

69. Specific Heat Of $Y_{1-x}Sr_xCoO_{3-\delta}$ Cobaltate Perovskites

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ABSTRACT

Specific heat of the yttrium doped strontium cobaltates $Y_{1-x}Sr_xCoO_{3-\delta}$ have been computed using an extended rigid ion model (ERIM). These materials have scientific and technological applications in solid state devices and for the unusual sensitivity of their magnetic and transport properties to oxygen content. YSCO has the highest ferromagnetic ordering temperature, ($T_c = 335$ K), of any of the perovskite cobaltates and much of the research on YSCO to date has focused on understanding the competition between the ferromagnetic and the antiferromagnetic exchange interactions in the compound. The computed specific heat, Debye temperature and cohesive energy values follow the same trend as that of available experimental results.

Keywords: Cobaltates, Specific heat, Debye temperature, Cohesive energy.