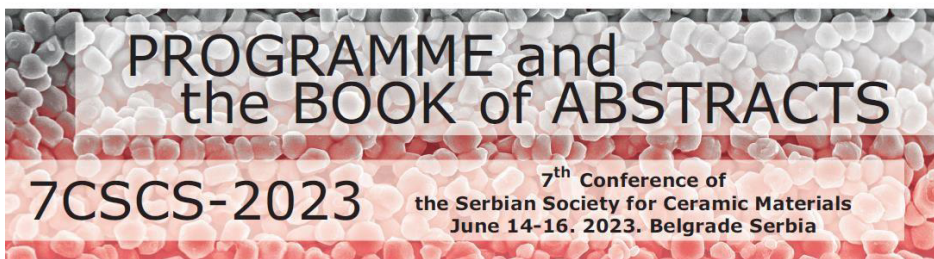


The Serbian Society for Ceramic Materials
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Institute of Physics, University of Belgrade
Center of Excellence for the Synthesis, Processing and Characterization of
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Faculty of Mechanical Engineering, University of Belgrade
Center of Excellence for Green Technologies, Institute for Multidisciplinary
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P-42

WHAT HAPPENS WHEN BiFeO₃ UNDERGOES POTENTIODYNAMIC POLARIZATION?

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Unlike its ferroelectric and magnetic properties [1], the electrochemical behavior of bismuth ferrite, BiFeO₃ (BFO) has received less attention [2]. In this contribution, BFO was hydrothermally synthesized [3] to be examined as an electrode for metal-ion aqueous rechargeable batteries. BFO powder was first investigated in terms of structural and surface properties using X-ray diffraction and Thermally-Programmed Desorption methods and then characterized in Li and Na- containing aqueous electrolytes using Cyclic Voltammetry and Chronopotentiometry. BFO was found to be inactive within the electrochemical potential window of the aqueous electrolyte. However, its ability to be electrochemically transformed, under deep cathodic polarization, results in an active phase composed of Bi- and Fe-based oxides, as confirmed by Fourier-transform infrared and Raman spectroscopy. The redox behavior of BFO-derived oxide electrode is compared in both Li and Na -based aqueous electrolytes and discussed in the context of tailoring electrochemical properties for safe and sustainable metal-ion batteries.

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1. T. Rojac, A. Bencan, G. Dražić, N. Sakamoto, H. Ursić, B. Jancar, G. Tavcar, M. Makarović, J. Walker, B. Malić, D. Damjanović, *Nature Materials*, **16** (2017) 322.
2. H. Xia, F Yan, M. O. Lai, L. Lu, W. Song, *Functional Materials Letters*, **2** (2009) 163.
3. M. Čebela, B. Janković, R. Hercigonja, M.J. Lukić, Z. Dohčević-Mitrović, D. Milivojević, B. Matović, *Process. Appl. Ceram.*, **10** (2016) 201.