

EFFECT OF HEAT TREATMENT ON THE STRUCTURE, MAGNETIC AND THERMOELECTRIC PROPERTIES DY_{0.2}SR_{0.8}COO_{3-Δ}

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Abstract

Magnetic and thermoelectric properties of perovskites Dy_{0.2}Sr_{0.8}CoO_{3-δ}, with ordered and disordered states of Dy and Sr in the A-sites of the crystal lattice have been studied revealing remarkable differences in the physical properties of the ordered and disordered states. The ordered samples have larger oxygen nonstoichiometry, abnormal temperature dependence of the magnetization around 350 K and more thermoelectric stability at high temperature region. A number of transformations from the perovskite structure into a composite material consisting of the Ruddlesden-Popper family (n=2, RP-2) phase and cobalt oxide, as well as from the RP-2 phase and metallic cobalt, were investigated. The physical properties of these materials have also been investigated.