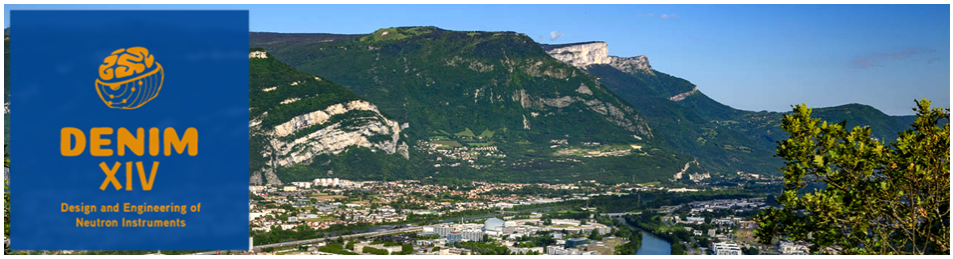

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HRPD-x Concept to Definition: A Summary of some of the instrument design challenges and how they've been resolved.

Wednesday, 22 October 2025 14:27 (1 minute)

HRPD-x is ISIS's new high resolution powder diffractometer, replacing HRPD which was the first instrument to detect neutrons back in 1984. It will be the first neutron instrument to be delivered as part of the Endeavour Program and is due to be installed and commissioned in 2027. HRPD-x will offer significantly increased detector coverage and reduced background whilst also boosting reliability, stability and adding new sample environment capabilities.

As many of the main sub-assembly design work packages are closing and progressing to manufacture, this poster aims to highlight some of the more challenging aspects of the design and how they were resolved. It will focus on the following:

- A new 3D printed, thin walled, radial collimator using B10 infused filament.
- A positive pressure Argon system with 0.8mm thick aluminium windows with large surface area
- Producing wavelength shifting fibre detectors with a precise curvature over a large span.
- Developing an integrated blockhouse and interlock system within a new building around a theoretical sample point.

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