The Serbian Ceramic Society
The Academy of Engineering Sciences of Serbia
Institute for Multidisciplinary Research - University of Belgrade
Institute of Physics - University of Belgrade
Vinča Institute of Nuclear Sciences - University of Belgrade

PROGRAMME and the BOOK of ABSTRACTS

2CSCS-2013

2nd Conference of the Serbian Ceramic Society
June 5-7.2013. Belgrade Serbia

Edited by:
Snežana Bošković
Vladimir V. Srdić
Zorica Branković

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Dear ceramists,

On behalf of all committees of the 2nd Conference of The Serbian Ceramic Society (2CSCS-2013), and also on behalf of the co-organizers of this Conference i.e. Academy of Engineering Sciences of Serbia, Institute for Multidisciplinary Research - University of Belgrade, Institute of Physics - University of Belgrade, Vinča Institute of Nuclear Sciences - University of Belgrade, it is our great pleasure to welcome you to Belgrade and Serbia on June 5-7th 2013.

The Serbian Ceramic Society is national society which brings together the scientists and engineers working in the fields of research and application of ceramic materials. There is rather large ceramic community in Serbia since it has long tradition which involves both traditional and advanced ceramic materials. The members of The Serbian Ceramic Society, are professionally dealing with very attractive topics like nanostructured ceramics, ceramics in energy conversion, eco- and bio-ceramics, as well as, ultra high temperature ceramic composites. The activities of The Serbian Ceramic Society include organizing highly interesting lectures for the members, but also Students Meetings, which has taken place in Novi Sad under the sponsorship of the European Ceramic Society each year since 1998. In addition, the Serbian Ceramic Society publishes, since 2007, the Journal "Processing and Application of Ceramics" which is becoming ever more attractive to authors from abroad.

The aim of the 2CSCS-2013 is to bring together the scientists working in the field of ceramic materials for the exchange of attractive results in the areas of the development, characterization and application of ceramic materials as well as, to improve contacts for future scientific cooperation.

The abstracts of the papers that are going to be presented at the 2ndConference of The Serbian Ceramic Society are summarized in this book. They are divided according to topic to which the papers belong, i.e. into:

1. **Ceramic Powders, Characterization and Processing** (chemical routes, hydrothermal synthesis, non-conventional routes, dispersion and processing aids, wet processing, spray-drying, plastic forming, net shape forming and porous products)
2. **High Temperature Phenomena, Sintering and Microstructure Design** (high temperature reactions, phase diagrams, densification and grain growth, tailoring microstructure to properties, hard coatings and wear)
3. **Electro and Magnetic Ceramics** (ferroelectric and relaxors, piezoelectric, films, multilayer devices, interfaces, capacitor, microwave ceramics, varistors, conducting ceramics and electrodes, ionic conductors, resistors)
4. **Ceramic Composites, Membranes and Multimaterials** (ceramic matrix composites, fibres, nanocomposites and polymer transformation, laminates, biocomposites)
5. **Refractories, Cements, Glass and Corrosion** (raw materials and engineering, emission control, environment, recycling)
6. **Ceramic Heritage**

Four plenary lectures, fourteen invited lectures, twenty-two oral and fifty-seven poster presentations will be presented at the Conference. This book contains, as mentioned, all the received abstracts, and some of the papers, after regular peer review will be published in the international journal The Processing and Application of Ceramics.

June 5-7th, 2013.
Belgrade, Serbia

Content

PROGRAMME

PLENARY LETURES

INVITED LETURES

ORAL PRESENTATIONS

ash, can be used as raw material for geopolymers production. One of the most limiting factors for wider use of geopolymers is the fact that production of fly ash-based geopolymers often requires curing at elevated temperature (up to 100°C). This article is focused on investigation of the strength development and changes in the microstructure of fly ash-based geopolymers cured at room temperature up to 180 days. The differences in microstructure between geopolymer samples at different ages were characterized by scanning electron microscopy (SEM/EDS) and correlated to the mechanical properties. It was established that the most significant geopolymer strength gain as well as the greatest microstructural changes occurred within the first 28 days of reaction. After this initial period, less significant changes of fly ash-based geopolymer strength and microstructure were observed.

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SYNTHESIS PROCEDURE AND PROPERTIES OF $NiFe_2O_4 - BaTiO_3$ COMPOSITES

M.M. Vijatović Petrović[1], A.S. Džunuzović[1], J.D. Bobić[1], N. Ilić[1], L. Curecheriu[2], B.D. Stojanović[1]

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$NiFe_2O_4$ (NF) powder was prepared by auto combustion method starting from nickel and iron nitrates. After the process of self-ignition, fine precursor powder was thermally treated and forming the nickel ferrite powder. XRD analysis proved the formation of well crystallized nickel-ferrite cubic spinel structure.

Cubic barium titanate (BT) powder was prepared by soft chemical method (modified Pechini process).

Composites (NF-BT) with the general formula x $NiFe_2O_4$ – (1-x) $BaTiO_3$ (x = 0.2, 0.3, 0.5) powders were prepared by mixing previously obtained powders of nickel ferrite and barium titanate in planetary ball mill. As a milling medium were used tungsten carbide balls and iso-propanol. Powder was pressed and sintered at 1170 °C for 4 h and from X-ray measurements the presence of NF and BT phases was detected. No secondary phases were found. Magnetic measurements of composite materials were carried out. Saturation magnetization moment of composite materials decrease with barium titanate amount and the fields at which saturation occur increase with BT content. The coercivity H_C (Oe) increases with barium titanate concentration in obtained multiferroic material.