

Abstract Submitted
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High pressure and doping effect on the magnetic properties of CaMn_2O_4 KUN-JU HSIEH, HONG-CHENG WU, KAKARLA D. CHANDRASEKHAR, HUNG-DUEN YANG, Natl Sun Yat Sen Univ, NATIONAL SUN YAT-SEN UNIVERSITY TEAM — Polycrystalline $\text{Ca}_{1-x}\text{Sr}_x\text{Mn}_2\text{O}_4$ ($x=0.05, 0.10, 0.15,$ and 0.20) compounds were synthesized using solid state reaction method. Samples were characterized by X-ray diffraction and magnetization measurements. The lattice constants ($a, b,$ and c) determined by Rietveld refinement increases with Sr substitution. CaMn_2O_4 shows antiferromagnetic transition T_N near 220 K due to the Mn(III)-O-Mn(III) superexchange interaction. High-pressure effect on the T_N of CaMn_2O_4 has been investigated using piston-cylinder-type high-pressure apparatus designed for MPMS-XL7 magnetometer. It is found that the T_N increases with applying pressure up to 17.7 kbar at a rate of 0.487(22) K/kbar and decreases with higher Sr content.

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