



Contribution ID: 251

Type: **Talk**

LTP II: POWTEX: Data Reduction, Event Correlation and Machine Learning

Tuesday, 15 March 2022 14:33 (13 minutes)

While anticipating the commissioning of the high-intensity time-of-flight neutron powder-diffractometer POWTEX, great efforts were made to optimally exploit the instrument characteristics for future multidimensional Rietveld refinements. The first test data were acquired at the POWGEN instrument of the SNS (Oak Ridge National Laboratory) but using a small segment of the tailor-made POWTEX detector. The raw-data reduction was challenging, and the instrument description required careful attention, as it was a one-of-a-kind experimental set-up.

This work focuses on three selected subtopics: the optimization of raw data reduction, thereby proving the transition to an asymmetric profile description to be necessary and successful, and two additional approaches, to be addressed below.

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Session Classification: Young Crystallographers Lightning Talks

Track Classification: Young crystallographers Lightning Talks