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Developments on the Powder Diffraction Beamline at the Australian Synchrotron

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The Powder Diffraction (PD) beamline at the Australian Synchrotron has successfully operated its User Programme since 2007 enabling many research teams to produce world-class outcomes. The rapid data collection capabilities coupled with the wide array of sample stages and environments permit an expansive range of *in situ* powder diffraction experiments. This presentation describes recent upgrades, new developments and future plans for the PD beamline that will enhance experiment capability. The hardware and software upgrades to the MYTHEN detector are discussed as well as the integration and performance of the new Mar345 image plate detector with a bespoke adjustable stand. The image plate area detector will be used for experiments where two-dimensional data collection is required (e.g. high pressure diamond anvil cell, texture... etc.) and offers compatibility with existing sample stages and environments, and improved configuration flexibility. The presentation will also cover upgrades to existing equipment that will benefit most ambient and high-temperature capillary experiments. A new multi-position coin cell battery sample stage and several planned future beamline upgrades designed to increase sample throughput will also be presented.

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