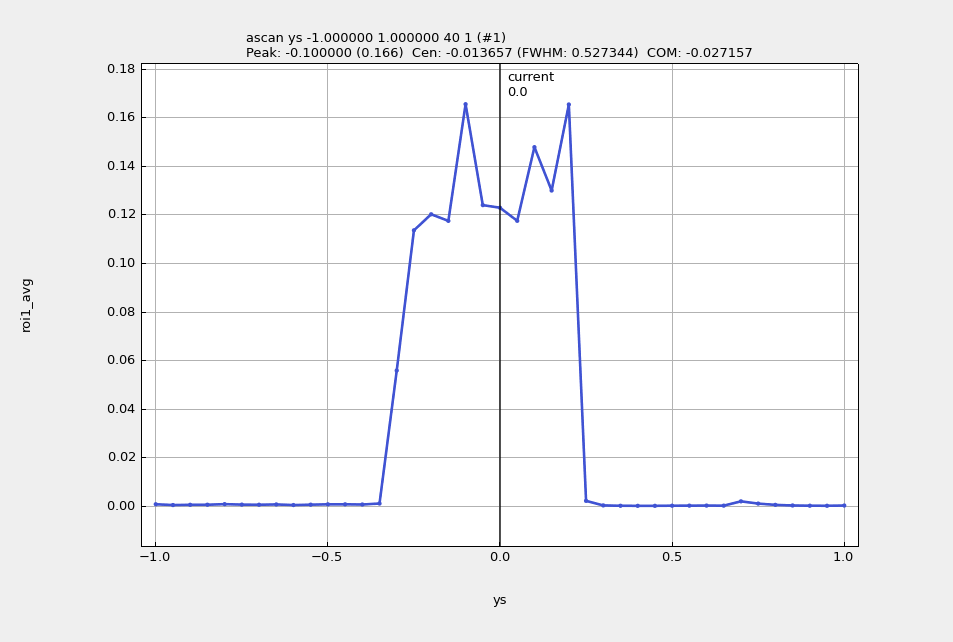
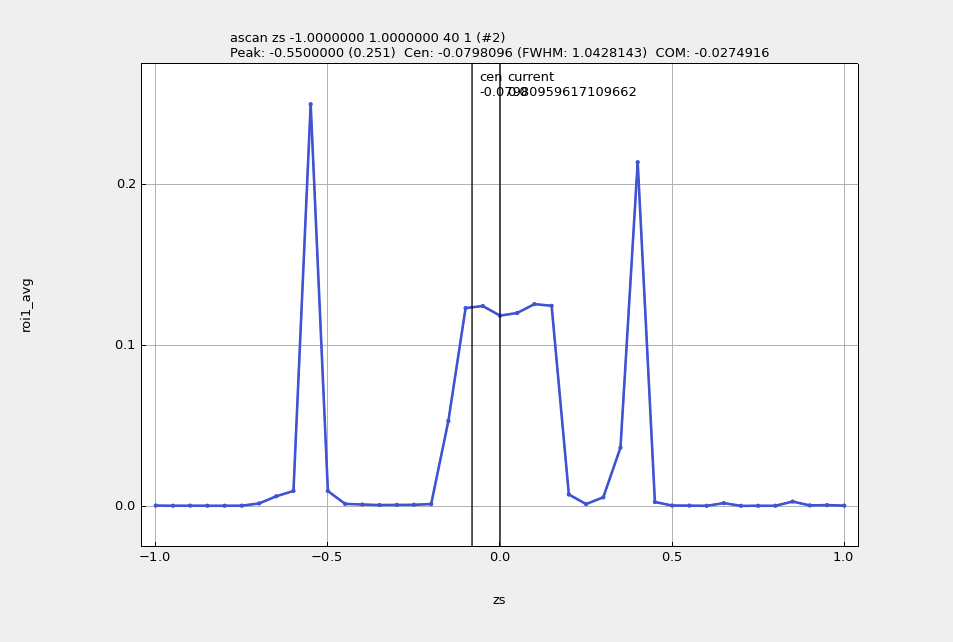
Dataset collection set to 'GeO2\_6'

Data path: /data/visitor/hc6209/id10-coh/20250408/RAW\_DATA/GeO2\_6/GeO2\_6\_0001

Sample is mounted horizontally towards the machine

It seems to scatter !

Delcoup = 1.75

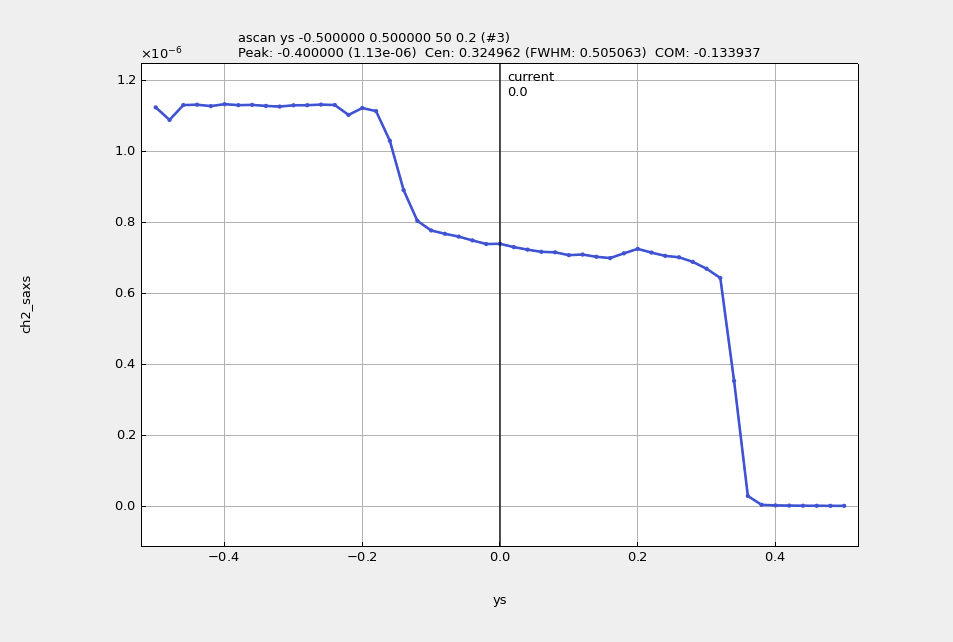
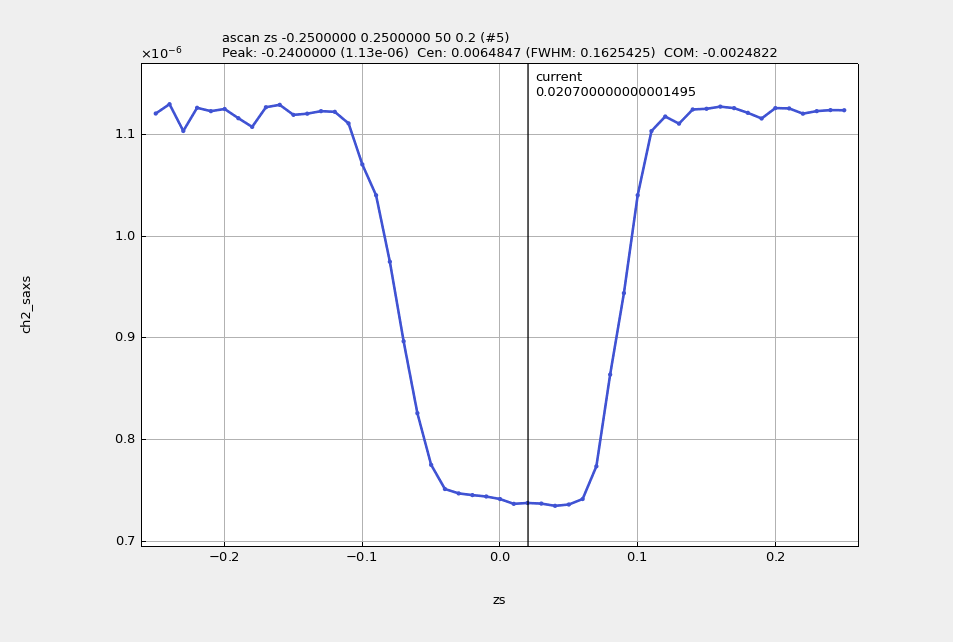
 

Sample transmission with saxs\_diode

Delcoup = 0

endiode\_saxs()

eh2\_att(0.001)

disdiode\_saxs()

We move the sample to a virgin point

EH2\_EXP [253]: wm(ys,zs)

ys[mm] zs[mm]

-------- ---------- -----------

User

High 14.687563 19.6876200

Current 0.100000 0.0207000

Low -13.312437 -16.8123800

Offset 0.687562 -16.9967600

Dial

High 14.000000 36.6843800

Current -0.587562 17.0174600

Low -14.000000 0.1843800

### Beam size

EH2\_EXP [259]: umv(delcoup,0)

EH2\_EXP [260]: user.switch\_to\_diode()

EH2\_EXP [264]: endiode\_saxs()

EH2\_EXP [266]: eh2\_att(0.001)

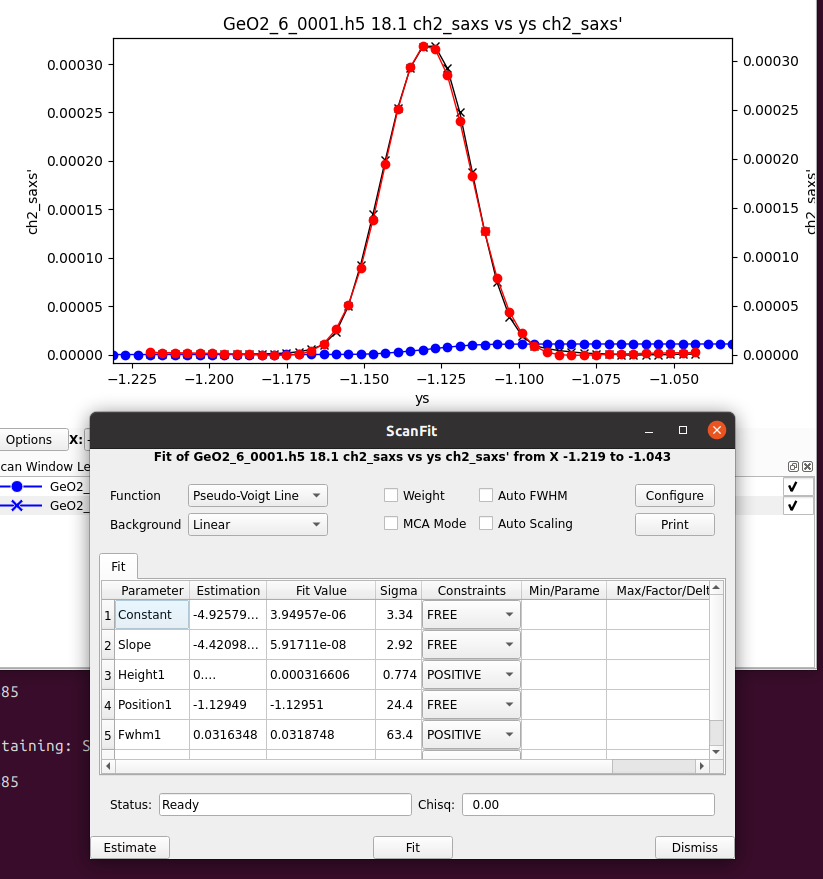
Try to use the edge of the sample holder for making the edge scans

**H size:**

ys = -1.13

zs = -0.061 (centered)

EH2\_EXP [277]: eh2\_att(0.01);dscan(ys, -.1, .1, 50, 0.3); eh2\_att(0.001) - Scan #18

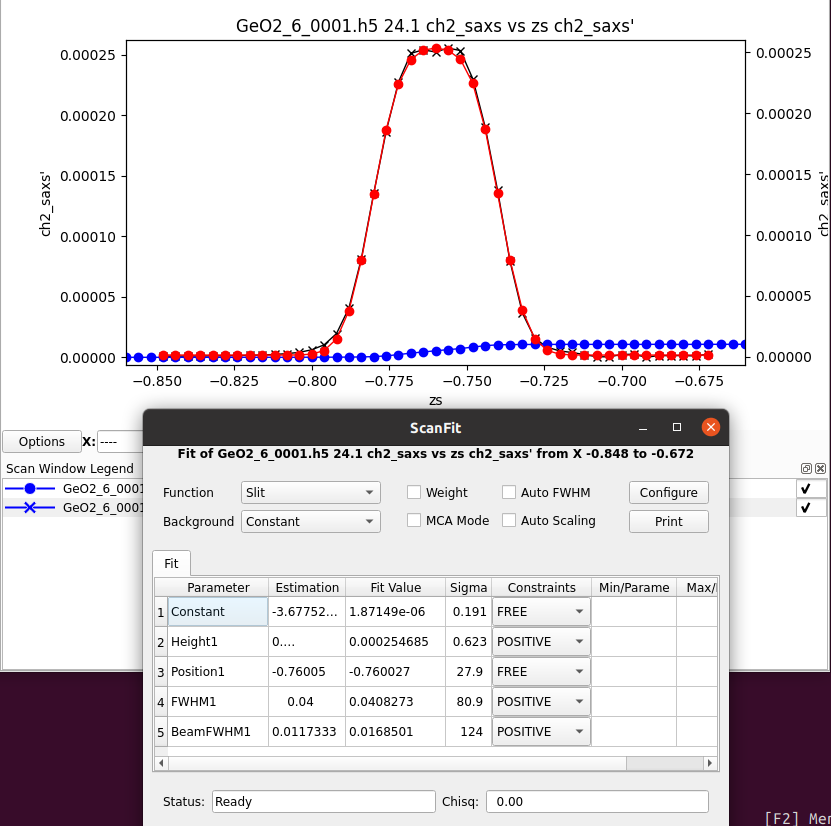


**V size:**

ys = -0.361 (centered)

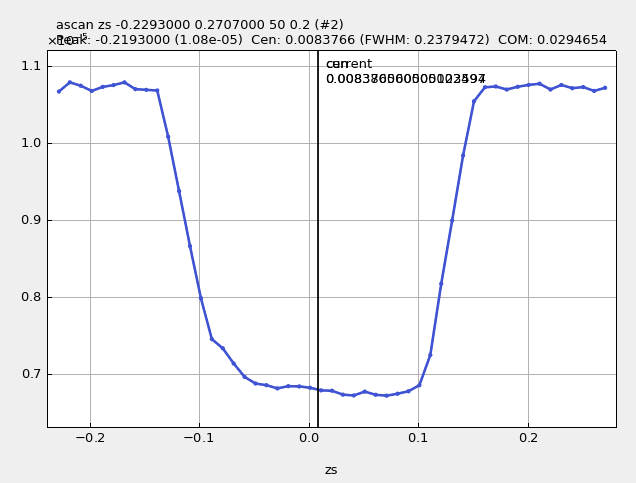
zs = -0.76

EH2\_EXP [296]: eh2\_att(0.01);dscan(zs,-.1,.1,50,0.3);eh2\_att(0.001) - Scan #24



**Beam FWHM: 31.8 μm x 40.8 μm (HxV)**

# GeO2\_6\_100\_C



ys[mm] zs[mm]

Current 0.102750 0.0083800

**MACRO FOR THE NIGHT**

def GeO2\_6\_macro():

temperatures = 170,240,310,380,450,520,590,660,730

rate = 5,5,5,3,3,3,3,3,3

i = 1

for temperature in temperatures:

print(f“set temperature = {temperature}C”)

user.set\_nanodac\_temp(temperature,rate[i-1],wait=True)

time.sleep(20\*60)

print(f“reached temperature = {temperature}C”)

newsample(f”GeO2\_6\_{temperature}C”)

if i%2:

user.switch\_to\_transmission()

att(0.01)

dscan(ys,-0.5,0.5,50,0.2)

att(0.001)

att(0.01)

dscan(zs,-0.25,0.25,50,0.2)

goto\_cen()

att(0.001)

user.switch\_to\_eiger()

mtimescan(0.02,60\_000,1)

i = i + 1

# Setting up the Q measurements

The last measure were at

ys[mm] zs[mm] -------- ---------- ----------- User High 14.687563 19.6876200

Current 0.102750 -0.0704300

Low -13.312437 -16.8123800

Offset 0.687562 -16.9967600

| delcoup | theta | Sample | bkg | Q | time |
| --- | --- | --- | --- | --- | --- |
| 1 | 2.0 | 0.120 | 0.0030 | 0.0858 | 1 h @ 1 ms |
| 1.75 | 2.0 | 0-0.7 | 0.00192 | 0.150 | 1 h @ 1 ms |
| 1.75 | 0 | 0.121 | 0.00085 | 0.150 |  |
| 3 | 1.5 | 0.160 | 0.00235 | 0.257 | 1 h @ 1 ms |
| 4 | 2.0 | 0.279 | 0.000106 | 0.343 | 1 h @ 1 ms |
| 5 | 2.4 | 0.321 | 0.000114 | 0.429 | 1 h @ 1 ms |
|  |  |  |  |  |  |

We take some measurement at the highlighted angles in order to obtain the dependence of the contrast on the Q

# 

# GeO2\_7 macro

205 def GeO2\_7\_macro():

206 temperature = 30, 100, 170, 240, 310, 345, 380, 415, 450, 485, 520, 555, 590, 625, 660, 695, 730

207 rate = 5, 5, 5, 5, 5, 5, 5, 5, 5, 5, 5, 5, 5, 5, 5, 5, 5

208 measure\_time = 30, 30, 30, 30, 30, 60, 60, 60, 60, 60, 120, 120, 120, 150, 150, 150, 150

209

210 # SE STOPPI CAMBIA RANGE IN RANGE(START,LEN(TEMP))

211 for ii in range(len(temperature)):

212 print(f"Set temperature = {temperature[ii]}C")

213 set\_nanodac\_temp(temperature[ii], ramprate=rate[ii], wait=True)

214 if temperature[ii]!=30: time.sleep(5\*60)

215 print(f"Reached temperature = {temperature[ii]}C")

216 newsample(f"GeO2\_7\_{temperature[ii]}C")

217 print(f"new measure")

218 switch\_to\_transmission()

219 eh2\_att(0.01)

220 dscan(ys, -0.5, 0.5, 50, 0.2)

221 eh2\_att(0.001)

222 eh2\_att(0.01)

223 dscan(zs, -0.5, 0.5, 50, 0.2)

224 eh2\_att(0.001)

228 switch\_to\_eiger()

229 mtimescan(0.001, measure\_time[ii]\*60\*1000, 1)

230 switch\_to\_transmission()

231 eh2\_att(0.01)

232 dscan(ys, -0.5, 0.5, 200, 0.2)

233 eh2\_att(0.001)

234 eh2\_att(0.01)

235 dscan(zs, -0.5, 0.5, 200, 0.2)

236 eh2\_att(0.001)

Le misure a 450 e 485 danno un tau strano

Muoviamo il campione per cambiare punto irraggiato e prendiamo la misura a 520C

EH2\_EXP [191]: umv(zs, 0)

Per sicurezza ci spostiamo ancora prima della misura a 555C

EH2\_EXP [191]: umv(zs, 0.15)

EH2\_EXP [192]: umv(ys, -0.52)

Il campione sembra avere un effetto di aging vicino a Tg (gobba su tau) combinato con effetti termici locali quando cambiamo spot

Facciamo alcune misure di test per capire

Mi muovo

EH2\_EXP [211]: umv(ys, -0.52, zs, 0)

EH2\_EXP [212]: dmesh(ys, -0.05, 0.05, 20, zs, -0.05, 0.05, 20, 0.2)

EH2\_EXP [213]: mtimescan(0.001, 30\*60\*1000, 1)

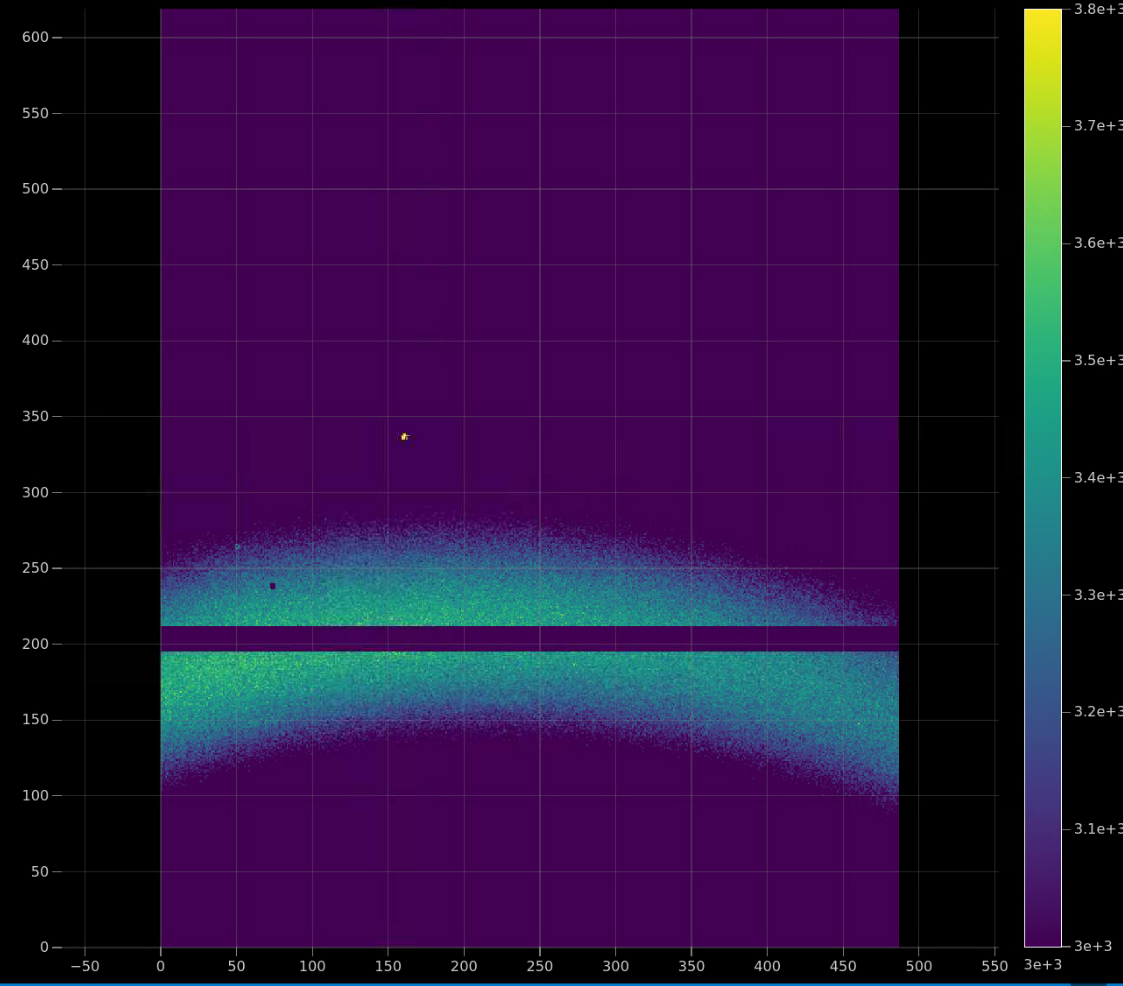
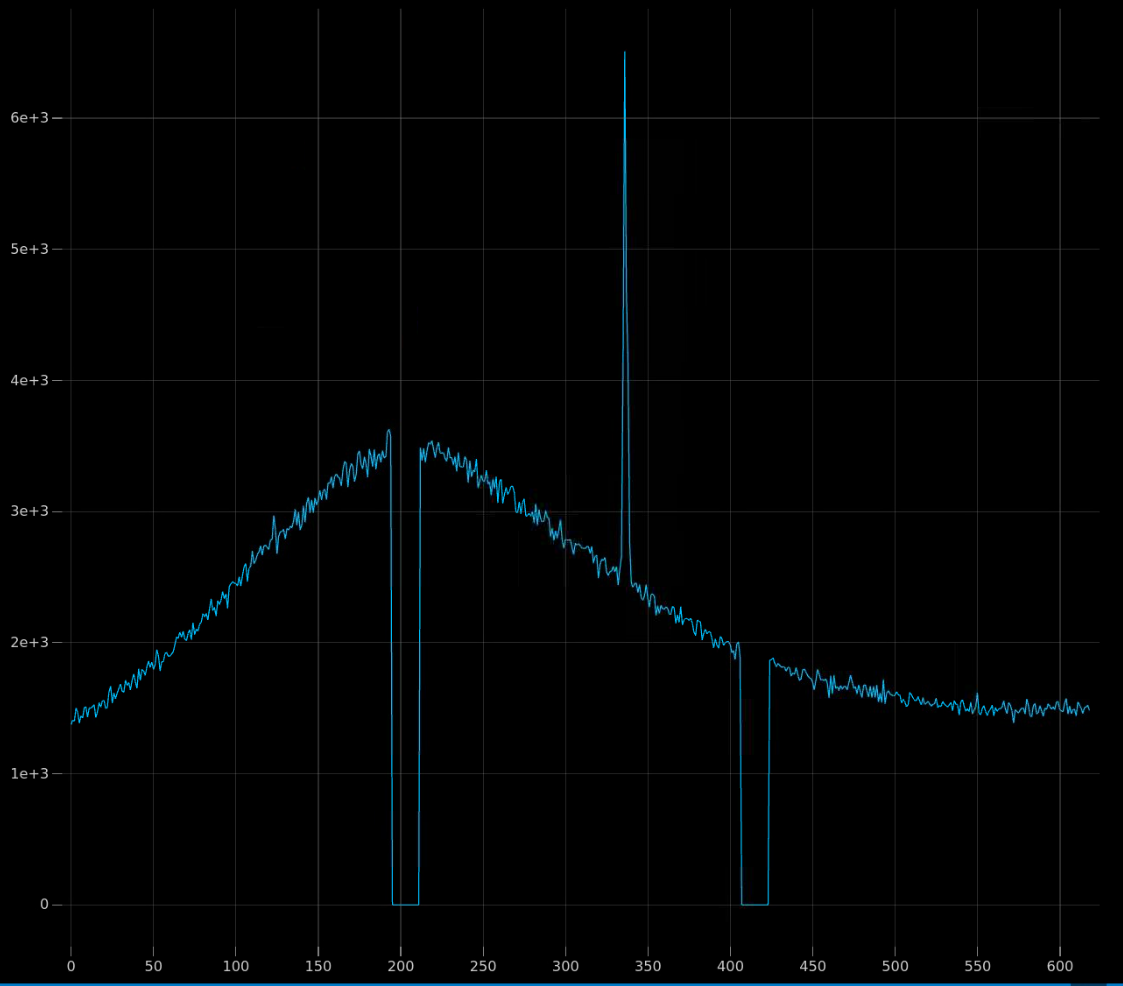
Mi muovo

EH2\_EXP [215]: umv(ys, -0.32, zs, 015)

EH2\_EXP [212]: dmesh(ys, -0.05, 0.05, 20, zs, -0.05, 0.05, 20, 0.2)

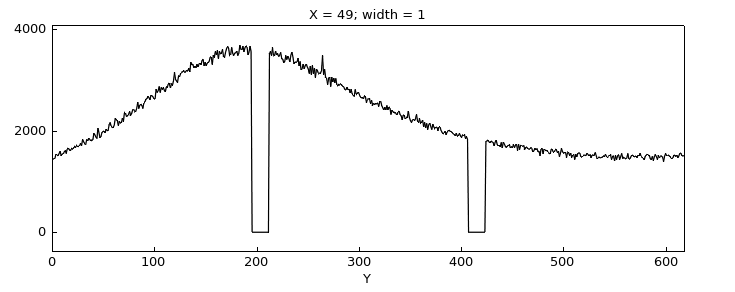
EH2\_EXP [213]: mtimescan(0.001, 30\*60\*1000, 1)

Il campione ha iniziato a cristallizzare alla temperatura di 695 C, abbiamo interrotto la misura verso la fine, cambiamo posizione per poter proseguire la rampa.



Saliamo a 730 C controllando il pilatus di tanto in tanto. Non si vedono picchi nella nuova posizione salendo in temperature.

Dopo circa 15 minuti ha iniziato a ricomparire il picco, misurando in giro per il campione lo vediamo ovunque

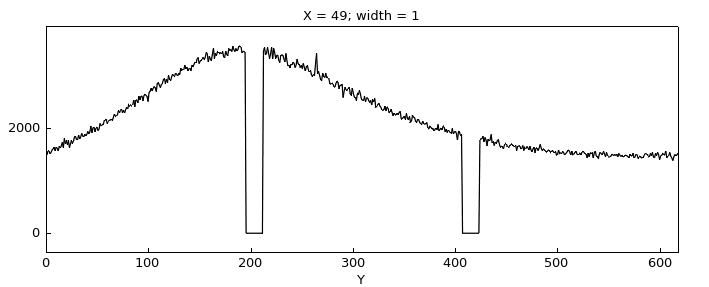


Decidiamo di scappare. Scendiamo a 660C

Proviamo a guardare il tau in cooling, non siamo interessati al contrasto almeno per le temperature sopra Tg.

Facciamo una misura da 60 minuti a 660C

Ad inizio misura il pilatus e` cosi`



Probabilmente si e’ cristallizzato solo il punto che abbiamo irraggiato a lungo a 695C, il picco piu’ basso che vediamo negli altri casi e’ solamente un pixel danneggiato del Pilatus.

# 

# Cambiamo campione perche’ cristallizzato

# 11/04 **GeO2\_3**

def GeO2\_3\_macro():

temperature = 30, 100, 170, 240, 310, 380, 415, 450, 485, 520, 555, 590, 625, 660, 695, 730, 730, 660, 590, 520, 450, 380, 310, 240, 170, 100, 30, 30

rate = 10, 10, 10, 10, 10, 10, 10, 10, 10, 10, 10, 10, 10, 10, 10, 10, 10, 10, 10, 10, 10, 10, 10, 10, 10, 10, 10, 10

measure\_time = 25, 25, 25, 25, 25, 50, 50, 50, 50, 100, 100, 100, 150, 150, 150, 180, 180, 20, 20, 20, 10, 10, 10, 10, 10, 10, 10, 20

umv(ys, 0.1, zs, 0)

for ii in range(len(temperature)):

if (ii!=16) or (ii!=len(temperature)-1):

print(f"Set temperature = {temperature[ii]}C")

set\_nanodac\_temp(temperature[ii], ramprate=rate[ii], wait=True)

print(f"Reached temperature = {temperature[ii]}C")

newsample(f"GeO2\_3\_{temperature[ii]}C")

print(f"new measure")

switch\_to\_transmission()

dscan(ys, -0.5, 0.5, 50, 0.2)

dscan(zs, -0.5, 0.5, 50, 0.2)

dmesh(ys, -0.05, 0.05, 20, zs, -0.05, 0.05, 20, 0.2)

eh2\_att(0.001)

if ii == 16: eh2\_att(0.1)

if ii == len(temperature)-1: eh2\_att(0.5)

switch\_to\_eiger()

mtimescan(0.001, measure\_time[ii]\*60\*1000, 1)

Macro per la notte

def GeO2\_3\_macro2():

temperature = 660, 695, 730

rate = 10, 10, 10

measure\_time = 40, 40, 30

num\_rep = 4, 4, 5

yss = .0, .05, .1, .15, .2

zss = .1, .05, .0, -.05, -.01

#umv(ys, 0.1, zs, 0) working point

for ii in range(3):

print(f"Set temperature = {temperature[ii]}C")

set\_nanodac\_temp(temperature[ii], ramprate=rate[ii], wait=True)

print(f"Reached temperature = {temperature[ii]}C")

newsample(f"GeO2\_3\_{temperature[ii]}C")

print(f"new measure")

umv(ys, yss[ii], zs, zss[2])

switch\_to\_transmission()

dscan(ys, -0.5, 0.5, 100, 0.2)

dscan(zs, -0.5, 0.5, 100, 0.2)

dmesh(ys, -0.05, 0.05, 10, zs, -0.15, 0.15, 30, 0.2)

eh2\_att(0.001)

switch\_to\_eiger()

for jj in range(num\_rep[ii]):

umv(zs, zss[jj])

mtimescan(0.001, measure\_time[ii]\*60\*1000, 1)

delcoups = 1, 3, 4, 5

ths = 2, 1.5, 2, 2.4

measure\_time = 30, 30, 20, 20

print("Q measure")

newsample(f"GeO2\_3\_730C\_Q")

umv(ys, yss[3], zs, zss[2])

switch\_to\_transmission()

dscan(ys, -0.5, 0.5, 100, 0.2)

dscan(zs, -0.5, 0.5, 100, 0.2)

dmesh(ys, -0.05, 0.05, 10, zs, -0.15, 0.15, 30, 0.2)

eh2\_att(0.001)

switch\_to\_eiger()

for ii in range(len(delcoups)):

umv(zs, zss[ii])

umv(delcoup,delcoups[ii])

umv(th,ths[ii])

mtimescan(0.001, measure\_time[ii]\*60\*1000, 1)

print("Attenuator 0.5 measure @ T = 730 C")

newsample(f"GeO2\_3\_730C\_att2")

umv(ys, yss[4], zs, zss[2])

switch\_to\_transmission()

dscan(ys, -0.5, 0.5, 100, 0.2)

dscan(zs, -0.5, 0.5, 100, 0.2)

dmesh(ys, -0.05, 0.05, 10, zs, -0.15, 0.15, 30, 0.2)

eh2\_att(0.001)

switch\_to\_eiger()

eh2\_att(0.5)

for ii in range(4):

umv(zs, zss[ii])

mtimescan(0.001, 30\*60\*1000, 1)

Def GeO2\_4\_macro():

print("Set temperature = 30 C")

set\_nanodac\_temp(30, ramprate=30, wait=True)

time.sleep(10\*60)

print("Reached temperature = 30 C")

newsample("GeO2\_3\_30C")

print("new measure")

umv(ys, yss[3], zs, zss[4])

switch\_to\_transmission()

dscan(ys, -0.5, 0.5, 100, 0.2)

dmesh(ys, -0.05, 0.05, 20, zs, -0.05, 0.05, 20, 0.2)

eh2\_att(0.001)

switch\_to\_eiger()

mtimescan(0.001, 20\*60\*1000,1)

print("Attenuator 0.5 measure @ T = 30 C")

eh2\_att(0.5)

mtimescan(0.001, 40\*60\*1000,1)

Roller blades mounted in the Ω furnace to measure beam size

Saxs\_diode in

H beam size: Scan(number=8, name=dscan, path=/data/visitor/hc6209/id10-coh/20250408/RAW\_DATA/GeO2\_4\_30C/GeO2\_4\_30C\_0002/GeO2\_4\_30C\_0002.h5)

V beam size: Scan(number=9, name=dscan, path=/data/visitor/hc6209/id10-coh/20250408/RAW\_DATA/GeO2\_4\_30C/GeO2\_4\_30C\_0002/GeO2\_4\_30C\_0002.h5)

Beam size: 28.8 x 39.6 μm (HxV, FWHM, Pseudo-Voigt x Slit) - Same as before

Flux measurement with eh2\_att(1)

sct(1) : Scan(number=10, name=ct, path=/data/visitor/hc6209/id10-coh/20250408/RAW\_DATA/GeO2\_4\_30C/GeO2\_4\_30C\_0002/GeO2\_4\_30C\_0002.h5)

ch2\_saxs = 0.00110669 A

# Focussed beam at 10.25 keV

Saxs\_diode in

umv(monoe, 10.15)

U27b only

CRL3 out and check TS, CS, RG (basically aligned)

RG=CS=1

CRL3 slot#2 in

fshutopen() (needed if working only with tetramms)

EH2\_EXP [521]: newsample("eh2\_exp")

Dataset collection set to 'eh2\_exp'

Data path: /data/visitor/hc6209/id10-coh/20250408/RAW\_DATA/eh2\_exp/eh2\_exp\_0002

V beam size vs energy

10.15 keV - 3.6 μm (FWHM, Pseudo-Voigt) - Scan 4

10.25 keV - 3.1 μm (FWHM, Pseudo-Voigt) - Scan 6

10.35 keV - 3.2 μm (FWHM, Pseudo-Voigt) - Scan 9

10.45 keV - 4.3 μm (FWHM, Pseudo-Voigt) - Scan 11

**Back to 10.25 keV**

10.25 keV - 3.1 μm (FWHM, Pseudo-Voigt) - Scan 13

10.25 keV - 2.5 μm (FWHM, Pseudo-Voigt with single-point derivative) - Scan 13

EH2\_EXP [574]: slits

Out [574]: \*\*\* Slits \*\*\*

PS slit, (+0.100,+0.200) @ (+0.191,+0.405)

SS slit, (+1.000,+1.000) @ (+3.309,+0.075)

TS slit, (+0.200,+0.200) @ (+3.478,-0.116)

CS slit, (+0.200,+0.200) @ (+0.016,-0.001)

RG slit, (+0.400,+0.400) @ (+0.009,+0.004)

10.25 keV - 3.2 μm (FWHM, Pseudo-Voigt) - Scan 15 - V edge scan

10.25 keV - 7.6 μm (FWHM, Pseudo-Voigt) - Scan 17 - H edge scan

Beam size: 7.6 x 3.2 μm (HxV, FWHM, Pseudo-Voigt - 3 points derivative) - U27b only

Flux

sct() - Scan 18

ch2\_saxs = 0.000341861A Undulator not all in !!!

**All IDs in**

Flux

sct() - Scan 21

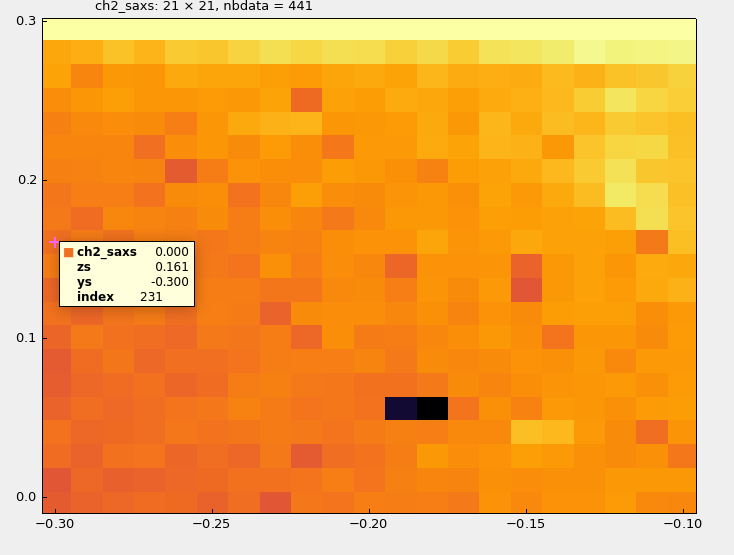
ch2\_saxs = 0.00122320 A

Beam size: 7.7 x 3.3 μm (HxV, FWHM, Pseudo-Voigt - 3 points derivative) - Scans 22 - 23

EH2\_EXP [625]: eiger4m\_v2.detector.acquisition.threshold1\_energy=5100

eh2\_att(0.001)

## GeO2\_4\_10p25



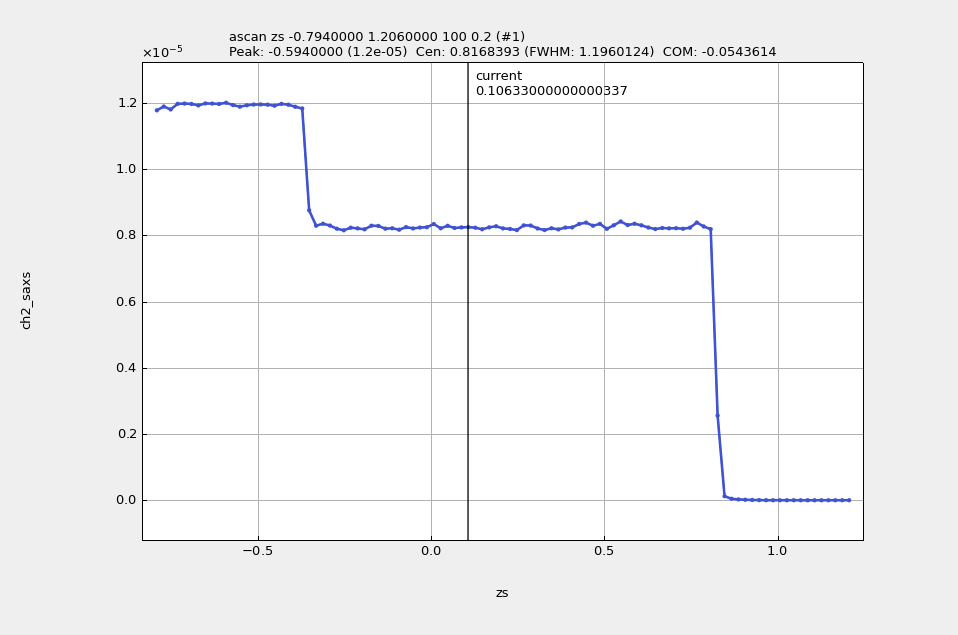
umv(ys,-0.29,zs,0.206)

C about 13% !!!

## Vycor in

Dataset collection set to 'Vycor\_10p25'

Data path: /data/visitor/hc6209/id10-coh/20250408/RAW\_DATA/Vycor\_10p25/Vycor\_10p25\_0001



EH2\_EXP [699]: wm(ys,zs)

ys[mm] zs[mm]

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User

High 14.687563 19.6876200

Current -0.140000 0.1063300

Low -13.312437 -16.8123800

Offset 0.687562 -16.9967600

umv(delcoup,0)

EH2\_EXP [736]: user.take\_data\_and\_move(2\_000,dt=0.01,dz=0.003)

Fast detectors:

scanning mode = TIME

acquisition time = 0.01 sec

acquisition period = 0.0101006 sec

acq/slow points = 100

number of points = 2000 (requested 2000)

Slow detectors:

acquisition time = 1 sec

acquisition period = 1.01006 sec (requested 1.00305 sec)

number of points = 20

Start delay = 0.001 sec

Total time = 20.202 sec

Scan 4 Sun Apr 13 17:40:49 2025 Saving in /data/visitor/hc6209/id10-coh/20250408/RAW\_DATA/Vycor\_10p25/Vycor\_10p25\_0001/Vycor\_1

EH2\_EXP [738]: eiger4m\_v2.processing.saving\_dense.enabled=True

EH2\_EXP [739]: user.take\_data\_and\_move(2\_000,dt=0.01,dz=0.003,n\_moves=6)

Fast detectors:

scanning mode = TIME

acquisition time = 0.01 sec

acquisition period = 0.0101006 sec

acq/slow points = 100

number of points = 2000 (requested 2000)

Slow detectors:

acquisition time = 1 sec

acquisition period = 1.01006 sec (requested 1.00305 sec)

number of points = 20

Start delay = 0.001 sec

Total time = 20.202 sec

Scan 5 Sun Apr 13 18:05:08 2025 Saving in /data/visitor/hc6209/id10-coh/20250408/RAW\_DATA/Vycor\_10p25/Vycor\_10p25\_0001/Vycor\_10p25\_0001.h5

Scan 6 with dispilatus300k()

Scan 7 with fasttimescan(2\_000, 0.01) acquisition hangs !

Restart device server

Scan 8 with fasttimescan(2\_000, 0.01) acquisition hangs ! Too much signal ?

Scan 9 with fasttimescan(1\_000, 0.01) works !

# Focussed beam at 8.67 keV

Crl3 out

Switch\_to\_transmission

Det flight path has been put in air by mistake…

Go to 8.67 keV with u27b

Align TS (changes in the 10 μm range)

Realign y3 and rgvo, csvo (minor adjustments in the 10 μm range)

Roller blades on

eh2\_att(1e-3)

CRL3 Slot 3 in

Align slot in ycrl3 and zcrl3

EH2\_EXP [167]: newsample("eh2\_exp")

Dataset collection set to 'eh2\_exp'

Data path: /data/visitor/hc6209/id10-coh/20250408/RAW\_DATA/eh2\_exp/eh2\_exp\_0003

Beam size with eh2\_att(0.1)

CS = RG = 1

8.67 keV - 3.4 μm (FWHM, Pseudo-Voigt, 3-point derivative) - Scan 3 - Vertical edge scan

8.67 keV - 7.9 μm (FWHM, Pseudo-Voigt, 3-point derivative) - Scan 4 - Horizontal edge scan - Bad fit !!!

Note: Scans with quite a lot of glitches

EH2\_EXP [201]: slits

Out [201]: \*\*\* Slits \*\*\*

PS slit, (+0.100,+0.200) @ (+0.191,+0.405)

SS slit, (+1.000,+1.000) @ (+3.309,+0.075)

TS slit, (+0.200,+0.200) @ (+3.490,-0.147)

CS slit, (+0.200,+0.200) @ (+0.016,-0.018)

RG slit, (+0.400,+0.400) @ (+0.009,-0.015)

Put all IDs

fshutopen()

**Beam size** with eh2\_att(0.001)

8.67 keV - 7.2 μm (FWHM, Pseudo-Voigt, 3-point derivative) - Scan 9 - Horizontal edge scan

8.67 keV - 3.4 μm (FWHM, Pseudo-Voigt, 3-point derivative) - Scan 10 - Vertical edge scan

Note: much smoother scans. Very nice derivative profiles

fshutclose()

**Beam size: 7.2 x 3.4 μm** (HxV, FWHM, Pseudo-Voigt - 3 points derivative) - Nice profiles !

**Flux** with eh2\_att(1)

EH2\_EXP [220]: sct()

INFO: starting Scan(number=11, name=ct, path=/data/visitor/hc6209/id10-coh/20250408/RAW\_DATA/eh2\_exp/eh2\_exp\_0003/eh2\_exp\_0003.h5)

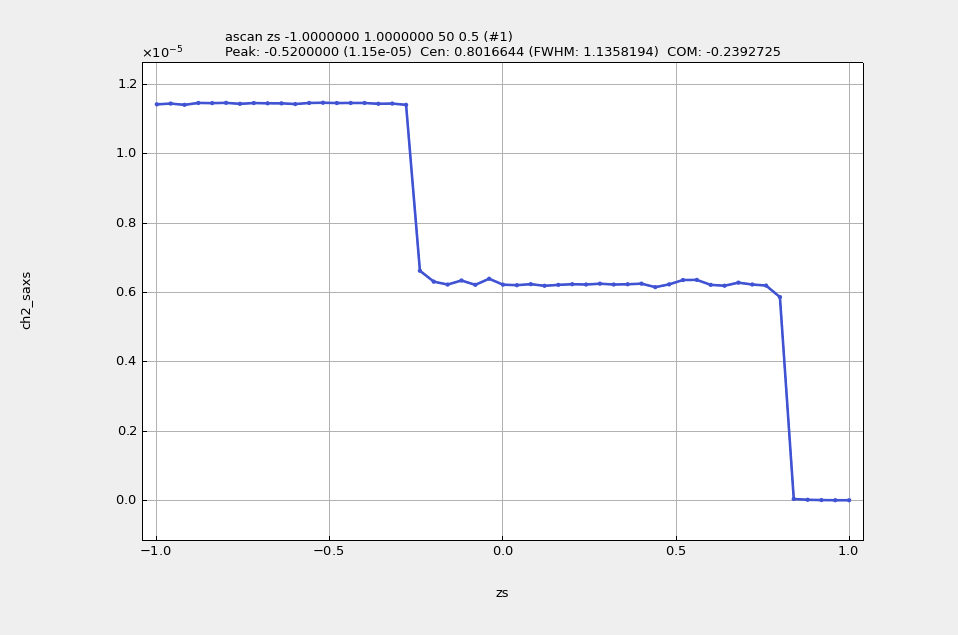
ch2\_saxs = 0.000964052 A

## Vycor in

EH2\_EXP [226]: newsample("Vycor\_8p67")

Dataset collection set to 'Vycor\_8p67'

Data path: /data/visitor/hc6209/id10-coh/20250408/RAW\_DATA/Vycor\_8p67/Vycor\_8p67\_0001



EH2\_EXP [280]: wm(ys,zs)

ys[mm] zs[mm]

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User

High 14.687563 19.6876200

Current 0.000000 0.2000000

Low -13.312437 -16.8123800

Offset 0.687562 -16.9967600

eh2\_att(0.01)

Fast detectors:

scanning mode = TIME

acquisition time = 0.01 sec

acquisition period = 0.0101006 sec

acq/slow points = 100

number of points = 2000 (requested 2000)

Slow detectors:

acquisition time = 1 sec

acquisition period = 1.01006 sec (requested 1.00016 sec)

number of points = 20

Start delay = 0.001 sec

Total time = 20.202 sec

Scan 5 Sun Apr 13 21:12:45 2025 Saving in /data/visitor/hc6209/id10-coh/20250408/RAW\_DATA/Vycor\_8p67/Vycor\_8p67\_0001/Vycor\_8p67\_0001.h5

Acquisition stocks again !!!

EH2\_EXP [288]: eiger4m\_v2.processing.saving\_dense.enabled=False

Try “sparse” acquisition with vycor and eh2\_att(1e-3)

EH2\_EXP [292]: fasttimescan(2\_000,0.01)

Acquisiton = 0.01 sec

Period = 0.0101006 sec

NPoints = 2000

Scan mode = TIME

Camera mode = SINGLE

Start delay = 0.100 sec

Total Time = 20.301 sec

Scan 6 Sun Apr 13 21:20:07 2025 Saving in /data/visitor/hc6209/id10-coh/20250408/RAW\_DATA/Vycor\_8p67/Vycor\_8p67\_0001/Vycor\_8p67\_0001.h5

EH2\_EXP [294]: ACTIVE\_MG.disable("tetramm\_diodes\*")

EH2\_EXP [296]: fasttimescan(2\_000,0.01)

Out [296]: Scan(number=7, name=ftimescan, path=/data/visitor/hc6209/id10-coh/20250408/RAW\_DATA/Vycor\_8p67/Vycor\_8p67\_0001/Vycor\_8p67\_0001.h5)

EH2\_EXP [297]: eiger4m\_v2.detector.acquisition.threshold1\_energy=4500

EH2\_EXP [301]: fasttimescan(2\_000,0.01)

Out [301]: Scan(number=9, name=ftimescan, path=/data/visitor/hc6209/id10-coh/20250408/RAW\_DATA/Vycor\_8p67/Vycor\_8p67\_0001/Vycor\_8p67\_0001.h5)

EH2\_EXP [302]: **user.take\_data\_and\_move(2\_000,dt=0.01,dz=0.003,n\_moves=5)**

Fast detectors:

scanning mode = TIME

acquisition time = 0.01 sec

acquisition period = 0.0101006 sec

acq/slow points = 100

number of points = 2000 (requested 2000)

Slow detectors:

acquisition time = 1 sec

acquisition period = 1.01006 sec (requested 1.00016 sec)

number of points = 20

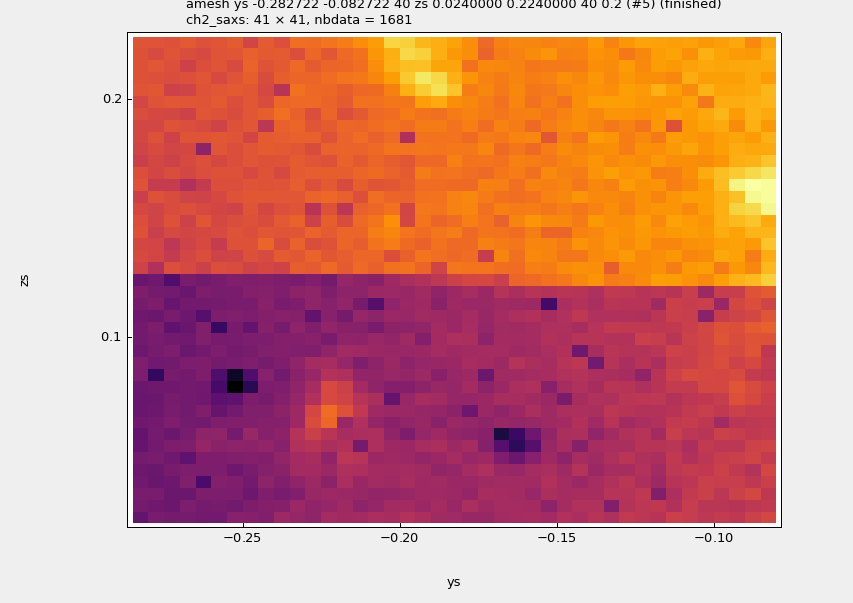
Start delay = 0.001 sec

Total time = 20.202 sec

**Scan 10** Sun Apr 13 21:28:04 2025 Saving in /data/visitor/hc6209/id10-coh/20250408/RAW\_DATA/Vycor\_8p67/Vycor\_8p67\_0001/Vycor\_8p67\_0001.h5

**C about 19%**

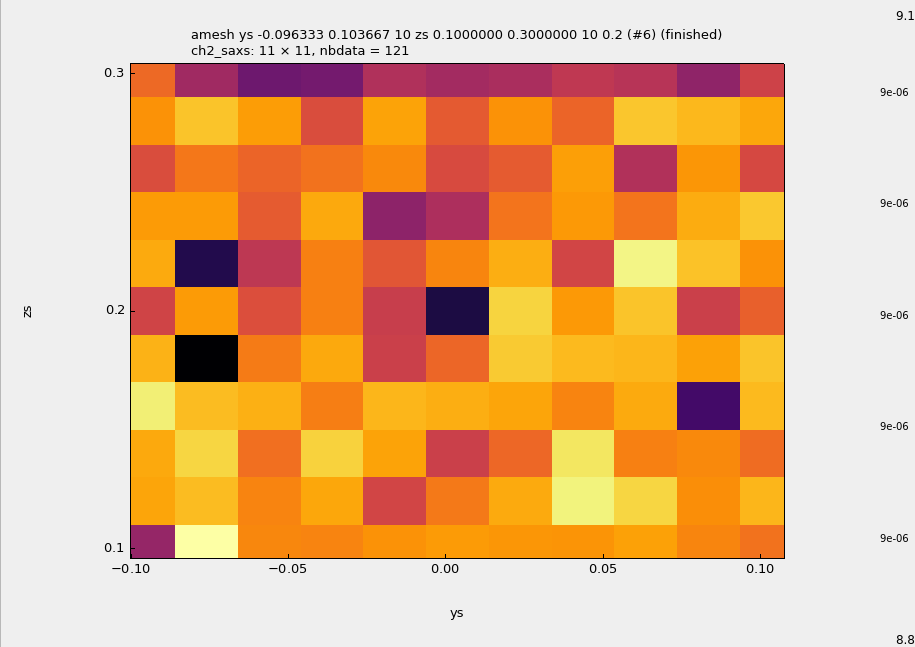
# **GeO2\_4\_8p76**



Cambiato il delcoup a 0.2 per avere lo stesso q all’interno dell’eiger

Controllato i background e sembra pulito

14/04: montata **Tantala**



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# Beamline notes/how-to

* Chemistry lab code
  + A2601
* Accessing analysis machine
  + ssh opid10@lid10dynamix
  + Password
  + Type `exp`
  + Type `source hc6209\_venv/bin/activate`
* user\_script\_load("/data/visitor/hc6209/id10-coh/20250408/SCRIPTS/hc6209.py")
* Programs for scan visualization
  + flint()
  + pymca()
* Transmission measurements

ACTIVE\_MG.**enable**("tetramm\_diodes\*")

The diode ch2\_saxs will become active for sample transmission measurements

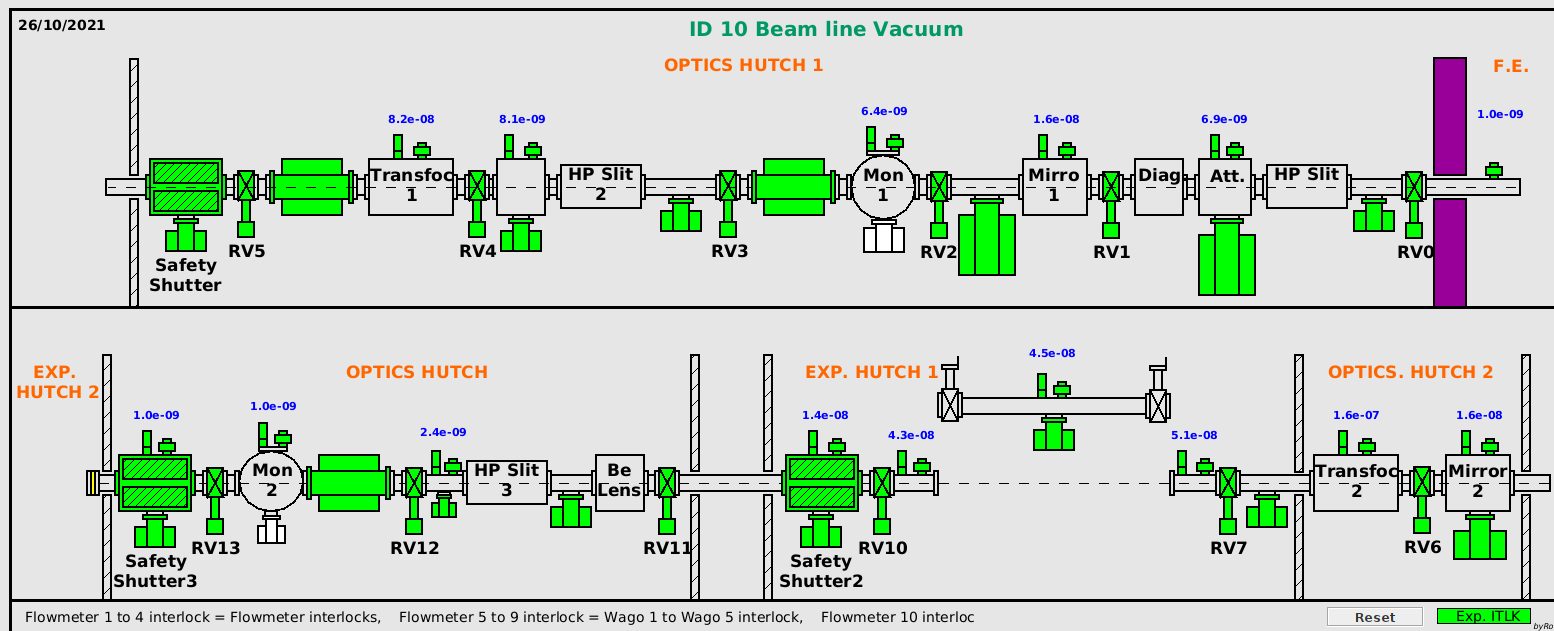
To disable the diode during the “mtimescan”:

ACTIVE\_MG.disable("tetramm\_diodes\*")

To see enabled (active) detectors:

ACTIVE\_MG

* Changing attenuators
  + eh2\_att(0.01)
* Screenshot
  + Alt+s
* Open shutter(s)
  + shopen()
* Bliss hangs
  + Open another terminal and type kill\_bliss eh2\_exp
  + Restart typing eh2\_exp
* Move undulators back in place
  + user.restore\_undulators()
* Detector problems
  + Open browser tab and go to <http://tina.esrf.fr:22000/>
  + Find “Eiger4M\_V2”
  + Restart process (using recycle arrow)
  + Go to eh2\_exp, type eiger4m\_v2.\_det.sync\_hard()
* Analysis
  + Open terminal
  + ssh -Y opid10@lid10dynamix
    - (optional)
  + Type exp
    - To change directory
  + Type id10dynamix
    - To load environment
  + Edit input file
    - May use gedit as program
  + Run analysis
    - xpcs input\_filename
  + Output files are in PROCESSED\_DATA
* Go home procedure
  + user.change\_T(20)
  + shclose()
* Vacuum
  + Command jvacuum



EH2\_EXP [484]: ACTIVE\_MG

Out [484]: MeasurementGroup: measurement\_eh2\_exp (state='default')

- Existing states : 'default'

Enabled Disabled

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eiger4m\_v2:frame p201\_eh2\_1:ct2\_counters\_controller:apd

eiger4m\_v2:humidity p201\_eh2\_1:ct2\_counters\_controller:det

eiger4m\_v2:others:fill\_factor p201\_eh2\_1:ct2\_counters\_controller:mon

eiger4m\_v2:roi\_counters:db\_avg p201\_eh2\_1:ct2\_counters\_controller:sec

eiger4m\_v2:roi\_counters:db\_max eiger4m\_v2:input\_frame

eiger4m\_v2:roi\_counters:db\_min eiger4m\_v2:raw\_frame

eiger4m\_v2:roi\_counters:db\_std eiger4m\_v2:temperature

eiger4m\_v2:roi\_counters:db\_sum pilatus300k:image

eiger4m\_v2:roi\_counters:roi1\_avg pilatus300k:roi\_counters:roi1\_avg

eiger4m\_v2:roi\_counters:roi1\_max pilatus300k:roi\_counters:roi1\_max

eiger4m\_v2:roi\_counters:roi1\_min pilatus300k:roi\_counters:roi1\_min

eiger4m\_v2:roi\_counters:roi1\_std pilatus300k:roi\_counters:roi1\_std

eiger4m\_v2:roi\_counters:roi1\_sum pilatus300k:roi\_counters:roi1\_sum

eiger4m\_v2:roi\_counters:roi2\_avg pilatus300k:roi\_counters:roi2\_avg

eiger4m\_v2:roi\_counters:roi2\_max pilatus300k:roi\_counters:roi2\_max

eiger4m\_v2:roi\_counters:roi2\_min pilatus300k:roi\_counters:roi2\_min

eiger4m\_v2:roi\_counters:roi2\_std pilatus300k:roi\_counters:roi2\_std

eiger4m\_v2:roi\_counters:roi2\_sum pilatus300k:roi\_counters:roi2\_sum

eiger4m\_v2:roi\_counters:roih\_avg machinfo:current

eiger4m\_v2:roi\_counters:roih\_max machinfo:lifetime

eiger4m\_v2:roi\_counters:roih\_min tetramm\_diag:ch1\_diag

eiger4m\_v2:roi\_counters:roih\_std tetramm\_diag:ch2\_diag

eiger4m\_v2:roi\_counters:roih\_sum tetramm\_diag:ch3\_diag

eiger4m\_v2:roi\_counters:roiv\_avg tetramm\_diag:ch4\_diag

eiger4m\_v2:roi\_counters:roiv\_max tetramm\_diag\_calc:diag\_intensity

eiger4m\_v2:roi\_counters:roiv\_min tetramm\_diag\_calc:diag\_y

eiger4m\_v2:roi\_counters:roiv\_std tetramm\_diag\_calc:diag\_z

eiger4m\_v2:roi\_counters:roiv\_sum wcid10a:twbm\_1

eiger4m\_v2:roi\_counters:transmission\_avg wcid10a:twbm\_2

eiger4m\_v2:roi\_counters:transmission\_max wcid10a:twbm\_3

eiger4m\_v2:roi\_counters:transmission\_min wcid10a:twbm\_4

eiger4m\_v2:roi\_counters:transmission\_std wcid10a:twbm\_5

eiger4m\_v2:roi\_counters:transmission\_sum wcid10a:twbm\_6

eiger4m\_v2:sparse\_frame wcid10a:twbm\_7

tetramm\_diodes:ch1\_sample wcid10a:twbm\_8

tetramm\_diodes:ch2\_saxs wcid10b:t\_oh1\_1

tetramm\_diodes:ch3\_user1 wcid10i:t\_eh2\_1

tetramm\_diodes:ch4\_user2 wcid10i:t\_eh2\_2

omega\_sample:omega\_sample sens4\_eh2:DiaphragmPressure

omega\_body:omega\_body sens4\_eh2:PiraniPressure

sens4\_eh2:Pressure

sens4\_eh2:Temperature