

I22 Update - Autumn 2017

Introduction and welcome

Welcome to the Autumn I22 newsletter. For those of you who haven't met me yet, I am Tim Snow, the Data Analysis Scientist for I22. Primarily my role at Diamond is to develop the DAWN software package for your use. We are also now running training courses for DAWN in order to develop its use by our community. As these newsletters are bi-annual, don't forget to check out our Twitter feed, [@I22_DLS](https://twitter.com/I22_DLS), for more news and updates

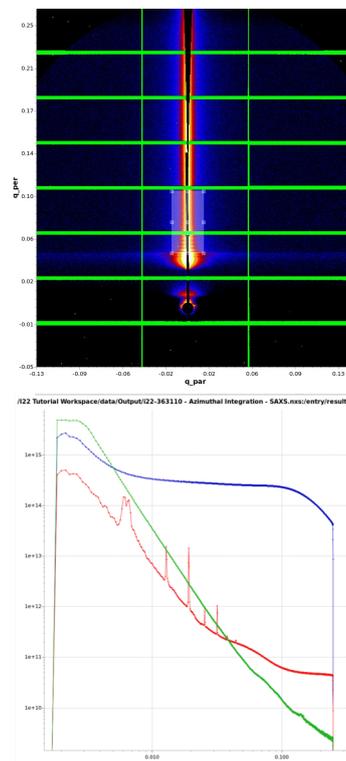


Autoprocessing

Since January data obtained at I22 has been automatically reduced, using DAWN, on our in-house computing cluster in order to provide reduced I vs q and/or I vs χ data alongside more bespoke analysis of scattering data. Now that this has been running for over six months our next step is to incorporate background subtraction(s) as part of this process.

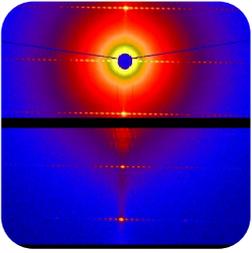
In addition to this basic processing, we are also planning to providing you with the ability to prepare your own processing chains in advance of your visit. This will enable you to visualise a first pass of your data in a way most useful to you, as your experiments progress, in a number of standardised formats for subsequent processing in other, more specialist, analysis packages such as BornAgain, McSAS, SASfit, SasView or Scatter.

As this is an ongoing project, we would welcome feedback as to whether autoprocessing has been, or would be, of use to you and what functionality you would like to see incorporated into our automatic data reduction.



Webpages & Beamline User manual

Those of you who have been to I22 recently will know we have been working hard to prepare a new User Manual for the data reduction software. Our focus is now shifting to our online presence including an online User Manual for general operation of the beamline. While we believe there is a lot of information on our webpages, your feedback is highlighting it is not as easy to find as we would like it. We have prepared a short survey to gather information so we can start to tackle this task properly. We would value your input so we can supply you with the information you need; while preparing proposals, getting ready for beamtime and dealing with post beamtime processing etc. The survey can be found by following the link supplied (<https://www.surveymonkey.co.uk/r/TMSQHFL>).



Looking ahead

BCO update

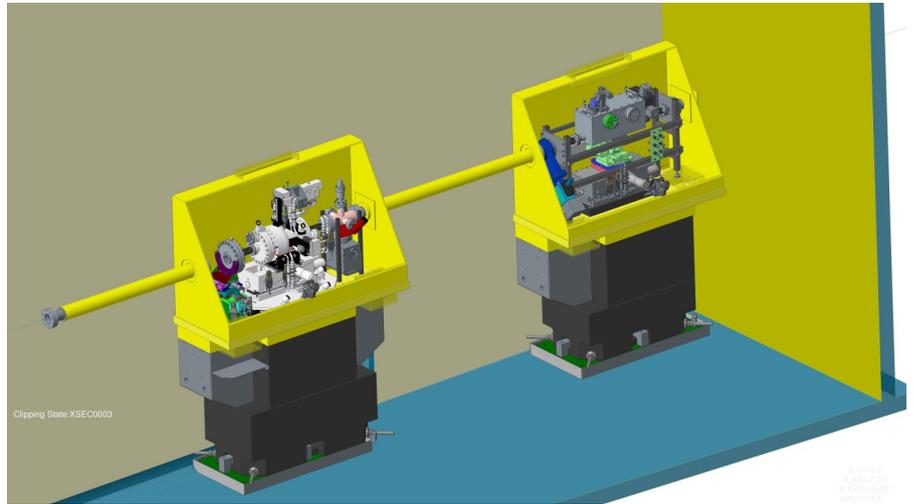
The optics upgrade for I22 is progressing well through its design phase. We are at an advanced stage of design for the first two new modules.

Module 1 will house a set of high precision slits from Bestec for controlling the beam size in microfocus mode. Manufacture of these slits was approved in May and we expect to take

delivery in November. There is also a quadrant beam position monitor which will, coupled with super accurate piezo actuators on our primary mirrors, keep the beam more stable.

Module 2 will house our microfocussing lenses in a device that has been dubbed the "F-switch". This is notionally similar to the transfocator type devices that have been developed at the ESRF. The major difference being that instead of inserting lenses in fixed blocks, the F-switch can insert individual, arbitrary, lenses from a stack of 120. This allows finer control over the beam-shaping properties of the device and will allow us to keep the focal point in the end-station fixed.

Both of these modules are to be located in CIA2 (the room behind our control room) which, you may have noticed, isn't made of lead like the optics and experimental hutches. This means there will be major changes to the shielding around the transport tube in CIA2 to accommodate two large new modules. Initial designs for the mini-hutches have been sent out to our supplier. Each enclosure is expected to weigh in excess of 300kg!



Sample environments

We are reviewing our current arrangements for sample environments on I22. While it has always been a feature of SAXS facilities in the UK to carry a wide range of sample environments, it is becoming increasingly difficult to support all those required for the user programme. At a recent SAXS User working group meeting the idea of a "Dating Agency" for sample environments was mooted. We would like to start this process by seeing what User Sample Environments groups are prepared to share. Please can you e-mail Nick Terrill (Nick.Terrill@diamond.ac.uk) to discuss possibilities.

The sample environments we currently support and have available are listed on the [Diamond website](#). We also have a series of sample holders for solid samples and liquids held in 1.5/2.0mm capillaries.