

Abstract Submitted
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Magnetocaloric effect
across the coupled structural/magnetocrystalline anisotropy transition in
 $\text{Pr}_{1-x}\text{Sr}_x\text{CoO}_3$ ($x=0.3-0.5$) N.S. BINGHAM, M.H. PHAN, H. SRIKANTH, Uni-
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— Large magnetocaloric effects (MCE) are often observed in materials exhibiting a
first order magnetic transition coupled with a crystal structure change. Since the
magnetic and structural changes are coupled, it is difficult to decouple the struc-
tural entropy contribution from the magnetic entropy contribution to the total MCE.
Therefore a clear understanding of the structural entropy change and its field de-
pendence in such materials is lacking. A recent study revealed that $\text{Pr}_{1-x}\text{Sr}_x\text{CoO}_3$
($x>0.35$) undergo a coupled structural/magnetocrystalline anisotropy transition at
 T_A , in addition to the paramagnetic-ferromagnetic transition at T_C . Since the struc-
tural change at T_A in PSCO is not associated with any magnetic transition, it is
an excellent system for studying the structural entropy change and its contribution
to the MCE. We report systematic studies of the MCE in $\text{Pr}_{1-x}\text{Sr}_x\text{CoO}_3$ ($x=0.3,$
 $0.35, 0.4, 0.5$) compounds. The results show significant entropy change at T_A , whose
magnitude can be tuned by controlling the magnetocrystalline anisotropy.

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