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Frustrated magnetism and magnetic reversal in inverse spinel Co_2VO_4 ¹ PINAKI DAS, Y. YIU, N. ANDERSON, Y. LIU, D. VAKNIN, Ames Laboratory, Iowa State University, IA, USA, C. M. NAVEEN KUMAR, Laboratoire National des Champs Magnétiques Intenses, France — Vanadium oxide spinels with formula $A\text{V}_2\text{O}_4$ ($A = \text{Co}, \text{Fe}, \text{Mn}, \text{etc.}$) have attracted much interest due to their intriguing physical properties but little attention has been paid to inverse vanadium oxide spinels of the form, $A_2\text{VO}_4$ ($A = \text{Co}$ or Fe). Here we report magnetization, X-ray and neutron diffraction, and XMCD measurements on high quality polycrystalline Co_2VO_4 sample that has been known as a magnetization-reversal system. Magnetic susceptibility measurements show a magnetic transition at $T_N = 165$ K, with features that dramatically change below 100 K as external field (H) is increased. Interestingly, for $H \leq 0.25$ T and $T < 75$ K, magnetization reversal is observed in field-cooled measurements which is also confirmed by the XMCD measurements that reveal a spin-flop of the B-site Co and V L -edges. X-ray and neutron diffraction measurements confirm its $Fd\bar{3}m$ symmetry, which remains unchanged from 300 to 2 K and indicate a single magnetic transition at $T_N = 165$ K. Analysis of the detailed neutron powder diffraction measurements of the magnetic structure will also be shown.

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Pinaki Das
Ames Laboratory, Iowa State University, IA, USA

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