

**MS41-1-4 Automated high-throughput X-ray PDF data collections on the I15-1 beamline at Diamond Light Source
#MS41-1-4**

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Abstract

The I15-1 XPDF beamline at Diamond Light Source is committed to the fast and reliable production of total scattering and pair distribution function (PDF) data. Since becoming operational in 2017, I15-1 has welcomed users from a diverse range of disciplines such as materials science, energy materials, earth sciences and pharmaceuticals. Over the last few years I15-1 has undergone significant changes to improve the beamline hardware and software.

A robotic sample changing system has been implemented which allows up to 440 samples to be loaded at one time for high-throughput or remote access experiments at temperatures from 100 to 1000 K. A new bespoke detector is currently in commissioning which will dramatically improve both the speed and quality of the PDF data produced.

Software developments have delivered improved LIMS and we are currently testing novel automatic PDF processing capabilities. These developments allow aspects of experiments to be tracked in real-time, both while at Diamond and off-site, and offer an improved user experience.

Robotic sample changing system on I15-1.

