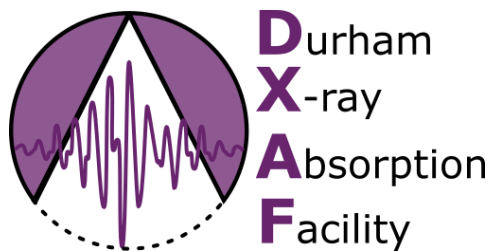


Durham X-ray Absorption Facility (DXAF) – Newsletter August 2023



Firstly, thank you so much for reading this newsletter so far, the positive feedback from community it has been greatly appreciated! Hope the summer has been nice for you all so far and already rearing for the winter holidays (17 weeks till Christmas!). Welcome to the August instalment of the DXAF newsletter. We have had some exciting new developments including the launch of our new website and manufacturing of our *in situ* cell!

The newsletter now contains a spotlight section, which will showcase interesting events occurring in the XAS community. DXAF would welcome ideas for this section if you've been working on something exciting or want to highlight recent work with DXAF!

What has been going on?

In situ reactor cell in production!

As you are aware, DXAF has commission the production of a *in situ* pellet cell and the cell is on the final manufacturing stages and should be with the facility in the coming weeks. Once the cell has been commissioned by the facility it will be available to users, so stay tuned to the website and the newsletters or do get in contact if you wish to use it!

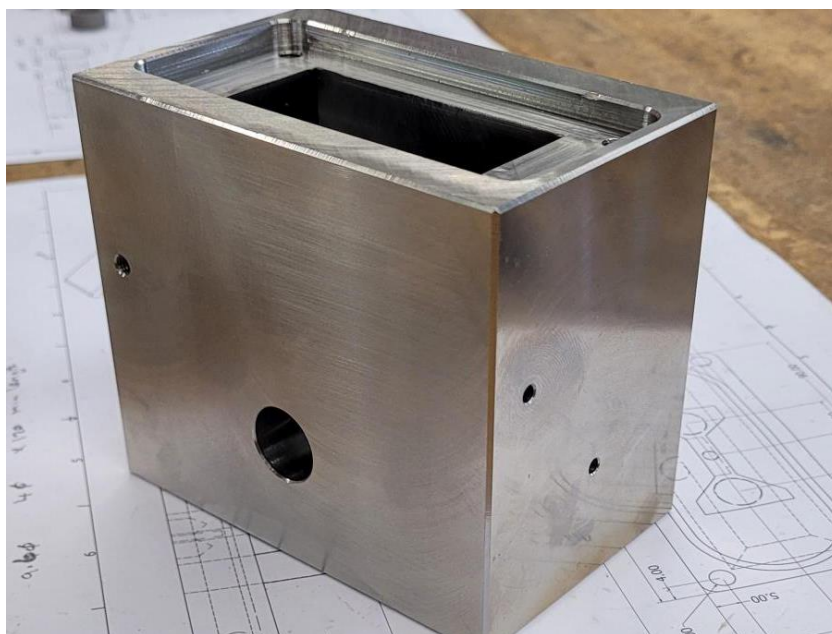
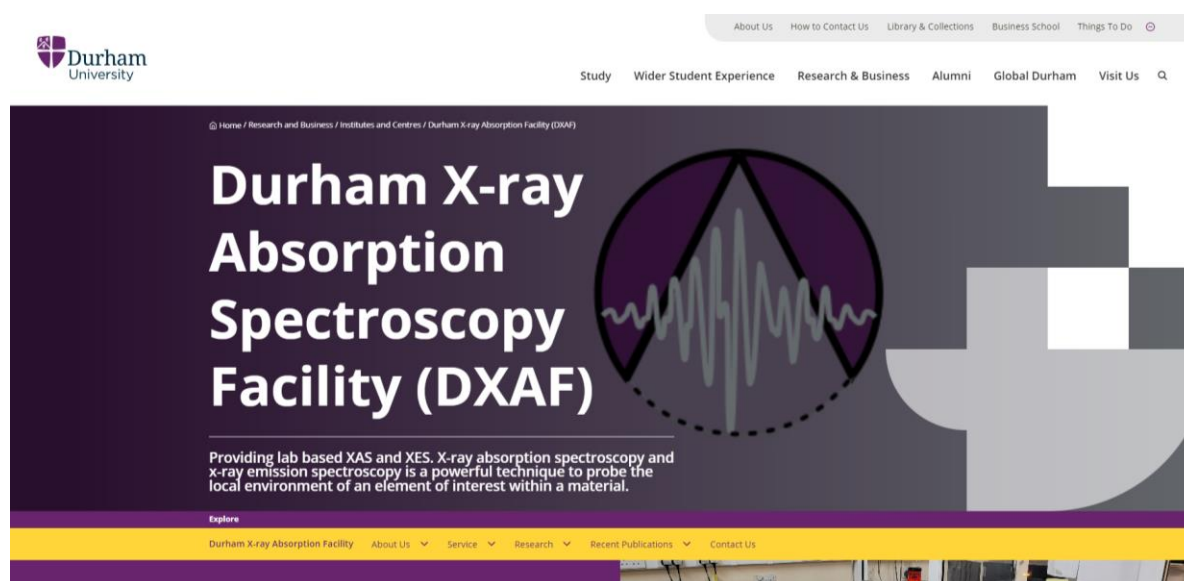


Fig. 1: Pre-production image of the high temperature pellet cell body.

Key features of the cell include:

- 13 mm pellet mount, which would be heated and monitored with a thermocouple.
- Expected achievable temperature of 400 °C, and this could be higher once determined during the testing phase by the facility (target temperature of 450 °C).
- Gas feed inlet and outlet. Filling up an internal chamber with the desired gases by the user.
- Expected initial testing will be done using routine experiments such as H₂-TPR and O₂-TPO.
- Use at ambient pressures, with Kapton sealed windows to maximise transmission of beam from X-ray source through the sample.

DXAF breaks the internet.



DXAF has now live on the internet! Our new website should tell you all the relevant information about using the facility including the services offered, sample submission forms, prices, instrument details and further information about the users and people who are here. So check it out using the link below:

<https://www.durham.ac.uk/research/institutes-and-centres/dxaf/>

Spotlight! Learning from *in situ* cells @ Diamond Light Source with the Beaumont Group

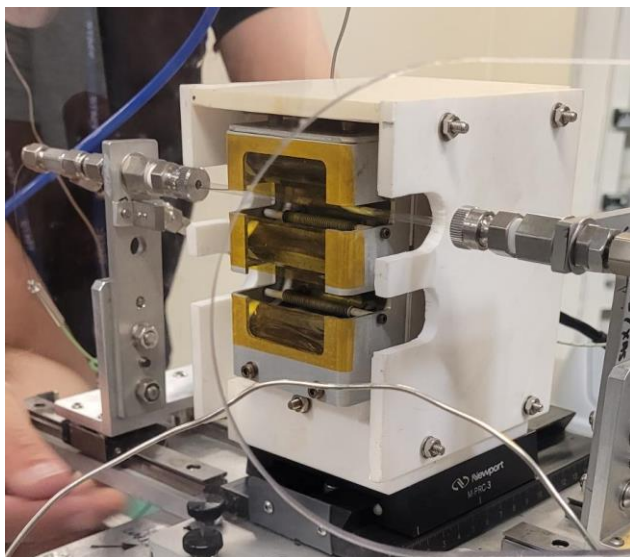


Fig. 2: High Temperature Capillary Furnace used at DLS.

Recent experiments conducted by the Beaumont group involved the use of *in situ* XAS studies. Focussing on the work of Amy Marsh on catalyst used for ethylene epoxidation.

Accompanying the team to Harwell was a great chance to see the DLS *in situ* capillary cells in action, and discuss *in situ* XAS with scientists at Diamond Light Source.

Many thanks goes to the B18 staff for the help and consultation during the experiment.

If you would like to spotlight some of your XAS work in the upcoming newsletters , please get in touch with the facility!

What is coming up?

DXAF's *in situ* cell should be with the facility soon and first experiment very shortly after! We are still looking for new users for the facility so if you or any of your colleagues are interested in using our services, please go to our website or contact us using the details below.

Contact Emails:

General enquiry: xafs@durham.ac.uk

Monik Panchal: monik.panchal@durham.ac.uk

Simon Beaumont: simon.beaumont@durham.ac.uk

Useful links:

<https://www.easyxafs.com/>

<https://research.ncl.ac.uk/conexs/about/>

<https://www.durham.ac.uk/research/institutes-and-centres/dxaf/>