

Abstract Submitted  
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**A unique 30 Tesla single-solenoid pulsed magnet instrument for x-ray studies**<sup>1</sup> ZAHIRUL ISLAM, Advanced Photon Source, Argonne National Laboratory, DANA CAPATINA, JACOB RUFF, RITESH DAS, APS, ANL, HIROYUKI NOJIRI, Institute for Materials Research, Tohoku University, YASUO NARUMI, IMR, TU — We present a dual-cryostat pulsed-magnet instrument at the Advanced Photon Source (APS) with unique capabilities. The dual-cryostat independently cools the solenoid (Tohoku design) using liquid nitrogen and the sample using a closed-cycle refrigerator, respectively. Liquid nitrogen (LN) cooling allows a repetition rate of seven minutes for peak fields of 30 Tesla. The system is unique in that the LN cryostat incorporates a double-funnel vacuum tube passing through the solenoid's bore preserving the entire angular range allowed by the magnet. This scheme is advantageous in that it allows the applied magnetic field to be parallel to the scattering plane complementing typical split-pair magnets with fields normal to the scattering plane. Performance of the coils along with preliminary x-ray diffraction and spectroscopic studies will be presented.

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