

12bm_sample15_run Walk Thru

12bm_sample15_run_v2.ui

Energy(keV) I0 I1 I2 Ring current Flu_Total Flu_Deptime(%)

8.353 1.6 1.4 0.6 0.0 0.0 0.0

12BM-B CLOSED 12BM-user CLOSED

Open Open ALL STOP

Close Close

RunEXAFS scans_motors series Fluorescence EXAFS_profile

sample bin BA19b BA19A BA222 BA223

drop to sbin RunEXAFS Abort

move move move move move move move

1 2 3 4 5 6 7

Tilt Flat save_to_macro

	FileName	SAV	SAH	Scans			exafs macro	Reff	XSP_ROI	SDD	
#01	1-HZA-F	122.99	-25.48	0	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#02	2-HZA-R	122.99	-14.48	0	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#03	3-HZA-1kh	123.99	-3.48	0	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#04	4-Fresh	139.01	-24.48	0	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#05	5-Re	139.01	-14.48	1	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#06	6-Used	139.01	-3.48	1	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#07	7-HZA750	154.00	-25.00	1	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#08	8-HZA750	154.00	-14.00	1	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#09	9-ZonExF	155.00	-3.00	1	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#10	10-ZonExU	167.90	-24.60	1	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#11		168.90	-14.60	0	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#12		168.90	-3.80	0	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#13		183.25	-25.60	0	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#14		185.00	-10.46	0	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#15		185.00	-4.00	0	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow

12bm_sample15_run Walk Thru

Tab 1 (RunEXAFS)

The screenshot shows the RunEXAFS software interface. At the top, there is a control panel with several readouts and buttons:

- Energy(keV): 8.353
- I0: 1.6
- I1: 1.4
- I2: 0.6
- Ring current: 0.0
- Flu_Total: 0.0
- Flu_Deathime(%): 0.0
- 12BM-B CLOSED (with Open and Close buttons)
- 12BM-user CLOSED (with Open and Close buttons)
- ALL STOP button

Below this panel are tabs for 'scans_motors', 'series', 'Fluorescence', and 'EXAFS_profile'. The 'EXAFS_profile' tab is active, showing a table of sample bins and their parameters.

sample bin	BA19b	BA19A	BA222	BA223								
#01	1-HZA-F	122.99	-25.48	0	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow	
#02	2-HZA-R	122.99	-14.48	0	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow	
#03	3-HZA-1kh	123.99	-3.48	0	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow	
#04	4-Fresh	139.01	-24.48	0	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow	
#05	5-Re	139.01	-14.48	1	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow	
#06	6-Used	139.01	-3.48	1	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow	
#07	7-HZA750	154.00	-25.00	1	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow	
#08	8-HZA750	154.00	-14.00	1	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow	
#09	9-ZonExF	155.00	-3.00	1	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow	
#10	10-ZonExU	167.90	-24.60	1	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow	
#11		168.90	-14.60	0	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow	
#12		168.90	-3.80	0	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow	
#13		183.25	-25.60	0	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow	
#14		185.00	-10.46	0	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow	
#15		185.00	-4.00	0	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow	

- Current Energy of Monochromator

Energy(keV)
8.353

- Ion Chamber Values

I0 I1 I2
1.6 1.4 0.6

- Ring Current of Synchrotron

Ring current
0.0 Usually 135mA – 200mA

- Fluorescence Total

Flu_Total
0.0

- Fluorescence detector deadtime

- Do not exceed 2.5%

Flu_Deathime(%)
0.0

- 12BM-B shutter open/close

Open
Close

- 12BM-user shutter open/close

- All Motor Stop Button

ALL STOP

12bm_sample15_run Walk Thru

Tab 1 (RunEXAFS)

12bm_sample15_run_v2.ui

Energy(keV) I0 I1 I2 Ring current Flu_Total Flu_Deptime(%) 12BM-B CLOSED 12BM-user CLOSED

8.353 1.6 1.4 0.6 0.0 0.0 0.0

RunEXAFS scans_motors series Fluorescence EXAFS_profile

sample bin BA19b BA19A BA222 BA223 drop to sbin RunEXAFS Abort

move move move move move move move Tilt Flat save_to_macro

	FileName	SAV	SAH	Scans		exafs macro	Reff	XSP_ROI	SDD		
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#02	2-HZA-R	122.99	-14.48	0	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#03	3-HZA-1kh	123.99	-3.48	0	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#04	4-Fresh	139.01	-24.48	0	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#05	5-Re	139.01	-14.48	1	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#06	6-Used	139.01	-3.48	1	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#07	7-HZA750	154.00	-25.00	1	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#08	8-HZA750	154.00	-14.00	1	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#09	9-ZonExF	155.00	-3.00	1	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#10	10-ZonExU	167.90	-24.60	1	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#11		168.90	-14.60	0	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#12		168.90	-3.80	0	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#13		183.25	-25.60	0	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#14		185.00	-10.46	0	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#15		185.00	-4.00	0	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow

5 Selection Tabs

- RunEXAFS (Tab 1)
 - Main Window to run frames
- Scan_motors (Tab 2)
 - Move Sample motors
 - Detector
 - Reference Foils
 - Run Simple Scans
- Series (Tab 3)
 - Run Multiple Elements/frame
- Fluorescence (Tab 4)
 - XSP_ROI = #
- EXAFS_profile (Tab 5)
 - Pre-edge, edge, post-edge profile

12bm_sample15_run Walk Thru

Tab 1 (RunEXAFS)

The screenshot shows the '12bm_sample15_run_v2.ui' interface. At the top, there are input fields for Energy (keV), I0, I1, I2, Ring current, Flu_Total, and Flu_Deptime(%). Below these are status indicators for '12BM-B CLOSED' and '12BM-user CLOSED', each with 'Open' and 'Close' buttons, and a red 'ALL STOP' button. The middle section has tabs for 'RunEXAFS', 'scans_motors', 'series', 'Fluorescence', and 'EXAFS_profile'. A 'sample bin' section includes buttons for 'drop to sbin', 'RunEXAFS', and 'Abort'. Below this are 'move' buttons for bins 1-7, 'Tilt', 'Flat', and 'save_to_macro' buttons. The bottom section is a table with columns: #, Filename, SAV, SAI, Scans, update, move, exafs macro, Reff, XSP_ROI, SDD, and CopytoBelow.

#	Filename	SAV	SAI	Scans	update	move	exafs macro	Reff	XSP_ROI	SDD	CopytoBelow
#01	1-HZA-F	122.99	-25.48	0	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#02	2-HZA-R	122.99	-14.48	0	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#03	3-HZA-1kh	123.99	-3.48	0	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#04	4-Fresh	139.01	-24.48	0	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#05	5-Re	139.01	-14.48	1	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#06	6-Used	139.01	-3.48	1	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#07	7-HZA750	154.00	-25.00	1	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#08	8-HZA750	154.00	-14.00	1	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#09	9-ZonExF	155.00	-3.00	1	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#10	10-ZonExU	167.90	-24.60	1	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#11		168.90	-14.60	0	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#12		168.90	-3.80	0	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
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#14		185.00	-10.46	0	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#15		185.00	-4.00	0	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow

- Sample Bin
 - Enter in Frame Number
 - Click `move` to pick up frame
 - `drop to sbin` to lower frame into sbin
 - `Tilt` for fluorescence mode
 - `Flat` for transmission mode
 - `RunEXAFS` to begin frame scan
 - `save_to_macro` for series [Tab 3](#)
 - `Abort` to exit scan

12bm_sample15_run Walk Thru

Tab 1 (RunEXAFS)

	FileName	SAV	SAH	Scans		
#01	1-HZA-F	122.99	-25.48	0	update	move
#02	2-HZA-R	122.99	-14.48	0	update	move
#03	3-HZA-1kh	123.99	-3.48	0	update	move
#04	4-Fresh	139.01	-24.48	0	update	move
#05	5-Re	139.01	-14.48	1	update	move
#06	6-Used	139.01	-3.48	1	update	move
#07	7-HZA750	154.00	-25.00	1	update	move
#08	8-HZA750	154.00	-14.00	1	update	move
#09	9-ZonExF	155.00	-3.00	1	update	move
#10	10-ZonExU	167.90	-24.60	1	update	move
#11		168.90	-14.60	0	update	move
#12		168.90	-3.80	0	update	move
#13		183.25	-25.60	0	update	move
#14		185.00	-10.46	0	update	move
#15		185.00	-4.00	0	update	move

- Filename – SAV – SAH – Scans

- The weblink/QR code sent will fill-in the Filename/Scans data
- For manual entry enter a filename with no spaces or special characters only use dashes or underscores.
Also enter the number of scans needed for each sample

- SAV/SAH are set near the previous users samples so check these

- The will update the current values of SAV/SAH to the current motor positions

- The will move the Sample Frame to that position

12bm_sample15_run Walk Thru

Tab 1 (RunEXAFS)

12bm_sample15_run_v2.ui

Energy(keV) I0 I1 I2 Ring current Flu_Total Flu_Deptime(%) 12BM-B CLOSED 12BM-user CLOSED

8.353 1.6 1.4 0.6 0.0 0.0 0.0 Open Open ALL STOP

Close Close

RunEXAFS scans_motors series Fluorescence EXAFS_profile

sample bin BA19b BA19A BA222 BA223 drop to sbin RunEXAFS Abort

move move move move move move move Tilt Flat save_to_macro

	FileName	SAV	SAH	Scans	update	move	exafs macro	Reff	XSP_ROI	SDD	CopytoBelow
#01	1-HZA-F	122.99	-25.48	0	update	move	Co_K k13 WZ	-34.0	10	140	CopytoBelow
#02	2-HZA-R	122.99	-14.48	0	update	move	Co_K k13 WZ	-34.0	10	140	CopytoBelow
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#04	4-Fresh	139.01	-24.48	0	update	move	Co_K k13 WZ	-34.0	10	140	CopytoBelow
#05	5-Re	139.01	-14.48	1	update	move	Co_K k13 WZ	-34.0	10	140	CopytoBelow
#06	6-Used	139.01	-3.48	1	update	move	Co_K k13 WZ	-34.0	10	140	CopytoBelow
#07	7-HZA750	154.00	-25.00	1	update	move	Co_K k13 WZ	-34.0	10	140	CopytoBelow
#08	8-HZA750	154.00	-14.00	1	update	move	Co_K k13 WZ	-34.0	10	140	CopytoBelow
#09	9-ZonExF	155.00	-3.00	1	update	move	Co_K k13 WZ	-34.0	10	140	CopytoBelow
#10	10-ZonExU	167.90	-24.60	1	update	move	Co_K k13 WZ	-34.0	10	140	CopytoBelow
#11		168.90	-14.60	0	update	move	Co_K k13 WZ	-34.0	10	140	CopytoBelow
#12		168.90	-3.80	0	update	move	Co_K k13 WZ	-34.0	10	140	CopytoBelow
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#14		185.00	-10.46	0	update	move	Co_K k13 WZ	-34.0	10	140	CopytoBelow
#15		185.00	-4.00	0	update	move	Co_K k13 WZ	-34.0	10	140	CopytoBelow

- exafs_macro see (Tab 5)
- Reff is the reference foil position (Tab 2)
- XSP_ROI is from (Tab 4)
- SDD is the Sample to Detector Distance
 - Range is 50mm to 140mm from the from the sample (Tab 2)
- Click **CopytoBelow** to copy parameters to all the cells below

12bm_sample15_run Walk Thru Tab 2 (scans_motors)

The screenshot shows the '12bm_sample15_run_v2.ui' software interface. At the top, there are status indicators for Energy (keV), I0, I1, I2, Ring current, Flu_Total, and Flu_Deptime(%). Below these are buttons for 'Open' and 'Close' for '12BM-B' and '12BM-user', and an 'ALL STOP' button. The main interface is divided into several sections: 'Energy scan (eV unit, relative)', 'horizontal scan (sah relative)', 'vertical scan (sav relative)', and 'mesh scan (sah x sav) relative'. Each section has input fields for start, end, and step values, and a 'start' button. The 'Energy scan' section is highlighted with a blue rounded rectangle. In the center, there are 'tweak value(mm)' controls for 'Up_Down' and 'Left_Right', and a 'sample vertical'/'sample horizontal' section with 'up', 'down', 'left', and 'right' buttons. To the right, there are 'SDD(sample detector Distance, mm)' and 'Reference foil' sections with input fields and range indicators. The 'scans_motors' tab is selected at the top.

- Set Simple Scans
 - Set Element and Edge (K, L3, etc)
 - Horizontal Sample scan of SAH (Sample Horizontal)
 - Vertical Sample Scan of SAV (Sample Vertical)
 - Mesh Scan for SAH and SAV
- These scans are all relative scans in mm

12bm_sample15_run Walk Thru Tab 2 (scans_motors)

12bm_sample15_run_v2.ui

Energy(keV) I0 I1 I2 Ring current Flu_Total Flu_Deptime(%) 12BM-B CLOSED 12BM-user CLOSED

8.353 2.4 0.7 0.4 0.0 0.0 0.0

Open Close Open Close ALL STOP

RunEXAFS scans_motors series Fluorescence EXAFS_profile

Energy scan (eV unit, relative) 25_Mn K 6539.0 start

-10.0 30.0 1.0 start E(eV) end E(eV) step(eV) EdgeEng

horizontal scan (sah relative) -1.0 1.0 0.1 start

start (mm) end (mm) step (mm)

vertical scan (sav relative) -1.0 1.0 0.1 start

start (mm) end (mm) step (mm)

mesh scan (sah x sav) relative -1.0 1.0 0.1 sah start (mm) end (mm) step (mm) start

-1.0 1.0 0.1 sav

tweak value(mm)

Up_Down Left_Right

5.0 1.0

SDD(sample detector Distance, mm) 140.0 < 5.0 >

sample vertical sample horizontal

54.00000 0.00000

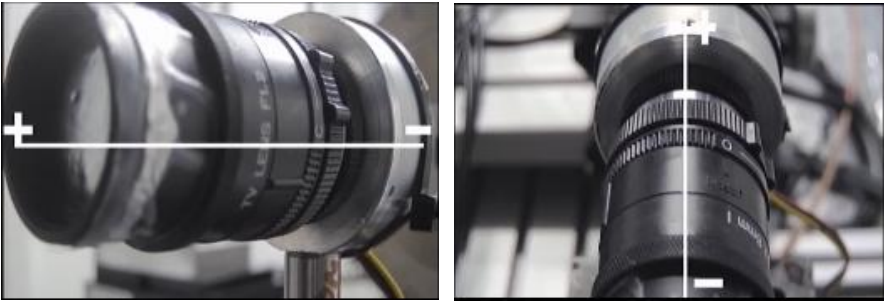
up

left right

down

Reference foil -34.0 < 2.0 >

- Tweak the Sample Stages SAV and SAH
 - You can set the relative step value Up_Down and Left_Right in mm
- Shows the Actual positions of each
 - sample vertical 54.00000
 - sample horizontal 0.00000
- Beamline Cameras show directions



12bm_sample15_run Walk Thru Tab 2 (scans_motors)

12bm_sample15_run_v2.ui

Energy(keV) I0 I1 I2 Ring current Flu_Total Flu_Deptime(%) 12BM-B CLOSED 12BM-user CLOSED

8.353 2.4 0.7 0.4 0.0 0.0 0.0

Open Close Open Close ALL STOP

RunEXAFS scans_motors series Fluorescence EXAFS_profile

Energy scan (eV unit, relative)
25_Mn K 6539.0 start

-10.0 30.0 1.0 start E(eV) end E(eV) step(eV) EdgeEng

horizontal scan (sah relative)
-1.0 1.0 0.1 start
start (mm) end (mm) step (mm)

vertical scan (sav relative)
-1.0 1.0 0.1 start
start (mm) end (mm) step (mm)

mesh scan (sah x sav) relative
-1.0 1.0 0.1 sah sav start

tweak value(mm)
Up_Down Left_Right
5.0 1.0

sample vertical sample horizontal
54.00000 up 0.00000

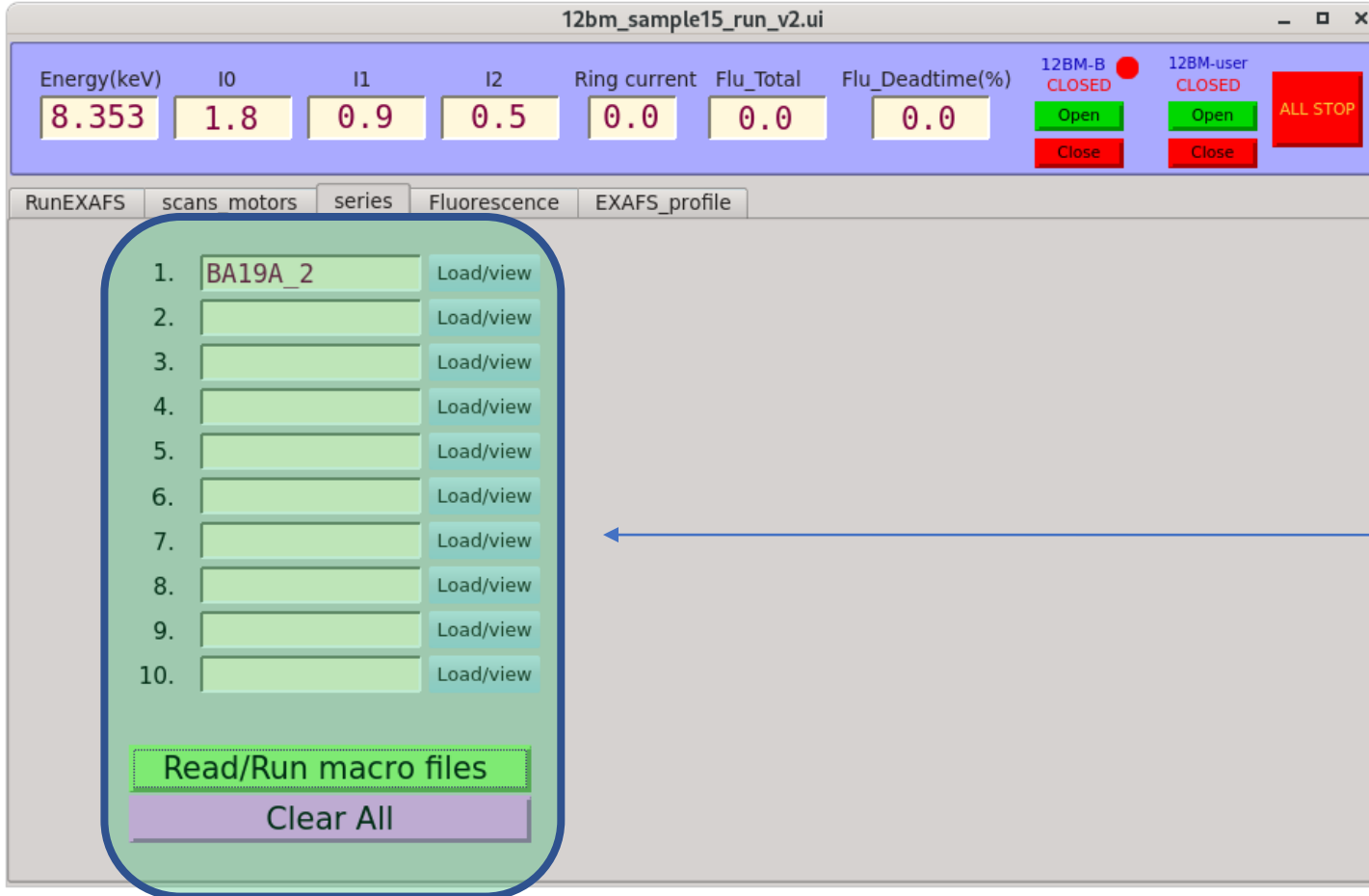
left right down

SDD(sample detector Distance, mm)
140.0 < 5.0 >
9500 120 140 160 180 200 220

Reference foil
-34.0 < 2.0 >
100 120 140 160 180 200 220

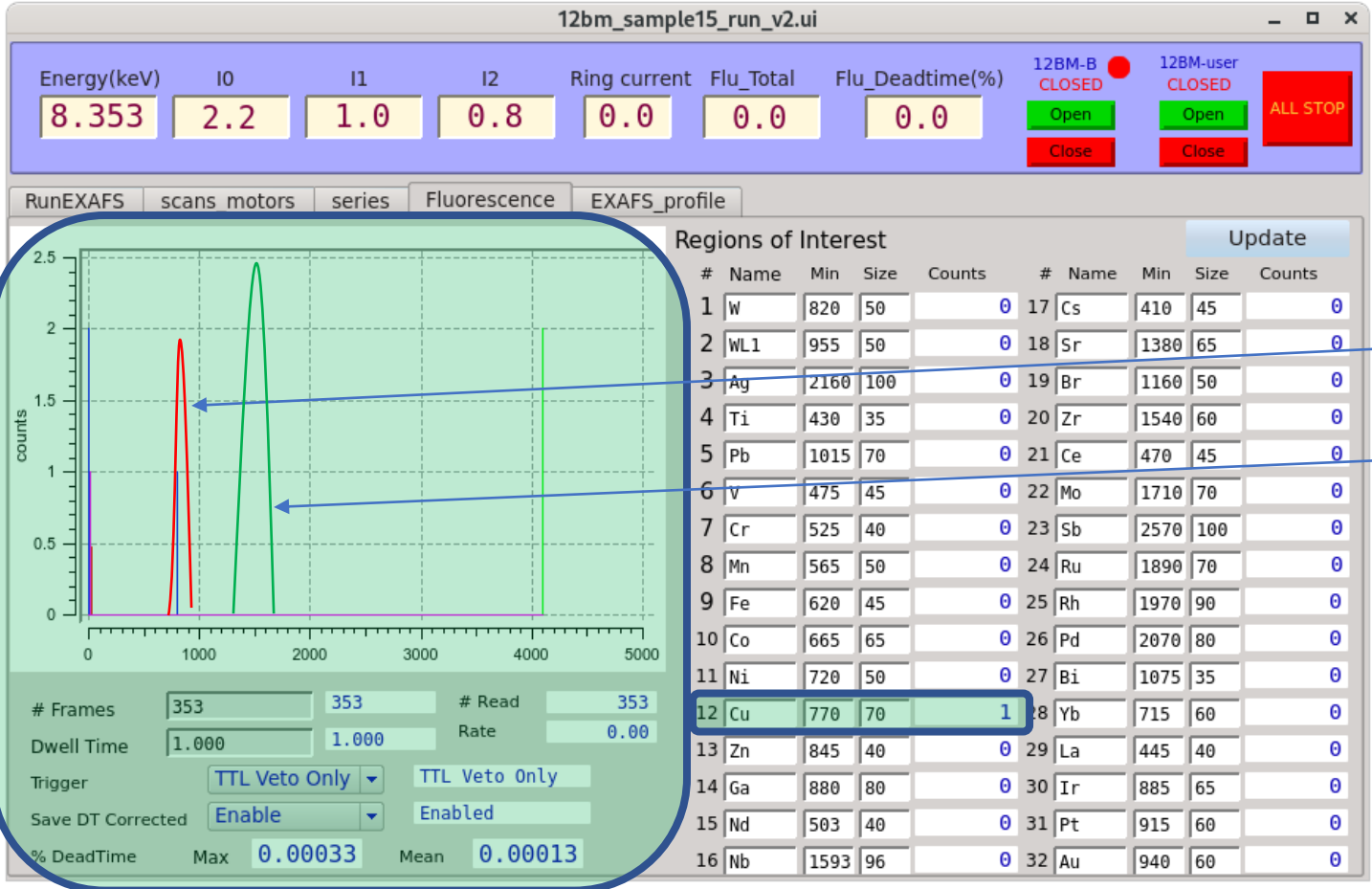
- **SDD** - Move the Detector relative to the sample (140mm away to 50mm away)
- **Reff** - Move to the Reference Foil 6 Slots available so 6 foils can be placed in the reference holder.

12bm_sample15_run Walk Thru Tab 3 (series)



- Series Run
 - From Tab 1 enter Frame data
 - Then `save_to_macro`
- This will give the Frame name
 - Ex. Frame is BA192
 - Series will be BA192_1, BA192_2, etc.
 - Enter each `save_to_macro` into the series list
- Note: To run EXAFS scans in Series tab click `Read/Run macro files`
- For Series DON'T use Tab 1 `RunEXAFS`

12bm_sample15_run Walk Thru Tab 4 (Fluorescence)



- Fluorescence Detector Window
 - This shows the flatot counts
 - Copper Example
 - Region of Interest #12
 - XSP_ROI = 12
- See Red peak Min is 770, size is 70
- This is the Copper signal
- See Green peak which is the scattering signal
- This is above the Cu edge hence why there is a Red peak
- If the Energy was below the Cu edge the Red peak would be gone

12bm_sample15_run Walk Thru Tab 4 (Fluorescence)



- Detector ROI Window
 - ROI (Region Of Interest)
- Use XSP_ROI = #
 - This selects which element of interest. Example below XSP_ROI = 12 (Cu line)
- When updating Min/Size make sure to click the **Update** to update the detectors ROI values.
- If there is no Element in the list of 32 then you will need to change one of the 32 to be your element. We usually keep the usual elements in the list.

12bm_sample15_run Walk Thru Tab 5 (EXAFS_Profile)

12bm_sample15_run_v2.ui

Energy(keV) I0 I1 I2 Ring current Flu_Total Flu_Deathime(%) 12BM-B CLOSED 12BM-user CLOSED

8.353 1.4 0.8 0.4 0.0 0.0 0.0 Open Open ALL STOP

Close Close

RunEXAFS scans_motors series Fluorescence EXAFS_profile

27_Co K 6539.0 Co_K_k8_WZ SaveMacro

scan type	start energy (eV; k)	end energy (eV; k)	step size (eV or k)	Acq. time (sec)	exponent	
energy(eV) eV k	-150.0 -6.27	-15.0 -1.98	5.00	0.5	0.0	step 1
energy(eV) eV k	-15.0 -1.98	30.0 2.81	0.40	0.5	0.0	step 2
energy(eV) eV k	30.0 2.81	100.0 5.12	1.00	0.5	0.0	step 3
k(1/A) eV k	100.0 5.12	243.9 8.00	0.05	0.5	0.0	step 4
						step 5

- Setting up exafs_macro for a scan
- XANES typically is as follows
 - -150 to -15 pre-edge (E) step 1
 - -15 to 30 edge (E) step 2
 - 30 to 8 post-edge (k) step 4
- EXAFS typically is as follows
 - -200 to -15 pre-edge (E)
 - -15 to 30 edge (E)
 - 30 to 12-15 post-edge (k)
- Always have the post edge in $k(1/A)$ for better resolution in data.
- This example has 4 steps with an extra scan type. Click step 4 to delete it
- Next Slide sets up to save this macro

12bm_sample15_run Walk Thru Tab 5 (EXAFS_Profile)

12bm_sample15_run_v2.ui

Energy(keV) I0 I1 I2 Ring current Flu_Total Flu_Deathime(%) 12BM-B CLOSED 12BM-user CLOSED

8.353 1.4 0.8 0.4 0.0 0.0 0.0

RunEXAFS scans_motors series Fluorescence EXAFS_profile

27_Co K 6539.0 Co_K_k8_WZ SaveMacro

scan type	start energy (eV; k)	end energy (eV; k)	step size (eV or k)	Acq. time (sec)	exponent
energy(eV) eV k	-150.0 -6.27	-15.0 -1.98	5.00	0.5	0.0
energy(eV) eV k	-15.0 -1.98	30.0 2.81	0.40	0.5	0.0
energy(eV) eV k	30.0 2.81	100.0 5.12	1.00	0.5	0.0
k(1/A) eV k	100.0 5.12	243.9 8.00	0.05	0.5	0.0

- Select the Element under study, the correct edge and make sure the energy is correct.

27_Co K 6539.0

- Name the Macro and save it

Co_K_k8_WZ SaveMacro

- This will be the macro you enter into Tab 1 (exafs macro) column
- These get saved into your data folder so you have them for the next experiment time under "xafs_macro_list_date"

12bm_sample15_run Walk Thru Step by Step for Sample Input

12bm_sample15_run_v2.ui

Energy(keV) I0 I1 I2 Ring current Flu_Total Flu_Deptime(%) 12BM-B CLOSED 12BM-user CLOSED

8.353 1.6 1.4 0.6 0.0 0.0 0.0

Open Close Open Close ALL STOP

RunEXAFS scans_motors series Fluorescence EXAFS_profile

sample bin BA19b BA19A BA222 BA223 drop to sbin RunEXAFS Abort

move move move move move move move Tilt Flat save_to_macro

	FileName	SAV	SAH	Scans		exafs macro	Reff	XSP_ROI	SDD		
#01	1-HZA-F	122.99	-25.48	0	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#02	2-HZA-R	122.99	-14.48	0	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#03	3-HZA-1kh	123.99	-3.48	0	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#04	4-Fresh	139.01	-24.48	0	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#05	5-Re	139.01	-14.48	1	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#06	6-Used	139.01	-3.48	1	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#07	7-HZA750	154.00	-25.00	1	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#08	8-HZA750	154.00	-14.00	1	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#09	9-ZonExF	155.00	-3.00	1	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#10	10-ZonExU	167.90	-24.60	1	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#11		168.90	-14.60	0	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#12		168.90	-3.80	0	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#13		183.25	-25.60	0	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#14		185.00	-10.46	0	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#15		185.00	-4.00	0	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow

- Step by Step for sample Input
 1. Input FileName for your Sample (Tab 1)

12bm_sample15_run Walk Thru Step by Step for Sample Input

The screenshot shows the '12bm_sample15_run_v2.ui' software interface. At the top, there are input fields for Energy (keV), I0, I1, I2, Ring current, Flu_Total, and Flu_Deptime(%). Below these are status indicators for '12BM-B CLOSED' and '12BM-user CLOSED', each with 'Open' and 'Close' buttons, and a red 'ALL STOP' button. The main area contains a table with columns: FileName, SAV, SAH, Scans, exafs macro, Reff, XSP_ROI, and SDD. A blue box highlights the SAV and SAH values for the first row, and a blue arrow points from this box to the 'Step by Step for sample Input' text in the adjacent callout.

	FileName	SAV	SAH	Scans	exafs macro	Reff	XSP_ROI	SDD
#01	1-HZA-F	122.99	-25.48	0	Co_K k13_WZ	-34.0	10	140
#02	2-HZA-R	122.99	-14.48	0	Co_K k13_WZ	-34.0	10	140
#03	3-HZA-1kh	123.99	-3.48	0	Co_K k13_WZ	-34.0	10	140
#04	4-Fresh	139.01	-24.48	0	Co_K k13_WZ	-34.0	10	140
#05	5-Re	139.01	-14.48	1	Co_K k13_WZ	-34.0	10	140
#06	6-Used	139.01	-3.48	1	Co_K k13_WZ	-34.0	10	140
#07	7-HZA750	154.00	-25.00	1	Co_K k13_WZ	-34.0	10	140
#08	8-HZA750	154.00	-14.00	1	Co_K k13_WZ	-34.0	10	140
#09	9-ZonExF	155.00	-3.00	1	Co_K k13_WZ	-34.0	10	140
#10	10-ZonExU	167.90	-24.60	1	Co_K k13_WZ	-34.0	10	140
#11		168.90	-14.60	0	Co_K k13_WZ	-34.0	10	140
#12		168.90	-3.80	0	Co_K k13_WZ	-34.0	10	140
#13		183.25	-25.60	0	Co_K k13_WZ	-34.0	10	140
#14		185.00	-10.46	0	Co_K k13_WZ	-34.0	10	140
#15		185.00	-4.00	0	Co_K k13_WZ	-34.0	10	140

• Step by Step for sample Input

1. Input FileName for your Sample (Tab 1)
2. Make sure SAV/SAH are correct meaning good fluorescence signal

12bm_sample15_run Walk Thru Step by Step for Sample Input

The screenshot shows the '12bm_sample15_run_v2.ui' software interface. At the top, there are input fields for Energy (keV), I0, I1, I2, Ring current, Flu_Total, and Flu_Deptime(%). Below these are status indicators for '12BM-B CLOSED' and '12BM-user CLOSED', each with 'Open' and 'Close' buttons, and a red 'ALL STOP' button. The main control area includes tabs for 'RunEXAFS', 'scans_motors', 'series', 'Fluorescence', and 'EXAFS_profile'. Below the tabs are 'sample bin' fields (BA19b, BA19A, BA222, BA223), 'drop to sbin', 'RunEXAFS', and 'Abort' buttons. A row of buttons labeled 'move' and 'Tilt'/'Flat' is followed by a 'save_to_macro' button. The bottom section is a table with columns: #, FileName, SAV, SAH, Scans, exafs macro, Reff, XSP_ROI, SDD, and CopytoBelow. A blue arrow points to the 'Scans' column of the first row.

#	FileName	SAV	SAH	Scans	exafs macro	Reff	XSP_ROI	SDD	CopytoBelow
#01	1-HZA-F	122.99	-25.48	0	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#02	2-HZA-R	122.99	-14.48	0	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#03	3-HZA-1kh	123.99	-3.48	0	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#04	4-Fresh	139.01	-24.48	0	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#05	5-Re	139.01	-14.48	1	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#06	6-Used	139.01	-3.48	1	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#07	7-HZA750	154.00	-25.00	1	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#08	8-HZA750	154.00	-14.00	1	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#09	9-ZonExF	155.00	-3.00	1	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#10	10-ZonExU	167.90	-24.60	1	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#11		168.90	-14.60	0	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#12		168.90	-3.80	0	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#13		183.25	-25.60	0	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#14		185.00	-10.46	0	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#15		185.00	-4.00	0	Co_K_k13_WZ	-34.0	10	140	CopytoBelow

• Step by Step for sample Input

1. Input FileName for your Sample (Tab 1)
2. Make sure SAV/SAH are correct meaning good fluorescence signal
3. Enter amount of scans needed

12bm_sample15_run Walk Thru Step by Step for Sample Input

The screenshot shows the '12bm_sample15_run_v2.ui' software interface. At the top, there are input fields for Energy (keV), I0, I1, I2, Ring current, Flu_Total, and Flu_Deptime(%). Below these are status indicators for '12BM-B CLOSED' and '12BM-user CLOSED', each with 'Open' and 'Close' buttons, and a red 'ALL STOP' button. The main interface has tabs for 'RunEXAFS', 'scans_motors', 'series', 'Fluorescence', and 'EXAFS_profile'. Below the tabs are 'sample bin' fields (BA19b, BA19A, BA222, BA223) and buttons for 'drop to sbin', 'RunEXAFS', 'Abort', 'Tilt', 'Flat', and 'save_to_macro'. A table lists 15 samples with columns for FileName, SAV, SAH, Scans, exafs_macro, Reff, XSP_ROI, SDD, and CopytoBelow. A blue arrow points to the 'exafs_macro' column for sample #01.

	FileName	SAV	SAH	Scans	exafs_macro	Reff	XSP_ROI	SDD	CopytoBelow
#01	1-HZA-F	122.99	-25.48	0	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#02	2-HZA-R	122.99	-14.48	0	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#03	3-HZA-1kh	123.99	-3.48	0	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#04	4-Fresh	139.01	-24.48	0	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#05	5-Re	139.01	-14.48	1	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#06	6-Used	139.01	-3.48	1	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#07	7-HZA750	154.00	-25.00	1	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#08	8-HZA750	154.00	-14.00	1	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#09	9-ZonExF	155.00	-3.00	1	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#10	10-ZonExU	167.90	-24.60	1	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#11		168.90	-14.60	0	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#12		168.90	-3.80	0	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#13		183.25	-25.60	0	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#14		185.00	-10.46	0	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#15		185.00	-4.00	0	Co_K_k13_WZ	-34.0	10	140	CopytoBelow

• Step by Step for sample Input

1. Input FileName for your Sample (Tab 1)
2. Make sure SAV/SAH are correct meaning good fluorescence signal
3. Enter amount of scans needed
4. Create exafs_macro (Tab 5)

12bm_sample15_run Walk Thru Step by Step for Sample Input

12bm_sample15_run_v2.ui

Energy(keV) I0 I1 I2 Ring current Flu_Total Flu_Deptime(%) 12BM-B CLOSED 12BM-user CLOSED

8.353 1.6 1.4 0.6 0.0 0.0 0.0 Open Open ALL STOP

Close Close

RunEXAFS scans_motors series Fluorescence EXAFS_profile

sample bin BA19b BA19A BA222 BA223 drop to sbin RunEXAFS Abort

move move move move move move move Tilt Flat save_to_macro

	FileName	SAV	SAH	Scans		exafs macro	Reff	XSP_ROI	SDD		
#01	1-HZA-F	122.99	-25.48	0	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#02	2-HZA-R	122.99	-14.48	0	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#03	3-HZA-1kh	123.99	-3.48	0	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#04	4-Fresh	139.01	-24.48	0	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#05	5-Re	139.01	-14.48	1	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#06	6-Used	139.01	-3.48	1	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#07	7-HZA750	154.00	-25.00	1	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#08	8-HZA750	154.00	-14.00	1	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#09	9-ZonExF	155.00	-3.00	1	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#10	10-ZonExU	167.90	-24.60	1	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#11		168.90	-14.60	0	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#12		168.90	-3.80	0	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#13		183.25	-25.60	0	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#14		185.00	-10.46	0	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow
#15		185.00	-4.00	0	update	move	Co_K_k13_WZ	-34.0	10	140	CopytoBelow

• Step by Step for sample Input

1. Input FileName for your Sample (Tab 1)
2. Make sure SAV/SAH are correct meaning good fluorescence signal
3. Enter amount of scans needed
4. Create exafs_macro (Tab 5)
5. Make sure Reff position is correct for the element (Tab 2)

12bm_sample15_run Walk Thru Step by Step for Sample Input

12bm_sample15_run_v2.ui

Energy(keV) I0 I1 I2 Ring current Flu_Total Flu_Deptime(%) 12BM-B CLOSED 12BM-user CLOSED

8.353 1.6 1.4 0.6 0.0 0.0 0.0

Open Close Open Close ALL STOP

RunEXAFS scans_motors series Fluorescence EXAFS_profile

sample bin BA19b BA19A BA222 BA223 drop to sbin RunEXAFS Abort

move move move move move move move Tilt Flat save_to_macro

	FileName	SAV	SAH	Scans		exafs macro	Reff	XSP ROI	SDD	
#01	1-HZA-F	122.99	-25.48	0	update	move	Co_K_k13_WZ	-34.0	10	CopytoBelow
#02	2-HZA-R	122.99	-14.48	0	update	move	Co_K_k13_WZ	-34.0	10	CopytoBelow
#03	3-HZA-1kh	123.99	-3.48	0	update	move	Co_K_k13_WZ	-34.0	10	CopytoBelow
#04	4-Fresh	139.01	-24.48	0	update	move	Co_K_k13_WZ	-34.0	10	CopytoBelow
#05	5-Re	139.01	-14.48	1	update	move	Co_K_k13_WZ	-34.0	10	CopytoBelow
#06	6-Used	139.01	-3.48	1	update	move	Co_K_k13_WZ	-34.0	10	CopytoBelow
#07	7-HZA750	154.00	-25.00	1	update	move	Co_K_k13_WZ	-34.0	10	CopytoBelow
#08	8-HZA750	154.00	-14.00	1	update	move	Co_K_k13_WZ	-34.0	10	CopytoBelow
#09	9-ZonExF	155.00	-3.00	1	update	move	Co_K_k13_WZ	-34.0	10	CopytoBelow
#10	10-ZonExU	167.90	-24.60	1	update	move	Co_K_k13_WZ	-34.0	10	CopytoBelow
#11		168.90	-14.60	0	update	move	Co_K_k13_WZ	-34.0	10	CopytoBelow
#12		168.90	-3.80	0	update	move	Co_K_k13_WZ	-34.0	10	CopytoBelow
#13		183.25	-25.60	0	update	move	Co_K_k13_WZ	-34.0	10	CopytoBelow
#14		185.00	-10.46	0	update	move	Co_K_k13_WZ	-34.0	10	CopytoBelow
#15		185.00	-4.00	0	update	move	Co_K_k13_WZ	-34.0	10	CopytoBelow

Step by Step for sample Input

1. Input FileName for your Sample (Tab 1)
2. Make sure SAV/SAH are correct meaning good fluorescence signal
3. Enter amount of scans needed
4. Create exafs_macro (Tab 5)
5. Make sure Reff position is correct for the element (Tab 2)
6. Make sure correct XSP_ROI for the element under study (Tab 4)

12bm_sample15_run Walk Thru Step by Step for Sample Input

The screenshot shows the '12bm_sample15_run_v2.ui' software interface. At the top, there are input fields for Energy (keV), I0, I1, I2, Ring current, Flu_Total, and Flu_Deptime(%). Below these are status indicators for '12BM-B CLOSED' and '12BM-user CLOSED', each with 'Open' and 'Close' buttons, and a red 'ALL STOP' button. The main area has tabs for 'RunEXAFS', 'scans_motors', 'series', 'Fluorescence', and 'EXAFS_profile'. Below the tabs are 'sample bin' fields (BA19b, BA19A, BA222, BA223) and buttons for 'drop to sbin', 'RunEXAFS', 'Abort', 'Tilt', 'Flat', and 'save_to_macro'. A table with 15 rows and 10 columns is displayed, with a blue arrow pointing to the 'SDD' column of the first row.

	FileName	SAV	SAH	Scans		exafs macro	Reff	XSP_ROI	SDD	
#01	1-HZA-F	122.99	-25.48	0	update	move	Co_K_k13_WZ	-34.0	10	140
#02	2-HZA-R	122.99	-14.48	0	update	move	Co_K_k13_WZ	-34.0	10	140
#03	3-HZA-1kh	123.99	-3.48	0	update	move	Co_K_k13_WZ	-34.0	10	140
#04	4-Fresh	139.01	-24.48	0	update	move	Co_K_k13_WZ	-34.0	10	140
#05	5-Re	139.01	-14.48	1	update	move	Co_K_k13_WZ	-34.0	10	140
#06	6-Used	139.01	-3.48	1	update	move	Co_K_k13_WZ	-34.0	10	140
#07	7-HZA750	154.00	-25.00	1	update	move	Co_K_k13_WZ	-34.0	10	140
#08	8-HZA750	154.00	-14.00	1	update	move	Co_K_k13_WZ	-34.0	10	140
#09	9-ZonExF	155.00	-3.00	1	update	move	Co_K_k13_WZ	-34.0	10	140
#10	10-ZonExU	167.90	-24.60	1	update	move	Co_K_k13_WZ	-34.0	10	140
#11		168.90	-14.60	0	update	move	Co_K_k13_WZ	-34.0	10	140
#12		168.90	-3.80	0	update	move	Co_K_k13_WZ	-34.0	10	140
#13		183.25	-25.60	0	update	move	Co_K_k13_WZ	-34.0	10	140
#14		185.00	-10.46	0	update	move	Co_K_k13_WZ	-34.0	10	140
#15		185.00	-4.00	0	update	move	Co_K_k13_WZ	-34.0	10	140

• Step by Step for sample Input

1. Input FileName for your Sample (Tab 1)
2. Make sure SAV/SAH are correct meaning good fluorescence signal
3. Enter amount of scans needed
4. Create exafs_macro (Tab 5)
5. Make sure Reff position is correct for the element (Tab 2)
6. Make sure correct XSP_ROI for the element under study (Tab 4)
7. Enter correct SDD from (Tab 2) so the Flu_Deptime is <2.5%
8. Click **CopytoBelow** to fill in all cells below with same parameters

12bm_sample15_run Walk Thru
Typical commands

- **Experimental Station**

- sbo (station b open)
- sbc (station b close)

- **Quick Shutter**

- shopen (shutter open)
- shclose (shutter close)

- **Sample Stage** (sah = sample horizontal, sav = sample horizontal)

- umvr sah 3 (moves sample stage horizontal 3mm relative to present position)
- umv sav 4.5 (moves sample stage vertically 4.5mm absolute)
- wm sah (where motor sah)
- wa (shows all motor positions)

- **Sample Scan**

- lup sah -5 5 60 0.1 (lup ? on command line to see parameters)

- **Create newfile**

- newfile testrun_01

12bm_sample15_run Walk Thru
Typical commands

- **Energy**

- getE (shows energy of mono - in keV)
- CentEng(12.0) (Centers mono stage at 12keV)
- moveE (moves the energy)

- **Mostab - (Mono stabilization)**

- mt_ph (feedback set to rocking curve peak)
- mt_man (puts feedback into manual mode)

- **Reading Counts**

- ct (shows counts of all the detectors on during the experiment)