

2020-Dec-03: SC-6024: Morfin, Appel

Two configurations:

1. WAXS 8 cm and SAXS with 25cm tube after WOS
2. Only SAXS

Energy 16keV
calibration files

D5 - `calib_8keV_fast_20201013`
WOS - `WOS_BEAM_09500_20170320`

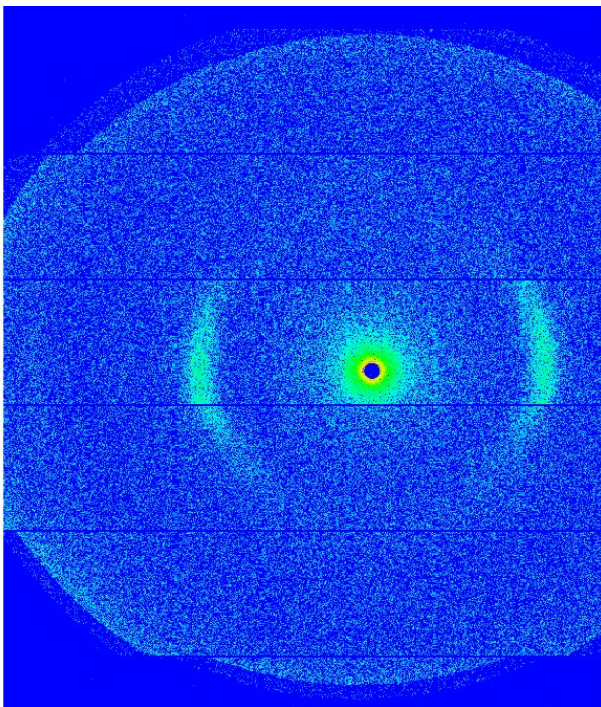
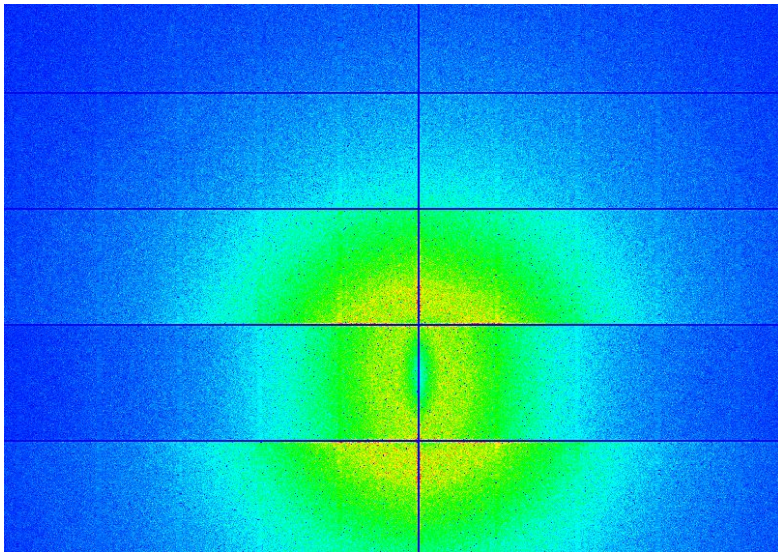
```
118.MONO> wa
Current Positions (user, dial)
  mono      moveh      courb      omega      gap      khimono      gamma      courbb      courbf      M1_alpha
  mono      moveh      courb      omega      gap      khimono      gamma      courbb      courbf      alpha1
7.098310  14.289012  0.932000  -12.209426  14.609883  -1.291487  -0.037600  0.932227  0.932227  0.210000
7.098306  8.282000  0.932013  -7.259426  -21.959267  -1.897153  -1.084896  0.932227  0.932227  0.982399

  M1_khi     M1_bdam     M1_bdav     M1_ty     M1_tz     M2_alpha     M2_khi     M2_bdam     M2_bdav     M2_ty
  khi1      bdam1      bdav1      ty1      tz1      alpha2      khi2      bdam2      bdav2      ty2
0.000000  184.616447  184.616447  17.500000  0.200000  0.173675  -0.005999  286.092437  248.093037  17.500000
1.070700  184.616447  184.616447  -6.243200  2.000000  -1.245524  -1.166281  286.092437  248.093037  7.500000

  M2_tz     fluo1     rien     diode     Slit1Up     Slit1Down     Slit1Front     Slit1Back     VertGap1     VertOffs1
  tz2      fluo1     rien     diode     sul         sd1         sf1         sb1         vg1         vol
-0.200000  0.000000  1.000000  10.733575  -4.407250  -5.592750  -1.834093  -2.165907  10.000000  -0.592764
-0.200000  0.000000  1.000000  10.733575  -3.496750  26.458250  -1.834093  -2.165907  10.000000  -0.592764

  HoriGap1  HoriOffs1
  hg1       ho1
4.000000  -0.165907
4.000000  -0.165907
```

```
149.SLITS> ws
slits gaps and offsets (mm)
  vg1  2.5000    vo1 -0.5928    hg1  2.5000    ho1 -0.1659
  vg2  10.7227   vo2 -0.9137    hg2  49.1344   ho2 -2.4223
  vg3  8.4659     vo3 -0.0065    hg3  7.8423    ho3  0.2284
  vg4 -210.5000   vo4 -75.6000   hg4  30.0000   ho4  0.4330
  vg8  36.4581    vo8 -0.0752    hg8  10.1500   ho8  0.2398
```



Set up 1 with SAXS and WAXS detectors

the file names of the 2D images are 20Dec03D5_XXXX.edf for the SAXS and 20Dec03WOS_XXXX.edf for the WAXS detector.

The $I(q)$ files are named 20Dec03D5_XXXX_S1.dat to 20Dec03D5_XXXX_S8.dat for sample 1 to 8 as mentioned in the table below.

Measurements have been done during a first increase of the temperature followed by a decrease. Measurements of the 8 samples have been done 2 minutes after the

temperature reached the right temperature. 3 series of measurements have then been performed for each temperature. Between two consecutive asked temperature, 1 second scattering measurements have been taken on position 8 (sample 8, Zc 14 (LG2-2)) in order to follow the increase of temperature. We do not integrate these measurements, they correspond to the run numbers missing. For example between T=25 and T=30C, measurements corresponding to file numbers between 731 to 765 have been recorded (see table below) but not integrated. This explanation should allow you to complete the table below.

scan No	sample	time	T	remarks
0478	ArB	10		
0502	Cr2O3	60		
503	EC 1 blue			
504	2 purple			
505	3 blue			
506	4 purple			
507	5 blue			c
508	6 purple			
651	Zil 11 sd	1	25	small diameter
707	Zil 11	30	25	position 1 named S1
	Zil 21			named S2
	Zil 31			named S3
	Zc 14 (LG2-2)			named S4
	Zil 11			named S5
	Zil 21			named S6
	Zil 31			named S7
	Zc 14 (LG2-2)			named S8

Macro for the night measuring all the cycle of temperature between 25 and 160C.

	1386								
150	1431 1439 1447								
160	1478 1486 1494								
155	1535 1531 1539	1536	1536	1537	1538	1539	1540		
150	1569 1577 1585								
145	1615 1623 1631								
140	1661 1669 1677								
135	1708 1716 1724								
130	1755 1763 1771								
125	1803 1811 1819								

120	1851 1859 1867								
115	1900 1908 1916								
110	1950 1958 1966								
105	2001 2009 2017								

100	2053 2061 2069							
95	2106 2114 2122							
90	2160 2168 2176							
85	2216 2224 2232							
80	2274 2282 2290							
75	2335 2343 2351							
70	2399 2407 2415							
65	2468 2476 2484							
60	2542 2550 2558							
55	2624 2632 2640							
50	2716 2724 2732							
45	2821 2829 2837							
40	2950 2958 2966							
35	3124 3132 3140							

30	3407 3415 3423							
25	4382 4390 4398							

References for the glassy carbon to normalize the intensity in cm⁻¹.

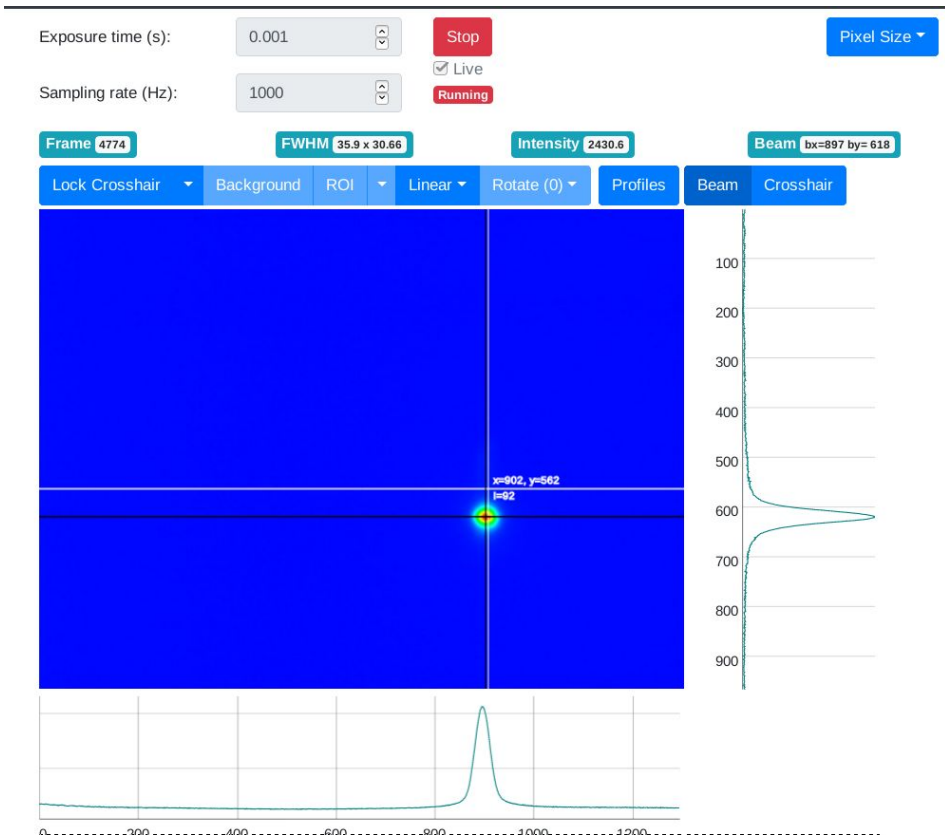
4406	BeAg	1 sec		in front of the sample holder, for glassy carbon
4407		10 sec		
4455	LaB6			In capillary
4456	glassy carbon	1 sec		in front of the sample holder
		10 sec		

Set up 2 with the SAXS detector only

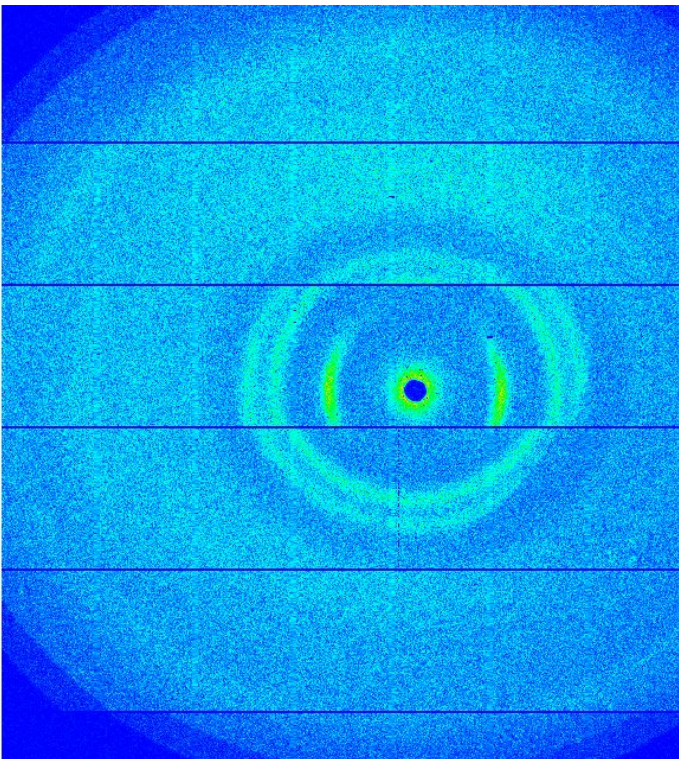
Change setup:

We removed the WOS and put the D5 detector @ ~53 cm from the sample.

Refocusing the beam @



D5 detector image. Intensity around beamstop is similar to the kapton peaks. So it's fine!



The new file names are 20Dec04D5_XXXX.edf

52	BeAg	10sec		in front of the sample holder for glassy carbon
53	Glassy carbon	10 sec		in front of the sample holder
55	BeAg	10 sec		in capillary
56	empty cell purple	60 sec		
57	empty cell blue	60 sec		in capillary

the reading card did not respond, and needed to be restarted. all files above have missing transmission information. In fact all values in counter_pos cannot be trusted.

Transmission value for empty cells is taken from the previous setup, but the subtraction of the empty cell is not good.

samples measured with the script

228	Zil 11	30	S1	small diameter cap. (blue ones)
229	Zil 21		S2	
230	Zil 31		S3	
213	Zc 14 (LG2-2)		S4	
232	Zil 11		S5	large diameter cap. (purple ones)
233	Zil 21		S6	
234	Zil 31		S7	
235	Zc 14 (LG2-2)		S8	
3902				

From run 228 to run 3902, we performed exactly the same measurements as for the first setup (same number of measurements by temperature and same number of temperature.

motor positions for E = 16 KeV

```

227.MONO> wa
Current Positions (user, dial)
  mono      moveh      courb      omega      gap      khimono      gamma      courbb
  mono      moveh      courb      omega      gap      khimono      gamma      courbb
  7.098310  14.289012  0.944000  -12.209426  14.609883  -1.291487  -0.036285  0.944249
  7.098306  8.282000  0.943989  -7.259426  -21.959267  -1.897153  -1.083581  0.944249

  courbf    M1_alpha    M1_khi    M1_bdam    M1_bdav    M1_ty    M1_tz    M2_alpha
  courbf    alpha1      khi1      bdam1      bdav1      ty1      tz1      alpha2
  0.944249  0.210000    0.000000  184.616447  184.616447  17.500000  0.200000  0.173675
  0.944249  0.982399    1.070700  184.616447  184.616447  17.500000  2.000000  -1.245524

  M2_khi    M2_bdam    M2_bdav    M2_ty    M2_tz    fluo1      rien      diode
  khi2      bdam2      bdav2      ty2      tz2      fluo1      rien      diode
  -0.005999  316.092437  278.093037  17.500000  -0.200000  0.000000  1.000000  10.733575
  -1.166281  316.092437  278.093037  17.500000  -0.200000  0.000000  1.000000  10.733575

  Slit1Up   Slit1Down   Slit1Front  Slit1Back  VertGap1   VertOffs1   HoriGap1   HoriOffs1
  su1       sd1         sf1         sb1         vg1         vo1         hg1         ho1
  -0.657250 -1.842750  -1.084063  -1.415937  2.500000  -0.592764  2.500000  -0.165967
  -0.657250 -1.842750  -1.084063  -1.415937  2.500000  -0.592764  2.500000  -0.165967

```

The values of vg1 and hg1 are incorrect in the slits sessions. They were at 2.5 * 2.5. It probably did not sync between the two sessions mono and saxsext.

```

slits gaps and offsets (mm)
  vg1  35.4615    vo1 -16.1630    hg1  2.5000    ho1  -0.1659
  vg2  10.7227    vo2  -0.9137    hg2  49.1344    ho2  -2.4223
  vg3   8.4659    vo3  -0.0065    hg3   7.8423    ho3   0.2284
  vg4 -210.5000    vo4 -75.6000    hg4  30.0000    ho4   0.4330
  vg8  36.9581    vo8  -0.3252    hg8  10.5500    ho8   0.2398

```

```

Macro:
def mesure '
mvpos 1
sct $1
mvpos 2
sct $1
mvpos 4
sct $1
mvpos 5
sct $1
mvpos 6
sct $1
mvpos 7
sct $1
mvpos 8
sct $1
mvpos 9
sct $1
'

```

```
mintemp=25
maxtemp=160
mystep=10
```

```
mysleeptime=120
myacqtime=30
```

```
for (mytemp=mintemp;mytemp<=maxtemp;mytemp=mytemp+mystep)
{
    mv euroc mytemp
    print "#C---- moving temp to ", mytemp
    sleep(1)
    ct 1
    while (fabs(mytemp-S[eurot]) > 1)
        {
            ct 1
            sleep(2)
        }

    print "#C----- temp ok"
    sleep(mysleeptime)
    measure myacqtime
    measure myacqtime
    measure myacqtime
}
```

```
mystep=5
```

```
for (mytemp=maxtemp;mytemp>=mintemp;mytemp=mytemp-mystep)
{
    mv euroc mytemp
    print "#C---- moving temp to ", mytemp
    sleep(1)
    ct 1
    while (fabs(mytemp-S[eurot]) > 1)
        {
            ct 1
            sleep(2)
        }

    print "#C----- temp ok"
    sleep(mysleeptime)
    measure myacqtime
    measure myacqtime
    measure myacqtime
}
```

