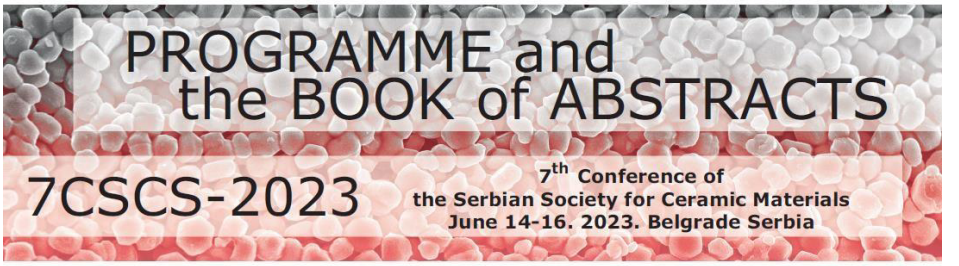
The Serbian Society for Ceramic Materials
Institute for Multidisciplinary Research (IMSI), University of Belgrade
Institute of Physics, University of Belgrade
Center of Excellence for the Synthesis, Processing and Characterization of Materials for use in Extreme Conditions "CEXTREME LAB" - Institute of Nuclear Sciences "Vinča", University of Belgrade
Faculty of Mechanical Engineering, University of Belgrade
Center of Excellence for Green Technologies, Institute for Multidisciplinary Research, University of Belgrade
Faculty of Technology and Metallurgy, University of Belgrade



Edited by:
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Jelena Maletaškić
Vladimir V. Srdić

Programme and Book of Abstracts of The Seventh Conference of The Serbian Society for Ceramic Materials **publishes abstracts from the field of ceramics, which are presented at international Conference.**

Editors-in-Chief
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Publisher
Institut za multidisciplinarna istraživanja
Kneza Višeslava 1, 11000 Belgrade, Serbia

For Publisher
Dr Dragica Stanković

Printing layout
Dr. Jelena Maletaškić, Vladimir V. Srdić

Press
Faculty of Technology and Metalurgy, Research and Development Centre of Printing Technology, Karnegieva 4, Belgrade, Serbia

Published: 2023

Circulation: 120 copies

CIP – Каталогизација у публикацији
Народна библиотека Србије, Београд

666.3/.7(048)
66.017/.018(048)

DRUŠTVO za keramičke materijale Srbije, Konferencija (7; 2023, Beograd)
Programme ; and the Book of Abstracts / 7th Conference of The Serbian Society for Ceramic Materials, 7CSCS-2023, June 14-16, 2023 Belgrade, Serbia ; [organizers] The Serbian Society for Ceramic Materials ... [et al.] ; edited by Branko Matović, Aleksandra Dapčević, Vladimir V. Srdić. - Belgrade :
Institut za multidisciplinarna istraživanja, 2023 (Belgrade : Faculty of technology and metalurgy, Research and development centre of printing technology). -124 str. : ilustr. ; 25 cm
Tiraž 120. – Str. 7: Welcome message / Branko Matović. - Registar.

ISBN 978-86-80109-24-4

a) Керамика -- Апстракти b) Наука о материјалима – Апстракти v) Наноматеријали -- Апстракти

COBISS.SR-ID 117544969

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P-3

SYNTHESIS AND CRYSTAL STRUCTURE OF $Ca_{0.9}Er_{0.1}MnO_3$

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$Ca_{0.9}Er_{0.1}MnO_3$ nanopowders with perovskite type crystal structure were synthesized by sucrose-nitrate procedure (SNP). SNP is a combustion method in which sucrose $C_{12}H_{22}O_{11}$ was used as fuel, while calcium nitrate tetrahydrate $Ca(NO_3)_2{\times}4H_2O$, manganese(II) nitrate hydrate $Mn(NO_3)_2{\times}H_2O$, erbium(III) nitrate pentahydrate $Er(NO_3)_3{\times}5H_2O$ were used as oxidants. Obtained powder $Ca_{0,9}Er_{0,1}MnO_3$ were calcinated at a temperature between 800–1000 °C. Powder properties have been studied, such as crystallite and particle size, lattice parameters, structural changes, and specific surface area. X-ray diffraction (XRD), Field emission scanning electron microscopy (FESEM), and Brunauer-Emmet-Teller (BET) method were used to characterize the synthesized samples at room temperature. Also, high temperature treatment (up to 1000 °C) was used to follow the stability of solid solutions and the growth of crystallites.