



**Serbian Ceramic Society Conference
ADVANCED CERAMICS AND APPLICATION V
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
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, 21st-23rd September 2016.**

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rad spectroscopy. The ortoferrite phase formation was first observed after 1 h of milling and its formation was completed after 2.5 h. The synthesized $YFeO_3$ ferrite has a nanocrystalline structure with a crystallite size of about 12.4 nm. There are five Raman active modes. ^{57}Fe Mössbauer spectroscopy was performed in order to provide information on Fe compounds in the Y_2O_3 and $\alpha-Fe_2O_3$ mixture.

OR5

Synthesis and structural characterization of some cathode materials for lithium-ion batteries

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Lithium-ion batteries are under intense scrutiny as alternative energy/power sources. Their electrochemistry is based on intercalation/deintercalation reactions of lithium ions within a crystal structure of an electrode material. Therefore, the structure itself determines both the electrode operating voltage and the transport pathways for lithium ions. Some oxide- and polyanion-based materials are synthesized and studied as positive electrodes. Several synthetic routes were investigated. The crystal structure refinement of an X-ray powder diffraction data was based on the Rietveld full profile method. All relevant structural and microstructural crystal parameters that could be significant for electrochemical intercalation/deintercalation processes were determined. Structural analysis revealed different dimensionality of lithium ion motion. It was also shown that the structural and microstructural properties are significantly dependent on the synthesis condition.

OR6

Application of ceramic components in knee arthroplasties

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Total knee arthroplasty is considered as very reliable and efficient procedure with excellent good-term results. Despite significant improvements in endoprosthesis design and materials for their fabrication, debris induced aseptic loosening of the endoprosthesis is, accompanied by the malpositioning of the components, most frequent cause of the need for revision surgery. Beside this problems, there is growing number of reports of metal allergy as possible causer of procedure failure. For above mentioned, ceramics with its properties attracts attention as a material for endoprosthesis manufacturing. After relatively bad results in the early years of use, followed by improvements in materials and design of endoprosthesis, ceramics look like a promising solution, especially for patients with allergies on metal.