Investigation on Structural, Transport, Microstructure, Magnetic and Magneto caloric properties of Cu substitution in CoMnGe alloys

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We are investigating structure, transport, nature of magnetic transitions and magnetocaloric effect in $CoMn_{1-x}Cu_xGe$ (x = 0, 0.3, 0.7) intermetallics alloys. The non-magnetic (Cu) element are positioned at Mn site of the alloys which make drastic change in structures (Orthorhombic-Hexagonal) and exhibits metallic behavior.The magneto-structural transition reduce drastically and changes the order (First (AFM-FM) Second (FM-PM)) of transition. Giant MCE is observed near RT (307 K) for stoichimetric sample and decrease towards LT's for Cu doped samples.The change in magnetic entropy (ΔS_M) is decreasing with effect of Cu doping. Refrigeration capacity (RC) are linearly increased with magnetic field for all samples and decreased with Cu doping.

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