Powder diffraction and total scattering across time-scales at Diamond Light Source

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The Crystallography group at Diamond includes beamlines dedicated to high resolution powder diffraction, extreme conditions research, and total scattering. The time-scales of the experiments performed range from fractions of a second to months and years. In this work we will explore some of the studies performed spanning these different time-scales, from the pressure response of frameworks to long-term degradation of batteries over many years.

We will present the capabilities across the Crystallography group, and how recent detector developments and the upcoming Diamond-II synchrotron upgrade will transform what is possible for powder diffraction experiments at Diamond.