

Example_HR

May 11, 2020

Contents

1	Form	1
2	Beamline alignment	2
2.1	Scan 654 -> 680 : DCM Alignment 8keV + HU36 + M1 + M2	2
2.2	Alignment diffracto	2
2.2.1	(Vertical) SIRIUS_2020_03_11_0744: dscan basez -.2 .2 50 .1	2
2.2.2	(Horizontal) SIRIUS_2020_03_11_0749: %sigmoid_dscan basex -.5 .5 100 .1	3
2.2.3	Scan 750 -> 752 : Alignment delta angle (Pilatus+Soller)	3
2.3	Calibration thetaz	4
3	Octadecanol (calibration)	4
3.0.1	SIRIUS_2020_03_12_0756: continuous_ascan delta -24 -19 100 5	4
4	Scans	6
4.1	Sample A	6
4.1.1	SIRIUS_Isotherm_2019_02_17_01544: isotherm 1.97 46 35000 1	6
4.1.2	SIRIUS_2020_03_12_0760: run cont_regh.ipy	7
4.1.3	SIRIUS_2020_03_12_0759: continuous_ascan delta -24 -15 150 5	7

1 Form

SIRIUS Beamline : Experiment 1234

Confined at home

- Type: Proposal
- Safety: Red
- 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: Hybrid
- 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): 0.1
- Monitors and XBPM:
 - mon1:
 - mon2: thick diamond
 - mon3:
 - mon4:
 - Detectors: Pilatus
- Remarks: This a nice experiment.

2 Beamline alignment

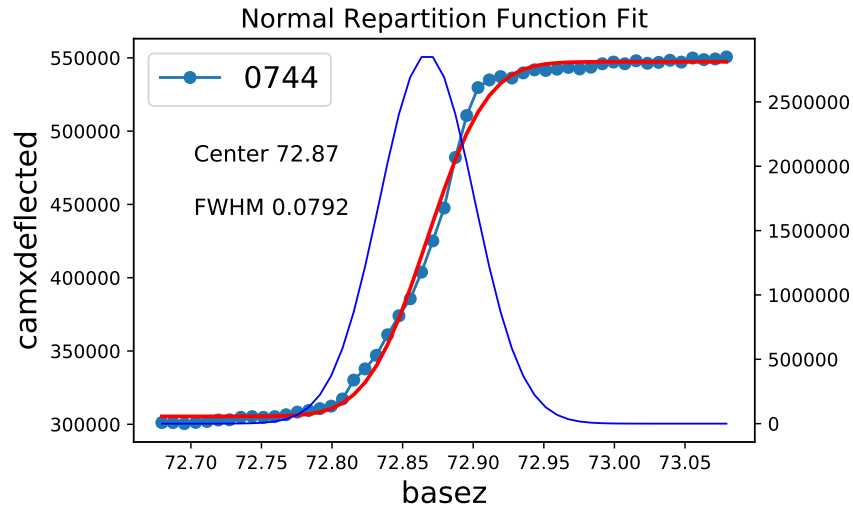
2.1 Scan 654 -> 680 : DCM Alignment 8keV + HU36 + M1 + M2

- Incidence :

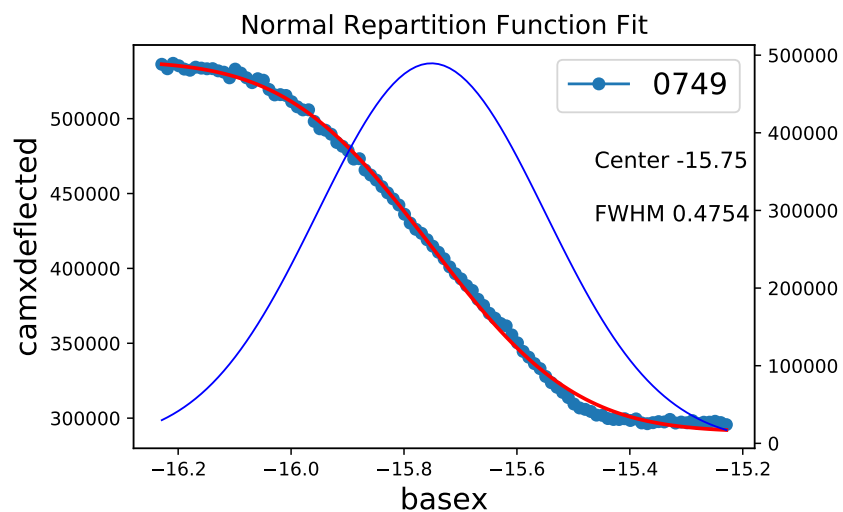
$$\frac{786 - 558}{2 \times 2069} \times 0.0355 = 1.9 \text{ mrad}$$

2.2 Alignment diffracto

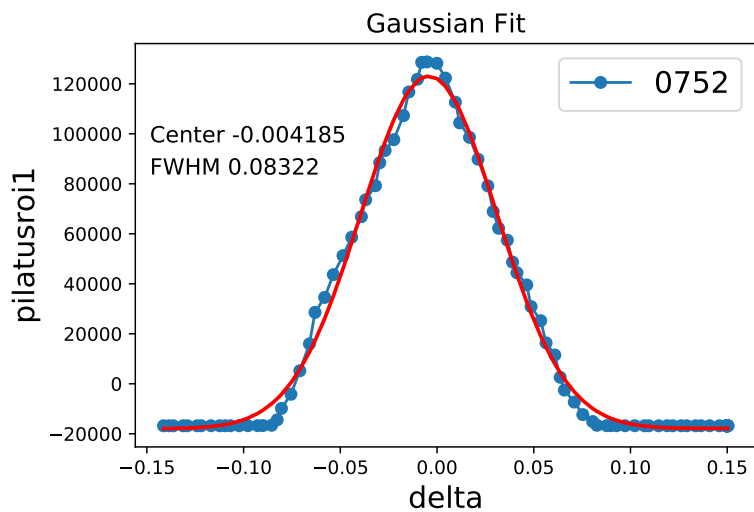
2.2.1 (Vertical) SIRIUS_2020_03_11_0744: dscan basez -.2 .2 50 .1



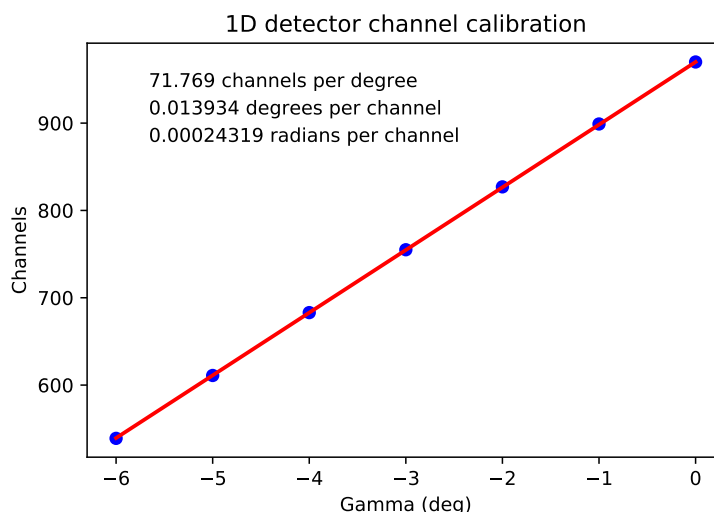
2.2.2 (Horizontal) SIRIUS_2020_03_11_0749: %sigmoid_dscan basex -.5 .5 100 .1



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



2.3 Calibration thetaz



3 Octadecanol (calibration)

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)

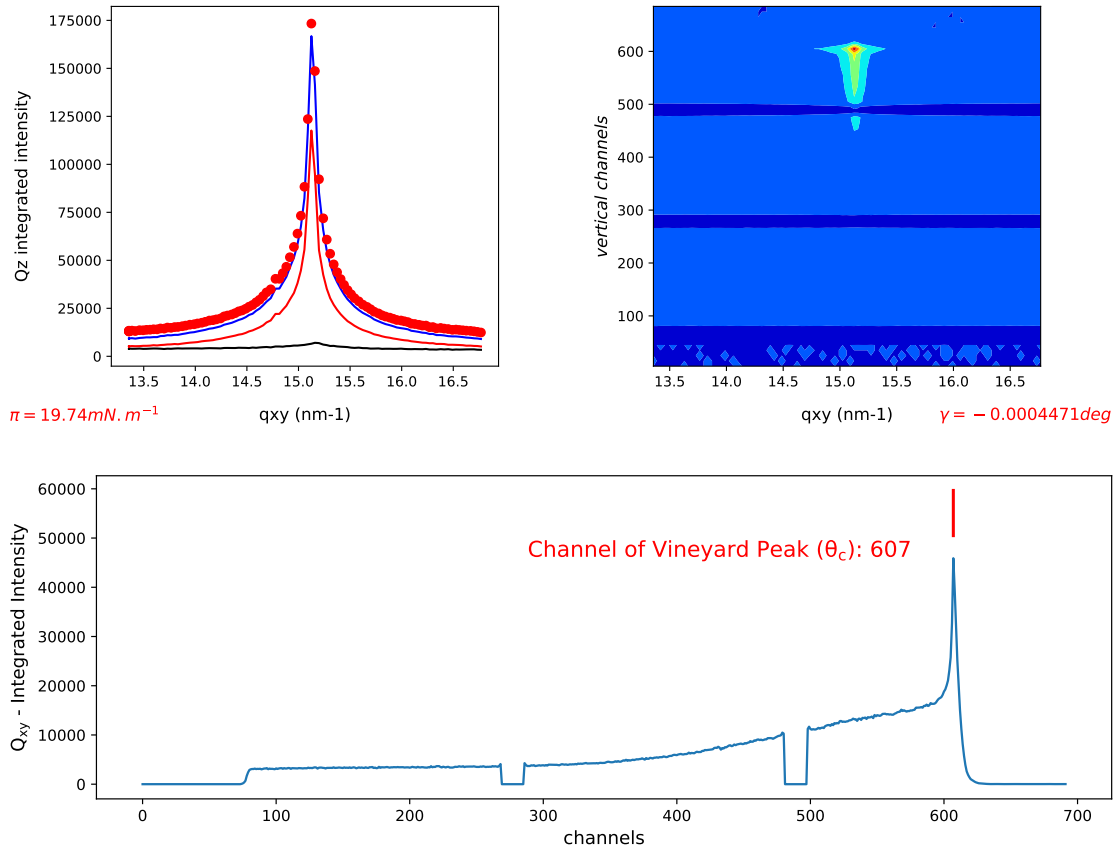
. qxy data found, (column 10, alias qxy)

. Surface pressure data found, mean value 19.74 ± 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

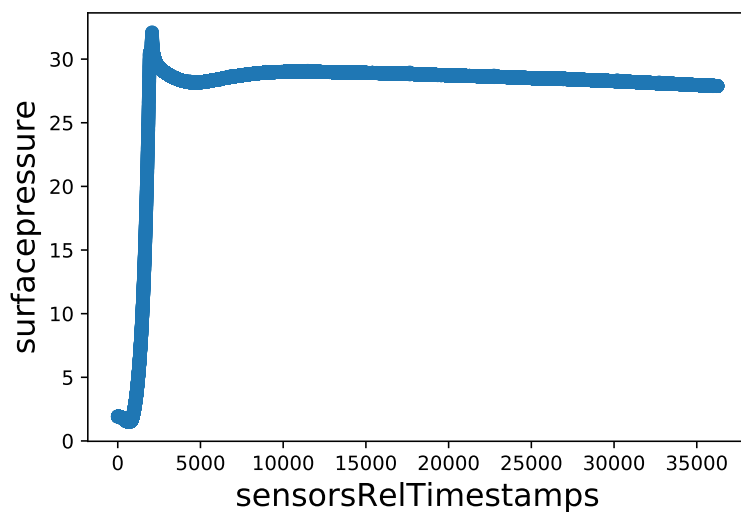


Data not saved. To save data, run a GIXD on the scan.
Channel0: 607

4 Scans

4.1 Sample A

4.1.1 SIRIUS_Isotherm_2019_02_17_01544: isotherm 1.97 46 35000 1

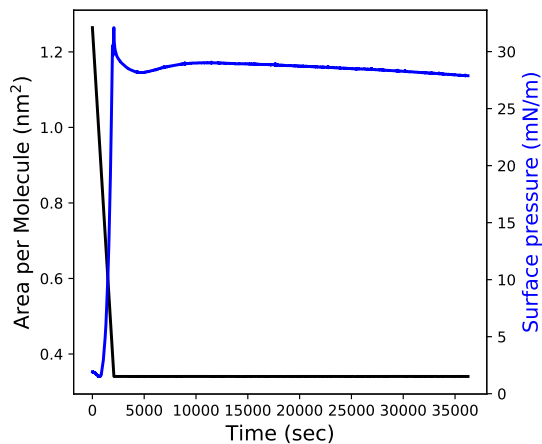
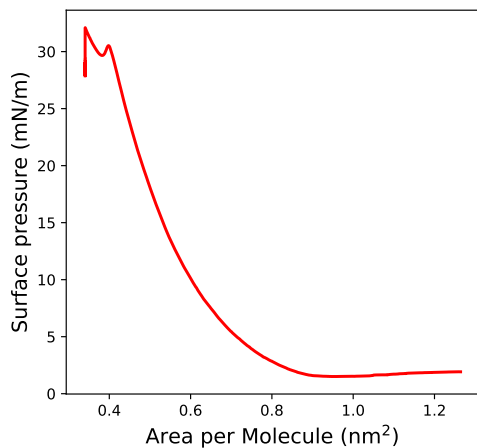


- Open Nexus Data File :

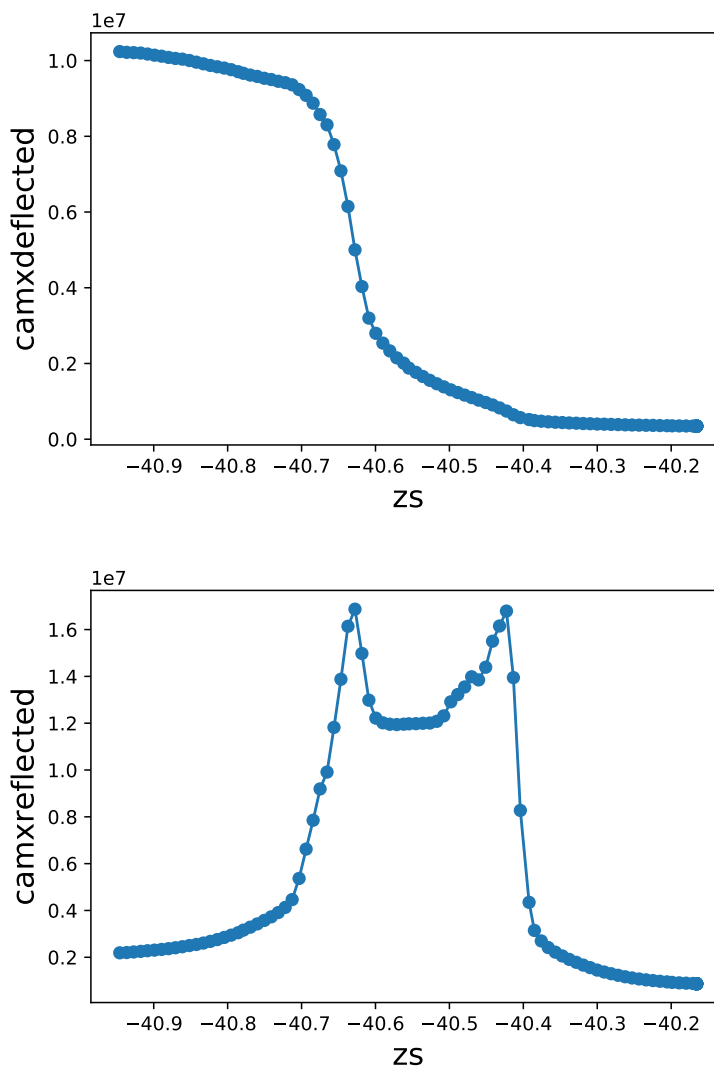
/Users/arnaudhemmerle/Documents/Recherche/Analysis/JupyLabBook/recording
/SIRIUS_Isotherm_2019_02_17_01544.nxs

- . Number of data points: 35001
- . Area per molecule found column 1
- . Surface pressure per molecule found column 2
- . Time per molecule found column 4
- . Valuable data between points 0 and 35000

SIRIUS_Isotherm_2019_02_17_01544



4.1.2 SIRIUS_2020_03_12_0760: run cont_regh.ipy



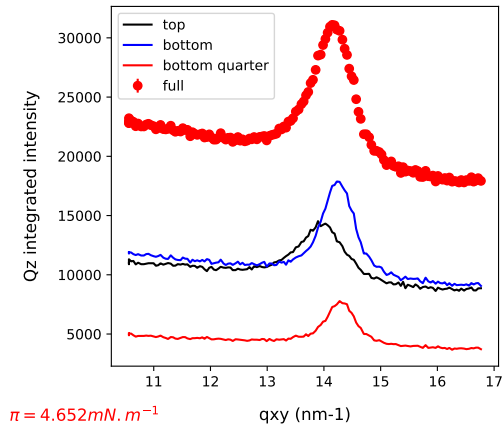
4.1.3 SIRIUS_2020_03_12_0759: continuous_ascan delta -24 -15 150 5

- Open Nexus Data File :

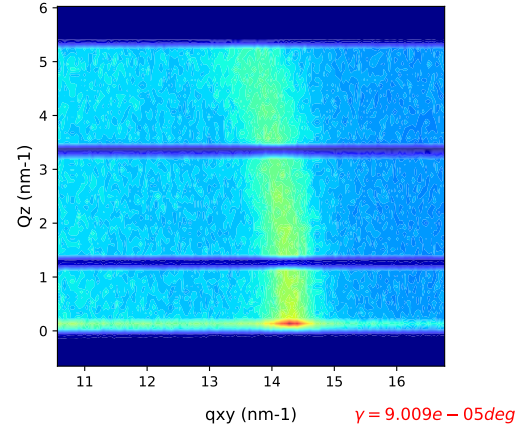
```
/Users/arnaudhemmerle/Documents/Recherche/Analysis/JupyterLabBook/recording  
/SIRIUS_2020_03_12_0759.nxs
```

```
. Number of data points: 151  
. Pilatus data found, (column 11, alias pilatus)  
. qxy data found, (column 10, alias qxy)  
. Valuable data between points 0 and 150  
. Surface pressure data found, mean value  $4.652 \pm 0.002447$  mN/m  
. Area per molecule data found, mean value  $0.2927 \pm 0.0002703$  nm2 per  
molecule  
. Gamma motor data found, mean value  $9.009e-05$  deg  
. For more details on the geometry, see:  
    -Fig.2 in doi:10.1107/S0909049512022017  
    -Slide 4 in http://gisaxs.com/files/Strzalka.pdf  
. Data saved in text format
```

SIRIUS_2020_03_12_0759.nxs

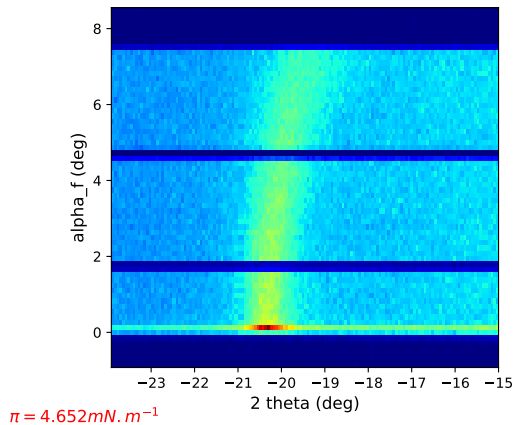


$\pi = 4.652 \text{ mN} \cdot \text{m}^{-1}$

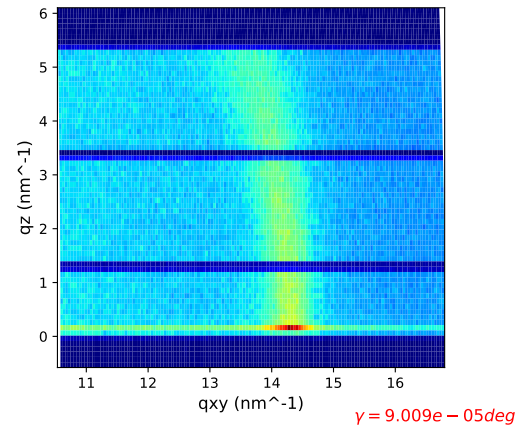


$\gamma = 9.009 \text{e} - 05 \text{ deg}$

True GIXD



$\pi = 4.652 \text{ mN} \cdot \text{m}^{-1}$



$\gamma = 9.009 \text{e} - 05 \text{ deg}$