

A typical continuous monitoring experiment



1. Lights

- a. Switch on lamp(s), halogen / deuterium or both – see appendix for spectra
- b. Lamp shutter can be controlled from OOIBase using the checkbox ‘Strobe/Lamp Enable’
- c. Make sure there is no sample in the beam-path (not even an empty loop)



2. Camera

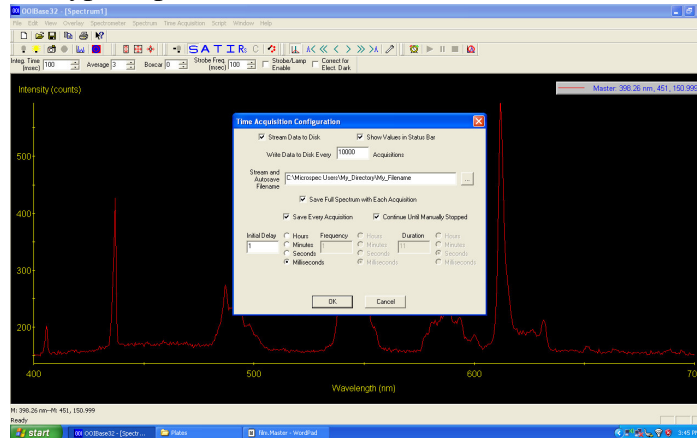
- a. Set x-axis to range of interest
 - i. Full spectra will always be collected anyway (188-1097 nm)
 - ii. Modify integration time to get best signal without saturating the detector pixels. Max peak high intensity approx 3800.
- b. Dark spectrum
 - i. Close shutter and take dark spectrum by clicking on the grey bulb icon
 - ii. Click on the grey bulb with minus (-) sign to subtract dark spectrum
 - iii. Baseline should now be flat and at zero
- c. Reference spectrum
 - i. Open shutter with the checkbox ‘Strobe/Lamp Enable’
 - ii. Check there is no sample in beam
 - iii. Click on the yellow bulb to take a reference spectrum
 - iv. The icon letters **SATIR** should now be blue indicated they are active.
 - v. Click on ‘A’ is for absorbance measurements.
- d. Save spectra
 - i. The dark and reference spectra are only stored in memory and it is therefore recommended to save these to disk for future use.
 - ii. Click on File, Save, Dark
 1. save filename.dark
 - iii. Click on File, Save, Reference
 1. save filename.reference



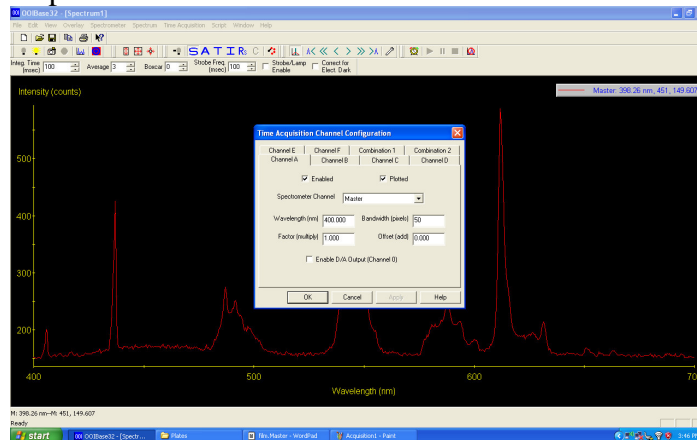
3. Action

- a. Put your sample in the beam and orientate it to achieve the best spectrum
 - i. A good starting point is between 0.5 and 1.0 OD units
 - ii. Note the position of phi and write it down. You may collect X-ray data at any orientation but will need to return to this position to monitor relative spectral changes

- b. Close the shutter to avoid exposing your crystal to the light beam
- c. Setup the Time Acquisition Parameters
 - i. Click Time Acquisition, Configure, Configure Acquisition
 - ii. Typical parameters are :



- d. Setup the Monitoring channels
 - i. These channels will be displayed in real-time and saved conveniently to disk as a single time vs absorbance file
 - ii. Note that the bandwidth is in pixels (approx 0.5 nm). Typical parameters are:



- e. This parameter file can be saved in your data directory for reference
- f. Activate Time Acquisition
 - i. Click on alarm clock and green 'play' arrow should appear
- g. Open shutter and check spectrum looks OK
- h. Click green play arrow to start acquisition
- i. Fry sample with X-rays!
- j. Always take note of ring current, undulator gaps, energy, attenuator positions, integrated counts and crystal dimensions, to allow calculation of dose.