Structural Analysis of Ni-Doped $SrTiO_3$: XRD Study

Zdeněk Jansa[1, a)], Lucie Prušáková[1], Fatima Alarab[1], Pavol Šutta[1], and Ján Minár[1, b)]

[1] *New Technologies Research Centre, University of West Bohemia, Pilsen, Czech Republic*

[a)]Corresponding author: zjansa@ntc.zcu.cz
[b)]jminar@ntc.zcu.cz

Abstract. The aim of this work is to study the structure of Ni-doped $SrTiO_3$ thin films by X-ray diffraction (XRD). All samples were prepared by magnetron sputtering on Si and SiO2 substrates. The main objective of this work is to monitor the crystallization of the deposited thin layer of Ni-doped $SrTiO_3$. The X-ray diffraction measurements were done on the films as deposited and after annealing in vacuum up to 900°C. The x-ray analysis was used with both geometries (symmetric and asymmetric). Those measurements allow us to get information about the influence of Ni on the final structure, the size of crystallites, the micro-strains and the deformation of the lattice. In particular, here we domonstarate that Ni doping lead to the unique stabilisation of crystall growth of SrTiO3 as compared to the undoped $SrTiO_3$.