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**Influence of growth temperature on the microstructure and electrical transport  
properties of epitaxial  $\text{NiCo}_2\text{O}_4$  thin films**

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**Abstract**

In the work reported here,  $\text{NiCo}_2\text{O}_4$  films were grown epitaxially on  $\text{LaAlO}_3$  (111) substrates at temperatures between room temperature and 700 °C. The effects of the substrate temperature ( $T_{\text{sub}}$ ) on the structural, electrical and magnetic properties and on the Hall effect of the film were investigated.  $T_{\text{sub}}$  has a great influence on the cation disorder. High  $T_{\text{sub}}$  makes substitution of Ni (Oh) for Co (Td) easier, and changes the relative  $\text{Ni}^{3+}/\text{Co}^{3+}$  concentration. The film grown at 400 °C had a

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