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Magnetic order the iron spins in NdOFeAs YING CHEN, NCNR and Univ. of Maryland, J.W. LYNN, NCNR, J. LI, NCNR and Univ. of Maryland, G. LI, G.F. CHEN, J.L. LUO, N.L. WANG, Chinese Academy of Sciences, PENGCHENG DAI, C. DELA CRUZ, Univ. of Tennessee & ORNL, H.A. MOOK, ORNL — Polarized and unpolarized powder neutron-diffraction measurements have been carried out to investigate the iron magnetic order in the parent compound of one of the highest Tc system, NdFeAsO. Antiferromagnetic order is observed below 141 K [1], which is in close proximity to the structural distortion observed in this material [2]. The magnetic structure consists of chains of parallel spins that are arranged antiparallel between chains, which is the same in-plane spin arrangement as observed in all the other iron oxypnictide materials. Nearest-neighbor spins along the c axis are antiparallel like LaFeAsO [3]. The ordered moment is 0.25 (7) μB, which is the smallest ordered moment found so far in these systems.

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[3] C. dela Cruz, Q. Huang, J. W. Lynn, J. Li, W. Ratcliff II, J. L. Zarestky, H. A. Mook, G. F. Chen, J. L. Luo, N. L. Wang, and P. Dai, Nature **453**, 899 (2008).

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