

## IMPACT OF DOPANTS ON THE ELECTRICAL PROPERTIES IN $ABO_3$ PEROVSKITE TYPE MATERIALS

P. Sfirloaga<sup>a</sup>, I. Malaescu<sup>b</sup>, M. Poienar<sup>a</sup>, C. N. Marin<sup>b</sup>, P. Vlazan<sup>a</sup>

<sup>a</sup>National Institute for Research and Development in Electrochemistry and Condensed Matter,  
Timisoara, P. Andronescu no. 1, 300254 Romania

<sup>b</sup>West University of Timisoara, Vasile Parvan no. 4, Timisoara, 300223 Romania  
paulasfirloaga@gmail.com

### Abstract

The ceramics materials with  $ABO_3$  structure based on iron or silver doped sodium tantalate, were successfully synthesized using the ultrasonically method with immersed sonotrode in the reaction medium followed by heat treatment at 600°C. Samples were doped with silver for the A site of the perovskite lattice and with iron for the B site. The doping was performed in order to improve the electrical properties through change the crystalline structure and prevent ordering of the oxygen vacancies in these materials. The obtained materials were characterized by X-ray diffraction (XRD), transmission electron microscopy (TEM), BET analysis, energy-dispersive X-ray spectroscopy (EDX) and electrical measurements. Structural analysis shows that the obtained materials have cubic structure and a homogeneous composition, without secondary compounds. Electrical measurements indicate that the presence of metal ions of iron or silver in the structure of  $NaTaO_3$  lead to decreases of the gap band energy, resulting in increase of electric conductivity.

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