

Abstract Submitted  
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**Complex antiferromagnetic order in the  $\text{Cd}_6R$  approximants to the  $i$ - $R$ -Cd quasicrystals** A. KREYSSIG, Ames Laboratory, Dept. Physics Astronomy, Iowa State University, G. BEUTIER, SIMAP Grenoble, J.-U. HOFFMANN, Helmholtz-Zentrum Berlin, T. KONG, M.G. KIM, G.S. TUCKER, B.G. UELAND, Ames Laboratory, Dept. Physics Astronomy, Iowa State University, T. HIROTO, Tokyo University of Science, D. LIU, SIMAP Grenoble, T. YAMADA, Tokyo University of Science, M. DE BOISSIEU, SIMAP Grenoble, R. TAMURA, Tokyo University of Science, S.L. BUD'KO, P.C. CANFIELD, A.I. GOLDMAN, Ames Laboratory, Dept. Physics Astronomy, Iowa State University — The observation of antiferromagnetic order in the  $\text{Cd}_6R$  ( $R$  = rare earths) approximants [1-2] to the recently discovered related  $i$ - $R$ -Cd quasicrystals [3] provides new and exciting opportunities to unravel the nature of magnetism in these materials. We present single-crystal studies employing x-ray and neutron scattering that revealed complex antiferromagnetism in the  $\text{Cd}_6R$  approximants. Resolution-limited magnetic Bragg peaks have been observed at lattice points forbidden by the center-symmetry and at incommensurate positions demonstrating long-range antiferromagnetic correlations between the  $R$  moments. The work at the Ames Laboratory was supported by US DOE, Office of Basic Energy Sciences, DMSE, contract DE-AC02-07CH11358. Work at the Tokyo University of Science was supported by KAKENHI (Grant No. 20045017).

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