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The Wide Angle Neutron Diffractometer (WAND) at HFIR: possibilities and future MATTHIAS FRONTZEK, Quantum Condensed Matter Division, Oak Ridge National Laboratory, KATIE M. ANDREWS, Instrument and Source Division, Oak Ridge National Laboratory, BRYAN C. CHAKOUMAKOS, Quantum Condensed Matter Division, Oak Ridge National Laboratory — The Wide Angle Neutron Diffractometer (WAND) at the High Flux Isotope Reactor (HFIR) at the Oak Ridge National Laboratory (ORNL) has been built and continues to be, a joint project between ORNL and the Japan Atomic Energy Agency. Equipped with a 1-dimensional position sensitive detector (PSD), the instrument is a multi-purpose instrument for both powder and single crystal diffraction. WAND is currently in the process of a 2-phase upgrade to become a world class, general purpose instrument. In phase 1, finished in the beginning of 2016, the whole instrument was practically re-built from scratch, keeping only the front end and the 1-D PSD. Phase 2 will replace the 1-D PSD with the state of the art BNL120 2D-PSD which comes from the Lujan Neutron Scattering Center. We are currently integrating the detector offline into the data acquisition architecture at HFIR. The new instrument, WAND^2, will be available for general users in the proposal call 2018A. In our contribution we present results from experiments on WAND after phase 1. The upgrade now allows mounting the whole suite of available sample environment (50 mK to 1500 K, magnetic fields (5 T), high pressures (4 GPa)). We will further discuss the scientific impact the new capabilities of WAND^2 will have.

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