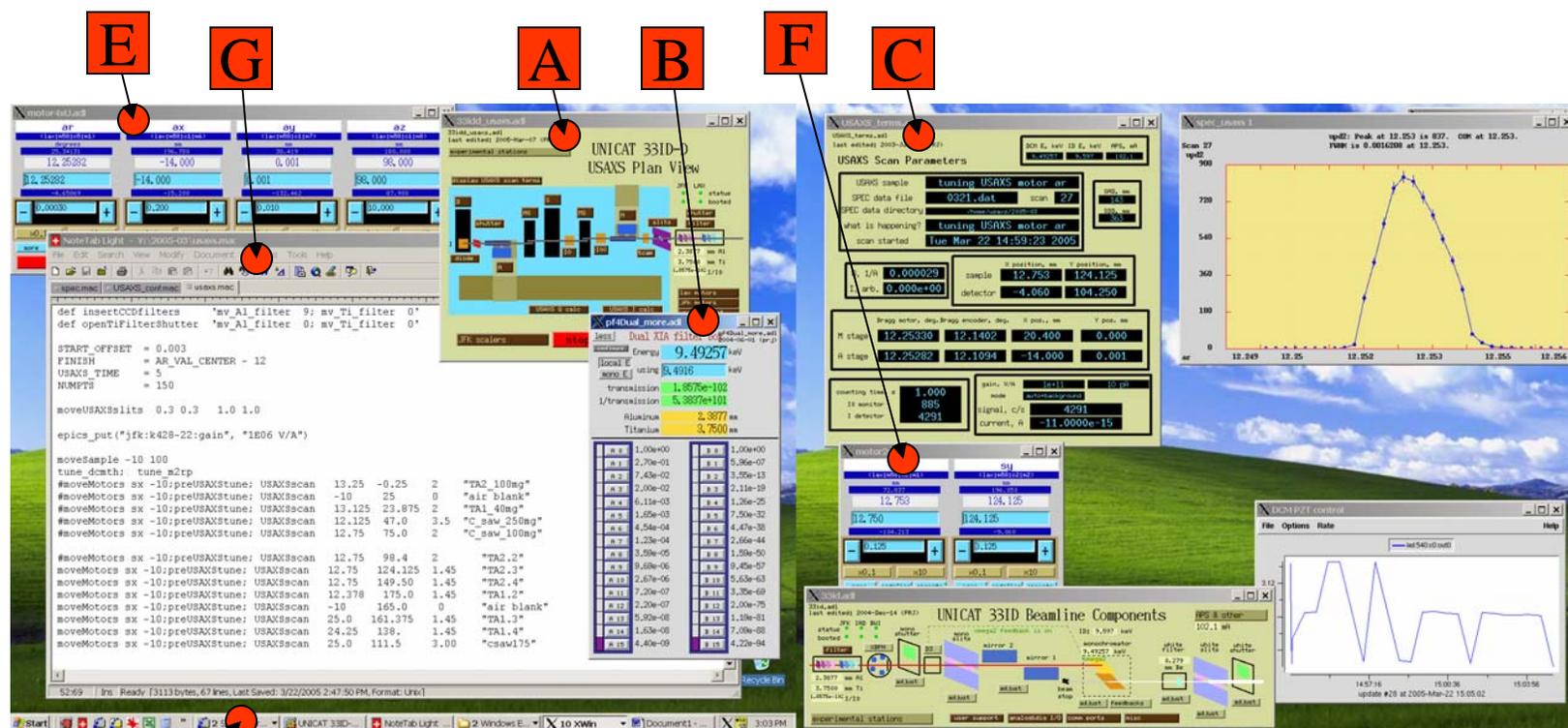


USAXS Imaging for sample alignment

A quick How-To

2005-03-22

Various control screens needed



- D** A UNICAT 33ID-D USAXS Plan View
- B Filter attenuation control
- C USAXS Scan Parameters
- D 1:tex (spec_usaxs session not shown here)
- E analyzer motor controls: ar
- F sample position controls: sx & sy
- G usaxs.mac opened in NoteTabLight editor

Change to Radiography mode

- Make sure the mono shutter is open
- Use the sample position controls to position the sample in the beam
- As an added precaution, it may be necessary to tune up the instrument before imaging mode. (Not always needed)
 - In the 1:tex window (spec_usaxs session), enter the command:

```
tune_dcmth; tune_m2rp;  
tune_a2rp; tune_ar
```

Change to USAXS Imaging mode

- Starting from Radiography mode with a sample in the beam...
- Bring up the analyzer motor controls
- Set the step size for the **ar** motor to 0.003°
- Press the “-” button for the ar motor until the Q value (shown in the USAXS Scan Parameters window) reads approximately 0.0003 1/\AA (0.0002 to 0.0005 should be fine)
- Bring up filter attenuation control window and adjust filter level up or down by one-level increments to get sufficient brightness. Likely you will have to remove about 3 orders of attenuation to get a visible signal on the TV screen.
- **DO NOT OVEREXPOSE the CCD or you will damage it!**
- Use caution when moving the sample position. Add filters if you think it *might* be necessary.

Align samples

- Send the SX and SY motors to the nominal sample coordinates using either the graphical tool (sample position controls: sx & sy) or the spec command line:
moveSample -10 25
- Use the graphical tool to drive around the sample to look for the most representative area to measure with USAXS. Avoid areas with sharp changes in brightness that moves when the sample position is changed.
- Record the sample positions in the **usaxs.mac** file.
- Be sure to save changes in the **usaxs.mac** file (disk icon will change from red to grey).

Leave USAXS Imaging mode

- To return to normal USAXS measurement mode ...
- In the 1:tex window (spec_usaxs session), enter the command:
qdo leaveImaging.mac
- You should now be ready to start the next USAXS measurements. In the 1:tex window (spec_usaxs session), enter the command:
qdo usaxs.mac