STRUCTURAL, MAGNETIC AND TRANSPORT PROPERTIES OF $NdBaCo_2O_{5+x}$ THIN FILMS DEPOSITED BY MAGNETRON SPUTTERING

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9.7 cm

For the first time, thin films of $NdBaCo_2O_{5+x}$ have been deposited by RF magnetron sputtering on different substrates. The thin films deposited on single crystalline SLA(001) substrates exhibited highly textured structure with c-axis directed out-of-plane. Magnetic measurements M vs. T of three $NdBaCo_2O_{5+x}$ / SLA(001) films, obtained at different substrate temperature and annealed in situ in oxygen, revealed successively PM-FM-AFM transitions with decrease in temperature. Their paramagnetic Curie – Weiss temperature were estimated to be in the range of T_C = 100 K -116 K. Resistivity of the cobaltite thin film was measured in wide temperature range exhibiting insulating behavior over the entire range studied. The best fit was found for the VRH mechanism.

13.4 cm

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