



**Serbian Ceramic Society Conference
ADVANCED CERAMICS AND APPLICATION IV
New Frontiers in Multifunctional Material Science and Processing**

**Serbian Ceramic Society
Institute for Testing of Materials
Institute of Chemistry Technology and Metallurgy
Institute for Technology of Nuclear and Other Raw Mineral Materials
School of Electrical Engineering and Computer Science of Applied Studies**

PROGRAM AND THE BOOK OF ABSTRACTS

**Serbian Academy of Sciences and Arts, Knez Mihailova 35
Serbia, Belgrade, 21-23. September 2015**

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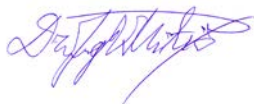
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Dear Colleagues, Dear Friends,

We have great pleasure to welcome you to the Advanced Ceramic and Application Conference IV organized by the Serbian Ceramic Society in cooperation with the Institute for Testing of Materials, Institute of Chemistry Technology and Metallurgy, Institute for Technology of Nuclear and Other Raw Mineral Materials, Institute for Technical Sciences SASA and School of Electrical Engineering and Computer Science of Applied Studies.

Advanced Ceramics play an important role in the European Union's prioritized materials to enable the transition towards to a knowledge-based efficient societies. The chosen Conference topics cover fundamental theoretical research in advanced ceramics, modeling and simulation of technological processes, controlled synthesis of nanomaterials, developing of new composite and hybrid structures which should provide practical realization of the new ideas and brings new quality in everyday life. ACA IV Conference gathers the researchers, engineers, academy staff, artist, specialist and PhD students trying to emphasizes the key innovation activities toward developing the next generation of advanced ceramics products for industry of high-technology, renewable energy sources, environmental efficiency, security, space technology, cultural heritage, prosthesis, etc.

Serbian Ceramic Society has been initiated in 1995/1996 and fully registered in 1997 as Yugoslav Ceramic Society, being strongly supported by American Ceramic Society. Since 2009, it has continued as Serbian Ceramic Society in accordance to the Serbian law procedure. Serbian Ceramic Society is almost the only one Ceramic Society in the South-East Europe, with members from more than 20 Institutes and Universities, active in 16 sessions, by program and the frames which are defined by the American Ceramic Society activities.



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President of the Serbian Ceramic Society
World Academy Ceramics Member
European Academy of Sciences&Arts Member



Prof. Dr Olivera Milošević,
President of the General Assembly of the
Serbian Ceramic Society
Academy of Engineering Sciences of Serbia Member

General Conference Topics

- Basic Ceramics Science
- Nanostructural, Bio- and Opto-Ceramic Materials and Technologies
- Multifunctional Materials
- Magnetic and Amorphous Materials
- Construction Materials and Eco-ceramics
- Composite Materials, Catalysis and Electrocatalysis
- Artistic Ceramics and Design, Archaeology and Heritage
- Young Researchers
- Sintering processes
 - kinetics
 - microstructure
 - thermodinamics
 - modeling

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The Influence of Synthesis Parameters and Heat Effect on Magnetic Properties of Powder System Fe_xO_y - BaTiO_3

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Powder mixture of 60 mass % of iron (Fe) and 40 mass % of barium titanate (BaTiO_3) has been activated in planetary mill for 100, 120, 150, 180, 210 and 240 min in the air. During the activation the iron powder transits into iron oxides FeO , Fe_2O_3 and Fe_3O_4 . Depending on the activation time the percentage of iron oxides varies. Simultaneously, with the content change of the activated system, magnetic properties change as well. The thermomagnetic measurements in the temperature interval from 20°C up to 620°C have shown that the powder activated for 120 minutes exhibits maximum magnetization prior to annealing. After multiple annealings of the same sample it has been shown that the maximum magnetization of the cooled sample is obtained upon annealing at 560°C during 10 min for all activation times of as-cast powder sample. The sample obtained from pressed powder mixture activated for 120 min has the maximum magnetization, upon isothermal sintering of samples at 1200°C during 2h, being $M = 2,9 \text{ Am}^2/\text{kg}$. With additional annealing of the same sample up to Curie temperature ($T_c = 430^\circ\text{C}$) and subsequent cooling of the sample in the magnetic field of $H = 20 \text{ kA/m}$, the sample is permanently magnetized. The magnetization of sample cooled in the magnetic field with intensity of 20 kA/m being $M = 10,15 \text{ Am}^2/\text{kg}$.