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**Resonant x-ray magnetic diffraction of $q$ =0 antiferromagnetic order in $Cd_2Os_2O_7$ under high pressure** YEJUN FENG, Argonne National Lab, YISHU WANG, California Institute of Technology, A. PALMER, The University of Chicago, J.-Q. YAN, D. MANDRUS, Univ. Tennessee and Oak Ridge National Lab, J.W. KIM, Argonne National Lab, T. F. ROSENBAUM, California Institute of Technology — The pyrochlore structured $Cd_2Os_2O_7$ manifests a continuous metal-insulator transition at ambient pressure. Associated with the rise of the insulating phase is the formation of an all-in/all-out type of spin arrangement for Os ions on each tetrahedron unit, resulting in antiferromagnetic order with a q=0 wave vector. The nature of the insulating phase is not understood due to the interplay of different degrees of freedom with almost degenerate energy scales characteristic of 5d transition metal compounds. Here we probe directly the pressure evolution of the anitferromagnetism using resonant x-ray magnetic diffraction techniques. We track the antiferromagnetic state to 18 GPa at 4 K, gradually suppressing the strength of the magnetic order and locating the boundary of an apparent continuous quantum phase transition.

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