

Example

June 4, 2020

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1 Experimental setup

SIRIUS Beamline : Experiment 1234

Confined at home

- Type: Proposal
- Safety: Yellow
- Date: 13/03/2020 - 11/05/2020

- Main proposer: Hemmerle
- Local contact: Arnaud
- Users (on site): Person A; Person B
- Recording directory: Users/arnaudhemmerle/Documents/Recherche/Analysis/JupyLabBook/recording/
- Machine:
 - Current: 450 mA
 - Mode: Top-up
- Optics:
 - DCM: Si111
 - MGM: Not used
 - M1: M1-A Pt Track
 - M2: M2 Pt Track
 - M3: No M3
 - M4: M4 Pt Track
- Beam:
 - Fixed/Variable energy: Fixed
 - Energy (keV): 8
 - Wavelength (nm): 0.155
 - Harmonic: 19
 - Polarisation: LH
 - Phase (deg): 0
 - Horizontal focalisation: False
 - Vertical focalisation: True
 - Horizontal beamsize (mm): 2
 - Vertical beamsize (mm): 0.1
- Monitors and XBPM:
 - mon1:
 - mon2: thick diamond
 - mon3:
 - mon4:
 - Detectors: Pilatus
- Remarks: This is a nice experiment.

2 Beamline alignment

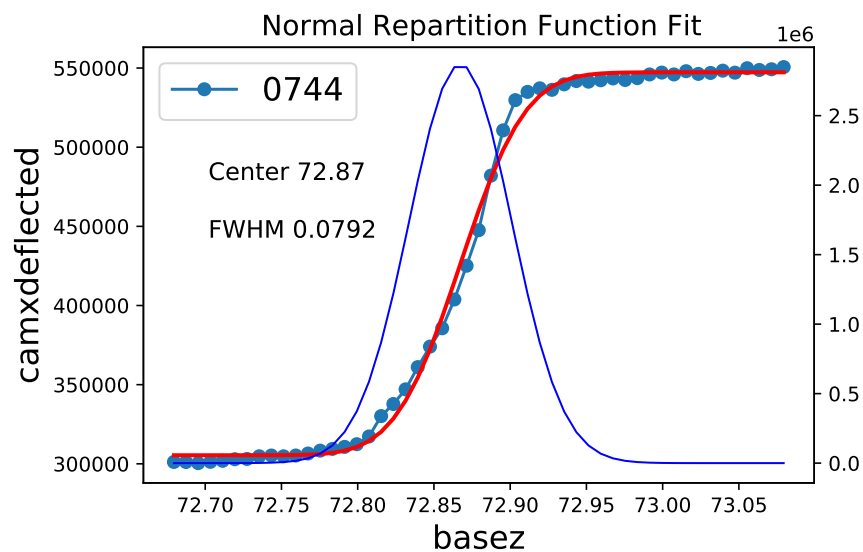
2.1 Scan 654 -> 680 : DCM Alignment 8keV + HU36 + M1 + M2

-Incidence:

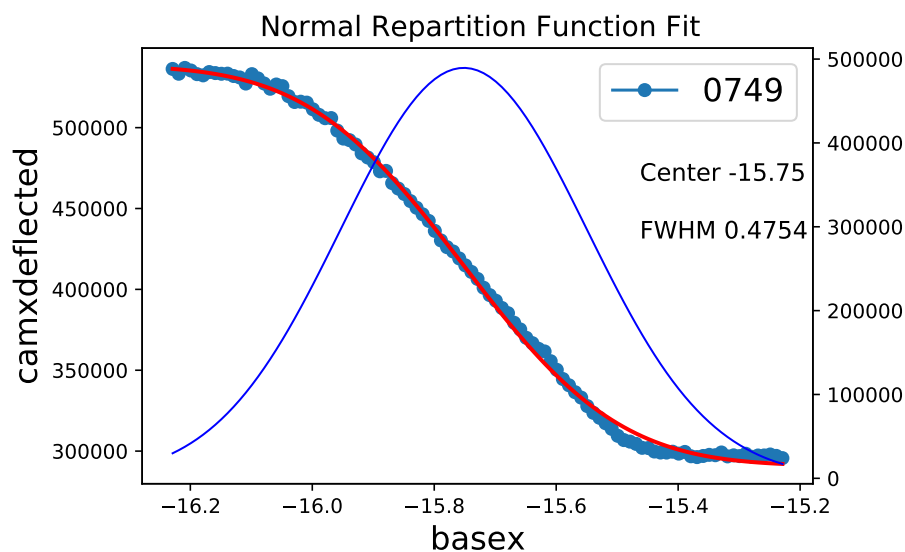
$$\frac{786 - 558}{2 \times 2069} \times 0.0355 = 1.9 \text{ mrad}$$

2.2 Alignment diffracto

2.2.1 (Vertical) SIRIUS_2020_03_11_0744: dscan basez -.2 .2 50 .1

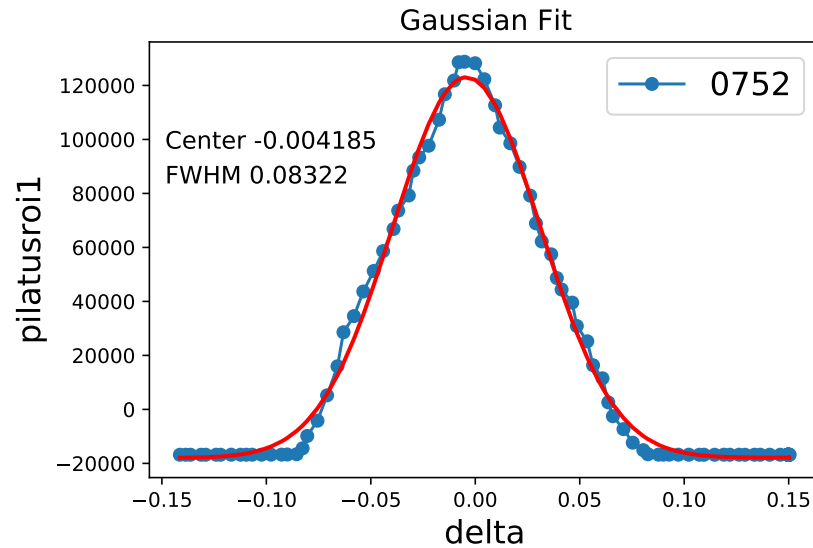


2.2.2 (Horizontal) SIRIUS_2020_03_11_0749: %sigmoid_dscan basex -.5 .5 100 .1

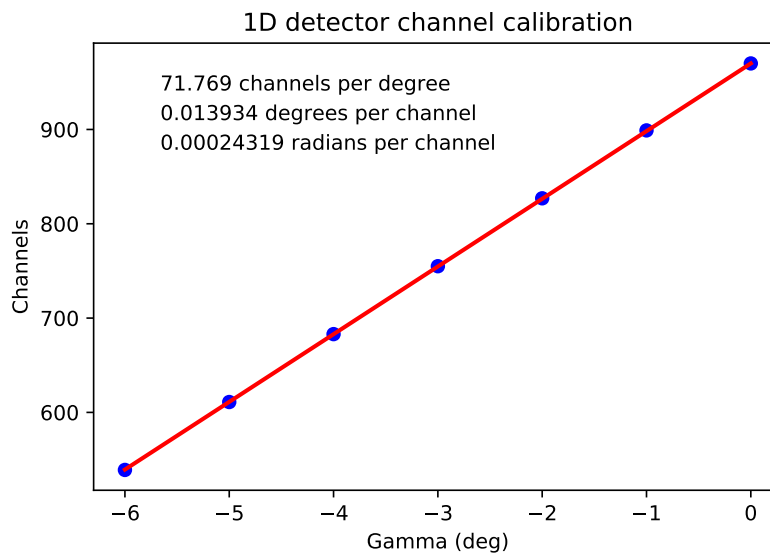


2.2.3 SIRIUS_2020_03_11_0752: continuous_ascan delta -.15 .15 100 1

scans 750 -> 752 : Alignment delta angle (Pilatus+Soller)



2.3 Calibration thetaz



3 Calibration with Octadecanol

3.0.1 SIRIUS_2020_03_12_0756: continuous_ascan delta -24 -19 100 5

- Open Nexus Data File :

```
/Users/arnaudhemmerle/Documents/Recherche/Analysis/JupyterLabBook/recording
/SIRIUS_2020_03_12_0756.nxs
```

```
. Number of data points: 101
```

```
. Available Counters:
```

```
0 -----> delta
```

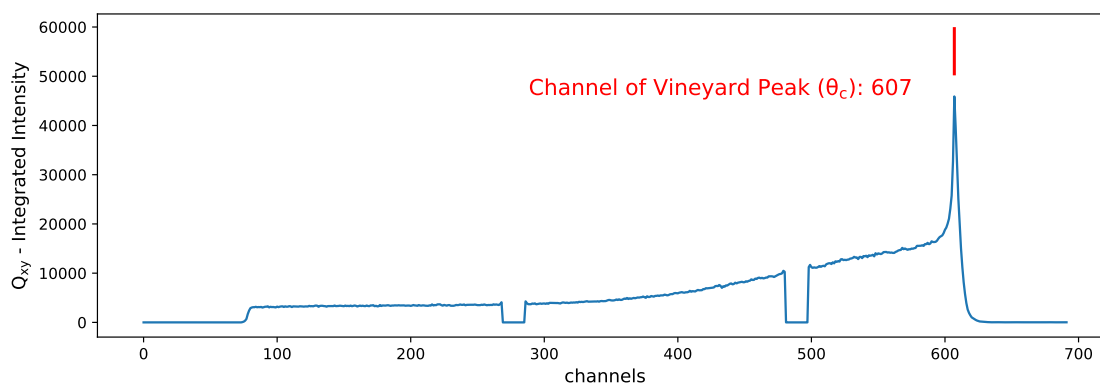
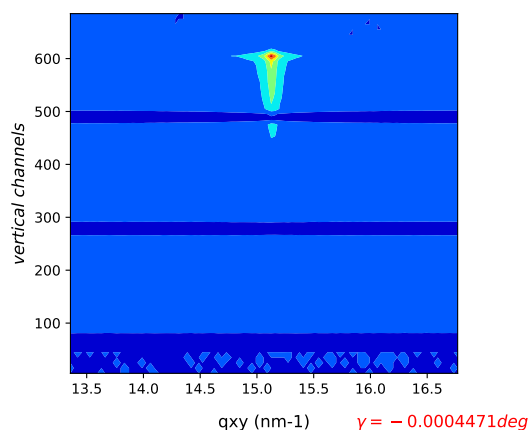
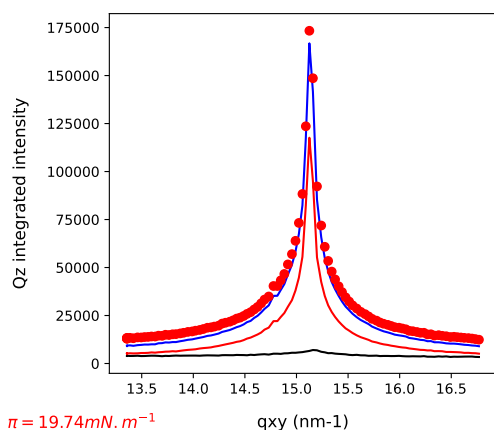
```
1 -----> zs
```

```
2 -----> gamma
```

```

3 -----> hu36energy
4 -----> xs
5 -----> energydcm
6 -----> current
7 -----> mon2
8 -----> surfacepressure
9 -----> areapermolecule
10 -----> qxy
11 -----> pilatus
12 -----> pilatusroi1
13 -----> integration_time
14 -----> sensorsRelTimestamps
15 -----> sensorsTimestamps
. Pilatus data found, (column 11, alias pilatus)
. qxy data found, (column 10, alias qxy)
. Surface pressure data found, mean value  $19.74 \pm 0.006119$  mN/m
. Area per molecule data found, mean value  $0.3557 \pm 3.944e-05$  nm2 per
molecule
. Gamma motor data found, mean value  $-0.0004471$  deg
SIRIUS_2020_03_12_0756.nxs

```



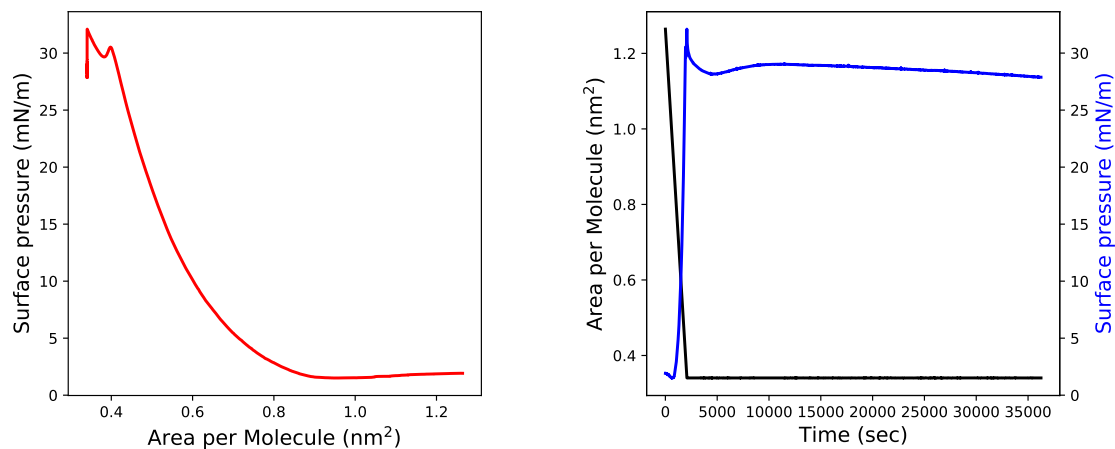
Data not saved. To save data, run a GIXD on the scan.
Channel0: 607

4 Experiment GIXD+Langmuir

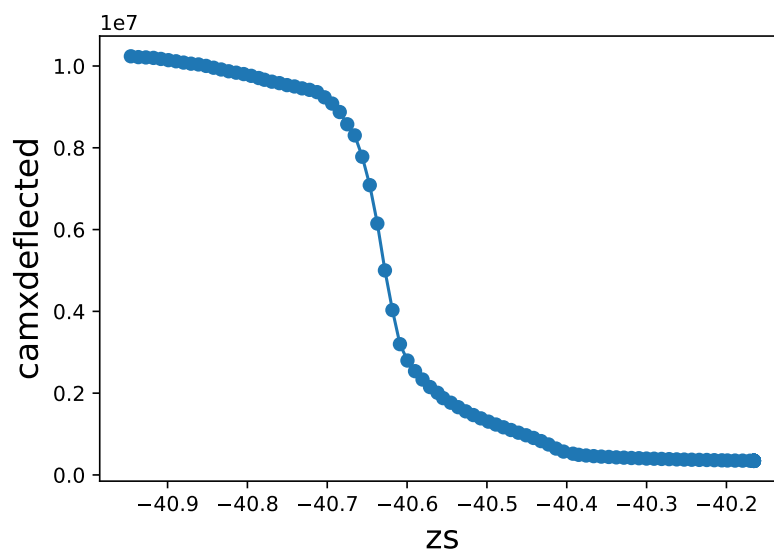
4.1 Sample A

4.1.1 SIRIUS_Isotherm_2019_02_17_01544: isotherm 1.97 46 35000 1

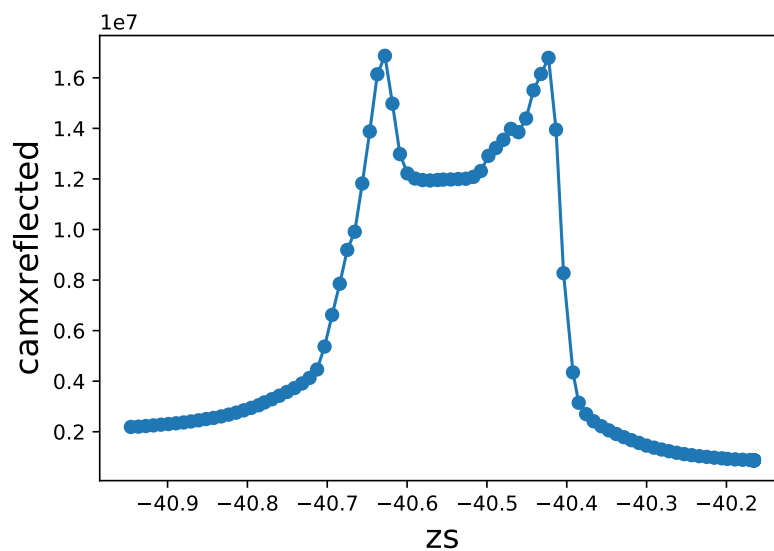
SIRIUS_Isotherm_2019_02_17_01544



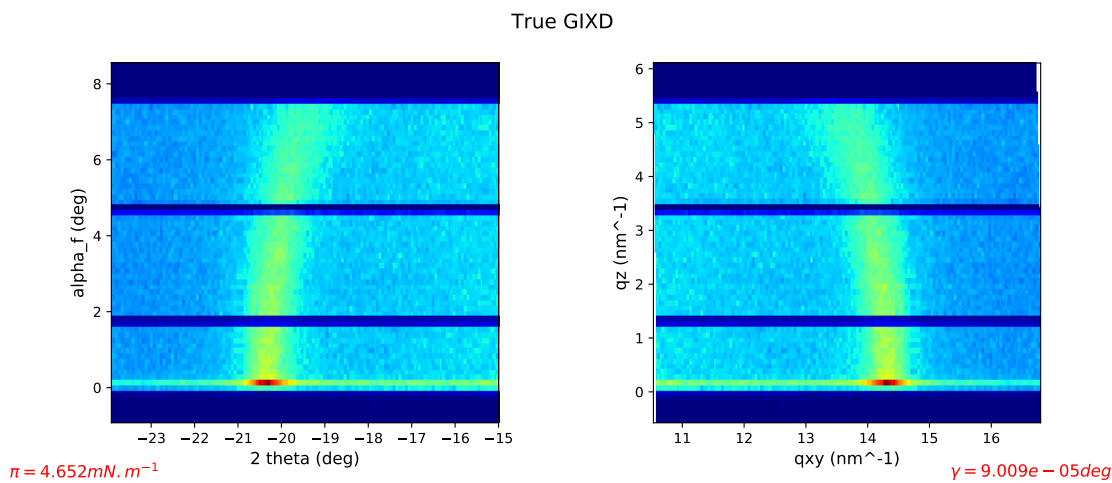
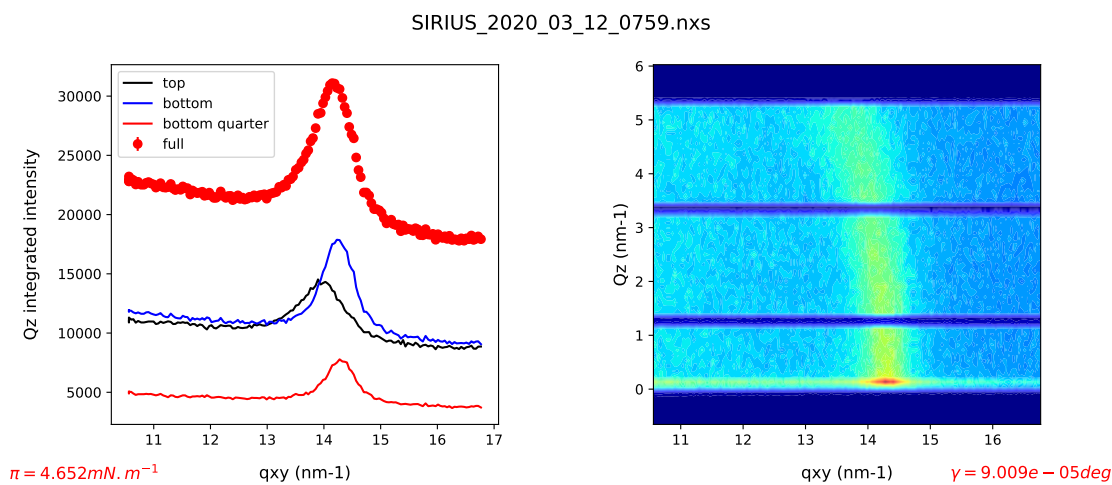
4.1.2 SIRIUS_2020_03_12_0760: run cont_regh.ipyn



4.1.3 SIRIUS_2020_03_12_0760: run cont_regh.ipy



4.1.4 SIRIUS_2020_03_12_0759: continuous_ascan delta -24 -15 150 5



4.1.5 SIRIUS_2020_03_12_0756: continuous_ascan delta -24 -19 100 5

- Open Nexus Data File :

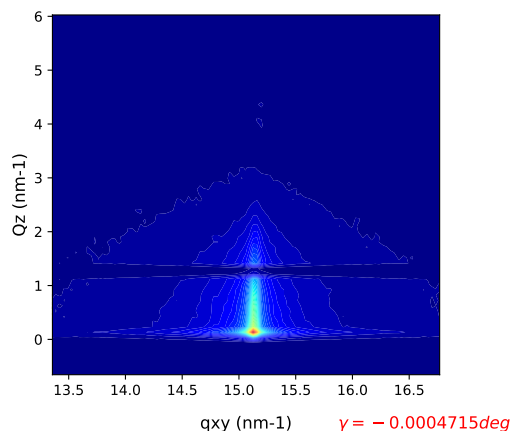
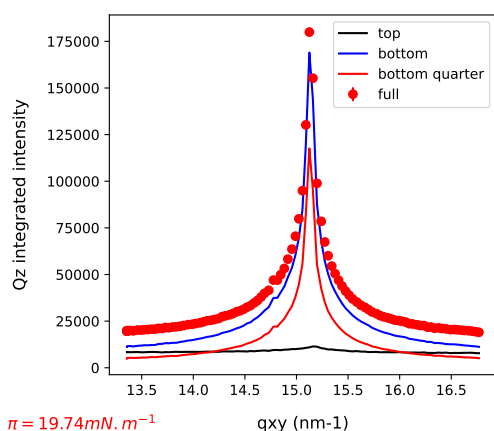
```
/Users/arnaudhemmerle/Documents/Recherche/Analysis/JupyLabBook/recording
/SIRIUS_2020_03_12_0756.nxs
. Number of data points: 101
. Available Counters:
    0 -----> delta
    1 -----> zs
    2 -----> gamma
    3 -----> hu36energy
    4 -----> xs
    5 -----> energydcm
    6 -----> current
    7 -----> mon2
    8 -----> surfacepressure
    9 -----> areapermolecule
   10 -----> qxy
   11 -----> pilatus
   12 -----> pilatusroi1
   13 -----> integration_time
   14 -----> sensorsRelTimestamps
   15 -----> sensorsTimestamps
. Pilatus data found, (column 11, alias pilatus)
. qxy data found, (column 10, alias qxy)
. Valid data between points 0 and 100
. Surface pressure data found, mean value 19.74 ± 0.006163 mN/m
. Area per molecule data found, mean value 0.3557 ± 3.866e-05 nm2 per
molecule
. Gamma motor data found, mean value -0.0004715 deg
. Original, non binned matrix saved in:
  /Users/arnaudhemmerle/Documents/Recherche/Analysis/JupyLabBook/working/
SIRIUS_2020_03_12_0756_1D.mat
. Scalar data saved in:
  /Users/arnaudhemmerle/Documents/Recherche/Analysis/JupyLabBook/working/
SIRIUS_2020_03_12_0756_1D.dat
. Qz values saved in:
  /Users/arnaudhemmerle/Documents/Recherche/Analysis/JupyLabBook/working/S
IRIUS_2020_03_12_0756_1D_qz10.dat
. Binned matrix saved in:
  /Users/arnaudhemmerle/Documents/Recherche/Analysis/JupyLabBook/working/
SIRIUS_2020_03_12_0756_1D.mat10
. XYZ data saved in:
  /Users/arnaudhemmerle/Documents/Recherche/Analysis/JupyLabBook/working/
SIRIUS_2020_03_12_0756_1D.moy10
. Qz values saved in:
  /Users/arnaudhemmerle/Documents/Recherche/Analysis/JupyLabBook/working/S
IRIUS_2020_03_12_0756_1D_qz20.dat
. Binned matrix saved in:
```



```

/Users/arnaudhemmerle/Documents/Recherche/Analysis/JupyterLabBook/working/
SIRIUS_2020_03_12_0756_1D.mat20
. XYZ      data saved in:
/Users/arnaudhemmerle/Documents/Recherche/Analysis/JupyterLabBook/working/
SIRIUS_2020_03_12_0756_1D.moy20
. Qz values saved in:
/Users/arnaudhemmerle/Documents/Recherche/Analysis/JupyterLabBook/working/S
IRIUS_2020_03_12_0756_1D_qz40.dat
. Binned matrix saved in:
/Users/arnaudhemmerle/Documents/Recherche/Analysis/JupyterLabBook/working/
SIRIUS_2020_03_12_0756_1D.mat40
. XYZ      data saved in:
/Users/arnaudhemmerle/Documents/Recherche/Analysis/JupyterLabBook/working/
SIRIUS_2020_03_12_0756_1D.moy40
SIRIUS_2020_03_12_0756.nxs

```



5 Experiment GIXS

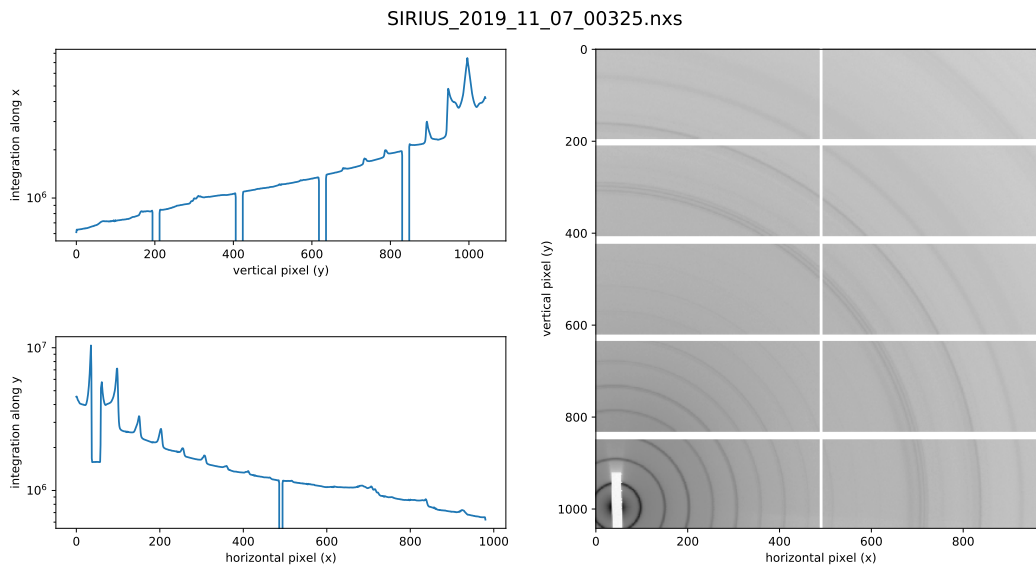
5.0.1 SIRIUS_2019_11_07_00325: No command found

- Open Nexus Data File :

```

/Users/arnaudhemmerle/Documents/Recherche/Analysis/JupyterLabBook/recording
/SIRIUS_2019_11_07_00325.nxs
. Number of data points: 11
. Available Counters:
0 -----> hu36energy
1 -----> current
2 -----> mon2
3 -----> mon4
4 -----> camxdirect
5 -----> pilatus
6 -----> pilatusroi1
7 -----> integration_time
8 -----> sensorsRelTimestamps
9 -----> sensorsTimestamps
. Pilatus data found, (column 5, alias pilatus)

```



```
. Original matrix saved in:
/Users/arnaudhemmerle/Documents/Recherche/Analysis/JupyterLabBook/working/
SIRIUS_2019_11_07_00325.mat
```

```
. Tiff saved in:
/Users/arnaudhemmerle/Documents/Recherche/Analysis/JupyterLabBook/working/
SIRIUS_2019_11_07_00325.tiff
```

5.0.2 SIRIUS_2020_01_30_0614: tscan 10 1

- Open Nexus Data File :

```
/Users/arnaudhemmerle/Documents/Recherche/Analysis/JupyterLabBook/recording
/SIRIUS_2020_01_30_0614.nxs
```

```
. Number of data points: 11
```

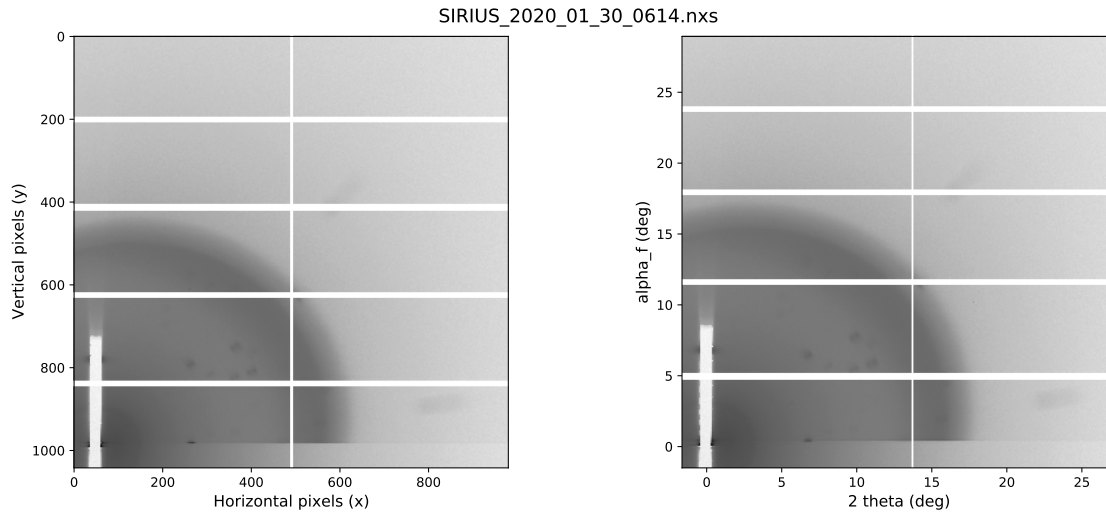
```
. Available Counters:
```

```
0 -----> delta
1 -----> ys
2 -----> shg
3 -----> zs
4 -----> alphax
5 -----> gamma
6 -----> xs
7 -----> energydcm
8 -----> alphay
9 -----> mon2
10 -----> qxy
11 -----> mon4
12 -----> pilatus
13 -----> pilatusroi1
14 -----> integration_time
15 -----> sensorsRelTimestamps
```

```

16 -----> sensorsTimestamps
. Pilatus data found, (column 12, alias pilatus)
. Gamma motor data found, mean value 0.001297 deg
. Delta motor data found, mean value 16.13 deg
. For more details on the geometry, see:
  -Fig.2 in doi:10.1107/S0909049512022017
  -Slide 4 in http://gisaxs.com/files/Strzalka.pdf

```



```

. Original matrix saved in:
  /Users/arnaudhemmerle/Documents/Recherche/Analysis/JupyLabBook/working/
SIRIUS_2020_01_30_0614.mat

. Tiff saved in:
  /Users/arnaudhemmerle/Documents/Recherche/Analysis/JupyLabBook/working/
SIRIUS_2020_01_30_0614.tiff

```

5.0.3 SIRIUS_2020_01_30_0614: tscan 10 1

```

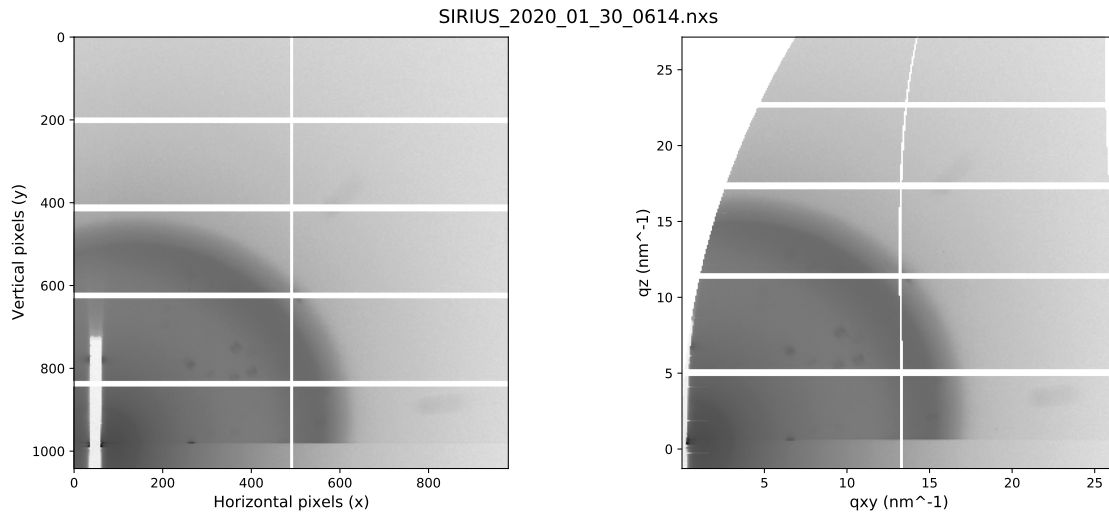
- Open Nexus Data File :
  /Users/arnaudhemmerle/Documents/Recherche/Analysis/JupyLabBook/recording
/SIRIUS_2020_01_30_0614.nxs
. Number of data points: 11
. Available Counters:
    0 -----> delta
    1 -----> ys
    2 -----> shg
    3 -----> zs
    4 -----> alphax
    5 -----> gamma
    6 -----> xs
    7 -----> energydcm
    8 -----> alphay
    9 -----> mon2
   10 -----> qxy

```

```

11 -----> mon4
12 -----> pilatus
13 -----> pilatusroi1
14 -----> integration_time
15 -----> sensorsRelTimestamps
16 -----> sensorsTimestamps
. Pilatus data found, (column 12, alias pilatus)
. Gamma motor data found, mean value 0.001297 deg
. Delta motor data found, mean value 16.13 deg
. For more details on the geometry, see:
  -Fig.2 in doi:10.1107/S0909049512022017
  -Slide 4 in http://gisaxs.com/files/Strzalka.pdf

```



```

. Original matrix saved in:
  /Users/arnaudhemmerle/Documents/Recherche/Analysis/JupyLabBook/working/
SIRIUS_2020_01_30_0614.mat

```

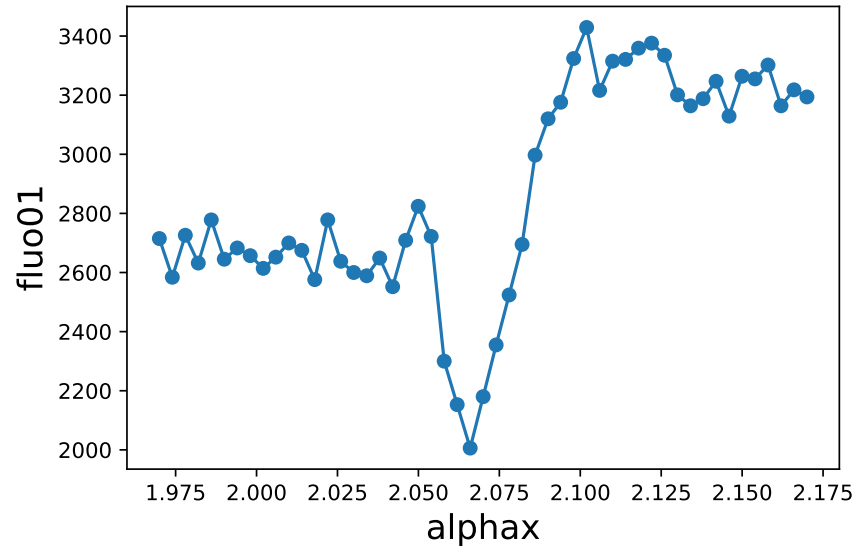
```

. Tiff saved in:
  /Users/arnaudhemmerle/Documents/Recherche/Analysis/JupyLabBook/working/
SIRIUS_2020_01_30_0614.tiff

```

6 Experiment XRF

6.0.1 SIRIUS_2017_12_11_08042: run xsw7.ipy



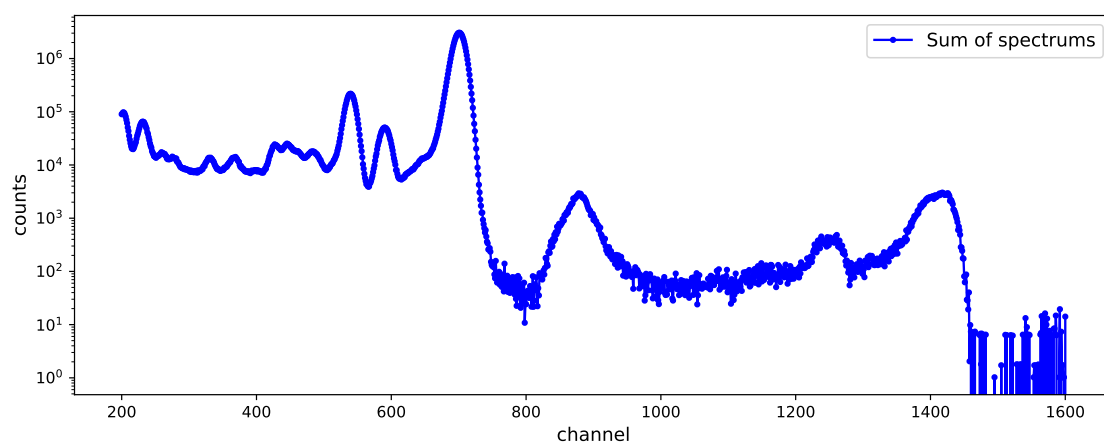
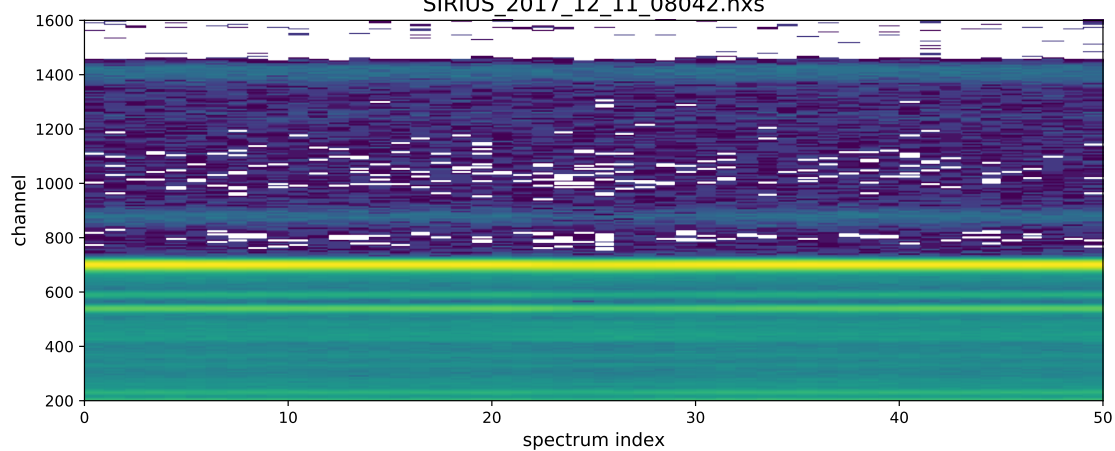
6.0.2 SIRIUS_2017_12_11_08042: run xsw7.ipy

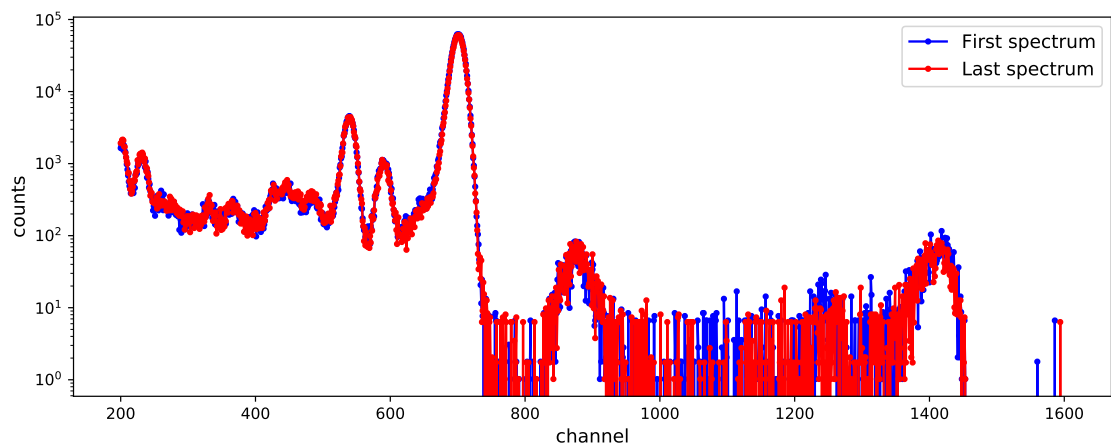
```
. Available Counters:
0 -----> alphax
1 -----> gamma
2 -----> delta
3 -----> ys
4 -----> ds1hg
5 -----> os2hg
6 -----> zs
7 -----> alphax
8 -----> gamma
9 -----> hu36energy
10 -----> xs
11 -----> thetah
12 -----> ds2hg
13 -----> ss1hg
14 -----> current
15 -----> mon2
16 -----> dioderef1
17 -----> fluo00
18 -----> fluo01
19 -----> fluo02
20 -----> fluo03
21 -----> fluoicr00
22 -----> fluoicr01
23 -----> fluoicr02
24 -----> fluoicr03
25 -----> fluoocr01
```

```

26 -----> fluoocr02
27 -----> fluoocr03
28 -----> fluospectrum00
29 -----> fluospectrum01
30 -----> fluospectrum02
31 -----> fluospectrum03
32 -----> fluoocr00
33 -----> mon4
34 -----> gainfemtodiodefl
35 -----> integration_time
36 -----> sensors_rel_timestamps
37 -----> sensorsTimestamps
38 -----> i15-c-cx1/ex/v2_grp_alphax.rot/rot
39 -----> i15-c-cx1/ex/v2_grp_gamma.rot/rot
SIRIUS_2017_12_11_08042.nxs

```





6.0.3 SIRIUS_2017_12_11_08042: run xsw7.ipy

