

Poster Presentations

[MS32-P03] Sample environments on beamline I19.

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I19, the dedicated small-molecule single-crystal diffraction beamline at Diamond Light Source,[1] has been supporting user experiments for more than four years. I19 is a high-flux, tuneable wavelength beamline and is often used to collect data on very small and weakly diffracting crystals. There are at least 160 publications arising so far from work carried out on the beamline. Now that the beamline is well out of its infancy, much of the work carried out on I19 involves sample environment equipment; meaning *in-situ* studies of crystals under non-ambient conditions can be performed. A range of sample environments have been introduced onto the beamline including high pressure equipment (diamond-anvil cells,[2, 3] on-line pressure measuring equipment in experimental hutch 2 and equipment allowing simultaneous variable temperature and high pressure studies); an environmental gas cell [4] which can be used, for example, to explore the incorporation of gas into a host material; equipment for time resolved experiments (mechanical X-ray chopper disks and a pulsed laser); and variable temperature equipment allowing sample temperatures in the range from about 5K up to 500 K (open-flow nitrogen and open-flow helium devices and a closed cycle cryostat). A hot air blower will also be commissioned and this will extend the temperature range up to approximately 1200K. Another piece of equipment peripheral to the diffractometer is the vortex fluorescence detector which has been used for anomalous scattering experiments. Further development of the I19 sample environment capability is ongoing in terms of both hardware and methodology. This

is important with regard to meeting the evolving requirements of the user community and delivering the state-of-the-art science program that is the remit of the beamline. This poster will describe some of the sample environment equipment that is available on I19 and will include snapshots of some of the scientific results obtained using the equipment.

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