The Serbian Society for Ceramic Materials

Institute for Multidisciplinary Research, University of Belgrade

Institute of Physics, University of Belgrade

Center of Excellence for the Synthesis, Processing and Characterization of Materials for use in Extreme Conditions "CEXTREME LAB" - Institute of Nuclear Sciences "Vinča", University of Belgrade

Faculty of Mechanical Engineering, University of Belgrade

PROGRAMME and the BOOK of ABSTRACTS

4CSCS-2017

4th Conference of the Serbian Society for Ceramic Materials
June 14-16.2017. Belgrade Serbia

Edited by:
Branko Matović
Zorica Branković
Dušan Bućevac
Vladimir V. Srdić

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FOR NUCLEAR RESEARCH

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WELCOME MESSAGE

On behalf of the organizers and organizing committee of the 4th Conference of the Serbian Society for Ceramic Materials (4CSCS-2017), I would like to extend my warmest welcome to all of you for attending the 4CSCS-2017. The conference is hosted and organized by the Serbian Society for Ceramic Materials, and co-organized by Institute for Multidisciplinary Research - University of Beograd, Institute of Physics - University of Beograd, Center of excellence for the synthesis, processing and characterization of materials for use in extreme conditions "CEXTREME LAB" - Institute of Nuclear Sciences Vinca, University of Belgrade and Faculty of Mechanical Engineering, University of Belgrade.

The goal of the Conference is to provide a platform for academic exchange among participants from universities, institutes, companies around the region in the field of ceramics research as well as to explore new direction for future development. 4CSCS-2017 aims to bring together leading academic scientists, researchers and research scholars to exchange and share their experiences and research results about all aspects of Ceramic Materials. It also provides the premier inter-multi-trans-disciplinary forum for researchers, practitioners and educators to present and discuss the most recent innovations, trends, and concerns, practical challenges encountered and the solutions adopted in the field of Ceramic Materials. We have received more tabout 100 abstracts submitted from 15 countries.

The Conference will feature two plenary lectures, 25 invited talks and more than 70, oral and poster presentations as well as exhibitions of some new ceramic materials and devices. 4CSCS-2017 includes Ceramic Powders, Characterization and Processing, High temperature Phenomena, Sintering, Microstructure Design and Mechanical Properties, Electro and Magnetic Ceramics, Ceramic Composites, Membranes and Multimaterials, Traditional Ceramics and Computing in Materials Science. Exhibitions from company sponsors will be held at the Conference as well.

We are grateful for the support from the Ministry of Education, Science and Technological Development of the Republic of Serbia. We would also like to express our sincere thanks to the symposia organizers, session chairs, presenters, exhibitors and all the Conference attendees for their efforts and enthusiastic support in this exciting time in Belgrade. I look forward to meeting you and interacting with you at Conference.

4SCSC-2017 President

Branko Matovic

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STRUCTURE AND CHARACTERIZATION OF $(x)Ni_{0.7}Zn_{0.3}Fe_2O_4 – (1\text{-}x)BaTiO_3$ COMPOSITES

Adis Džunuzović[1], Mirjana Vijatović Petrović[1], Nikola Ilić[1], Jelena Bobić[1], Maxim Ivanov[2], Darko Makovec[3], Biljana Stojanović[1]

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Multiferroic composites with formula $Ni_{0.7}Zn_{0.3}Fe_2O_4$ - $BaTiO_3$ (x = 0.1, 0.3, 0.5, 0.7, 0.9) were prepared by mixing chemically obtained NZF and BT powders in the planetary mill for 24 h. $NiZnFe_2O_4$ (NZF) powder was prepared by auto-combustion method starting from nickel, zinc and iron nitrates. Barium titanate (BT) powder was prepared with the same method. The optimization of sintering process was performed. One series of powders were pressed and sintered at 1170 °C, while the others were sintered at 1120 °C. X-ray measurements confirmed the presence of NZF, BT phases and the traces of barium ferrite phase. The microstructures of the ceramics show (Fig. 1.) the formation of grains with different shape and size. The formation of polygonal (NZF grains), rounded (BT grains) and plate like grains (barium ferrite phase) was noticed. The magnetic analyses showed that in the composites due to existence of ferroelectric phase a dilution effect appears.

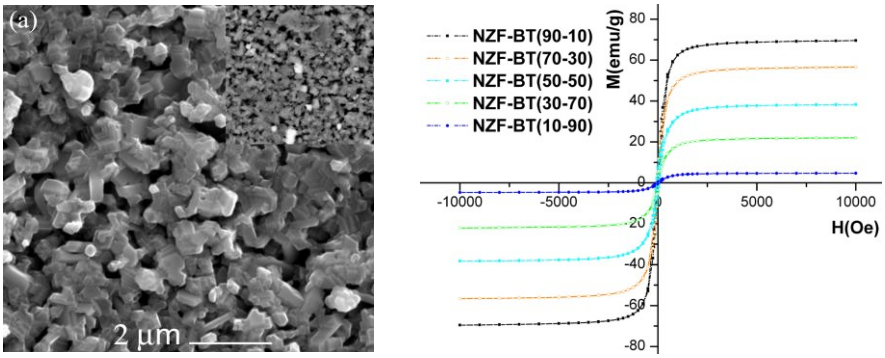

Figure 1. SEM images of NZF-BT (90-10) and magnetic measurements for all samples