



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

Serbian Ceramic Society
Institute of Technical Sciences of SASA
Institute for Testing of Materials
Institute of Chemistry Technology and Metallurgy
Institute for Technology of Nuclear and Other Raw Mineral Materials

PROGRAM AND THE BOOK OF ABSTRACTS

Serbian Academy of Sciences and Arts, Knez Mihailova 35
Serbia, Belgrade, 18-20. September 2023.

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Dear colleagues and friends,

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

It is nice to host you here in Belgrade in person. We are very proud that we succeeded in bringing the scientific community together again and fostering the networking and social interactions around an interesting program on emerging advanced ceramic topics. The chosen topics cover contributions from fundamental theoretical research in advanced ceramics, computer-aided design and modeling of new ceramics products, manufacturing of nano-ceramic devices, developing of multifunctional ceramic processing routes, etc.

Traditionally, ACA Conferences gather leading researchers, engineers, specialists, professors and PhD students trying to emphasize the key achievements which will enable the widespread use of the advanced ceramics products in the High-Tech industry, renewable energy utilization, environmental efficiency, security, space technology, cultural heritage, etc.

Serbian Ceramic Society was 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 the Serbian Ceramic Society in accordance with Serbian law procedure. Serbian Ceramic Society is almost the only one Ceramic Society in South-East Europe, with members from more than 20 Institutes and Universities, active in 9 sessions..

Dr. Nina Obradović
President of the Serbian Ceramic Society

Dr. Suzana Filipović
President of the General Assembly of the Serbian Ceramic Society

Conference Topics

- Basic Ceramic Science & Sintering
- Nano-, Opto- & Bio-ceramics
- Modeling & Simulation
- Glass and Electro Ceramics
- Electrochemistry & Catalysis
- Refractory, Cements & Clays
- Renewable Energy & Composites
- Amorphous & Magnetic Ceramics
- Heritage, Art & Design

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Investigation of nanostructured $\text{Ca}_{0.9}\text{Er}_{0.1}\text{MnO}_3$ obtained by sucrose nitrate procedure

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Nano-crystalline $\text{Ca}_{0.9}\text{Er}_{0.1}\text{MnO}_3$ oxide with a perovskite structure was synthesized by the sucrose nitrate procedure (SNP), with the help of sucrose, which plays the role of fuel and complexant. Other chemicals used are calcium nitrate tetrahydrate $\text{Ca}(\text{NO}_3)_2 \times 4\text{H}_2\text{O}$, manganese nitrate hydrate $\text{Mn}(\text{NO}_3)_2 \times \text{H}_2\text{O}$, erbium nitrate pentahydrate $\text{Er}(\text{NO}_3)_3 \times 5\text{H}_2\text{O}$. Metal nitrates and sucrose were mixed in stoichiometric ratios, in order to obtain a perovskite with a crystalline structure. The resulting $\text{Ca}_{0.9}\text{Er}_{0.1}\text{MnO}_3$ is calcined for 15 minutes in the temperature range from 800°C to 1000°C. Diffraction thermal analysis (DTA), X-ray diffraction analysis (XRD), Fourier transform infrared spectroscopy (FTIR), scanning electron microscopy (SEM) and inductively coupled plasma ICP were used to characterize the obtained powder.

P24

Experimental and numerical determination of the fracture strength of PA12 material on specimens produced by selective laser sintering

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This paper presents the influence of geometry on the determination of the stress intensity factor KI on specimens produced by the selective laser sintering technique. The analysis of the determination of the stress intensity factor includes experimental and numerical tests. For this purpose, two geometries of specimens were used. Flat specimens with crack loaded in tension and ring specimens loaded on the inner wall. To understand the influence of geometry, specimens and their identical models were tested with three different ratios between the width of the test specimens and the initial length of the crack. Both types of specimens used for this experiment were made from polyamide PA12 utilizing the SLS (selective laser sintering)