

# Preparation, synthesis and characterization of nanometric $\text{Ca}_{0.9}\text{Er}_{0.1}\text{MnO}_3$

Tijana B. Vlašković, Bojana Laban, Maja Milošević, Maria Čebela, Vladimir Dodevski, Milena Rosić



Дигитални репозиторијум Рударско-геолошког факултета Универзитета у Београду

[ДР РГФ]

Preparation, synthesis and characterization of nanometric  $\text{Ca}_{0.9}\text{Er}_{0.1}\text{MnO}_3$  | Tijana B. Vlašković, Bojana Laban, Maja Milošević, Maria Čebela, Vladimir Dodevski, Milena Rosić | Programme and Book of abstracts 15th ECerS Conference for Young Scientists in Ceramics, Novi Sad, Serbia October 11-14, 2023 | 2023 | |

<http://dr.rgf.bg.ac.rs/s/repo/item/0008179>

Дигитални репозиторијум Рударско-геолошког факултета Универзитета у Београду омогућава приступ издањима Факултета и радовима запослених доступним у слободном приступу. - Претрага репозиторијума доступна је на [www.dr.rgf.bg.ac.rs](http://www.dr.rgf.bg.ac.rs)

The Digital repository of The University of Belgrade Faculty of Mining and Geology archives faculty publications available in open access, as well as the employees' publications. - The Repository is available at: [www.dr.rgf.bg.ac.rs](http://www.dr.rgf.bg.ac.rs)

15<sup>TH</sup> ECerS CONFERENCE FOR YOUNG SCIENTISTS IN CERAMICS

**CYSC**  
2023



15<sup>TH</sup> ECerS CONFERENCE  
FOR YOUNG SCIENTISTS IN CERAMICS

**BOOK OF ABSTRACTS**

October 11-14, 2023  
Faculty of Technology Novi Sad  
Novi Sad, Serbia



**15<sup>th</sup> ECerS CONFERENCE for  
YOUNG SCIENTISTS in CERAMICS**

**PROGRAMME  
and  
BOOK OF ABSTRACTS**

**October 11-14, 2023  
Novi Sad, Serbia**



**Programme and Book of Abstracts of The ECerS 15<sup>th</sup> Conference for Young Scientists in Ceramics (CYSC-2023)** publishes abstracts from the field of ceramics, which are presented at traditional international Conference for Young Scientists in Ceramics.

***Editors-in-Chief***

Prof. Dr. Vladimir V. Srdić  
Dr. Soňa Hříbalová

***Publisher***

Faculty of Technology, University of Novi Sad  
Bul. cara Lazara 1, 21000 Novi Sad, Serbia

***For Publisher***

Prof. Dr. Biljana Pajin

***Printing layout***

Vladimir V. Srdić, Marija Milanović, Ivan Stijepović

***Press***

TRI 0 Štamparija, Arandjelovac

CIP – Каталогизacija u publikaciji  
Biblioteka Maticе српске, Нови Сад

666.3/.7(048.3)

**CONFERENCE for Young Scientists in Ceramics (15 ; 2023 ; Novi Sad)**

Programme and book of abstracts / 15th ECerS Conference for Young Scientists in Ceramics, October 11-14, 2023, Novi Sad ; [editor-in-chief Vladimir V. Srdić, Soňa Hříbalová]. - Novi Sad : Faculty of Technology, 2023 (Arandjelovac : Tri 0). - XV, 137 str. : ilustr. ; 24 cm

Tiraž 130. - Str. III: Preface / editors. - Registar.

ISBN 978-86-6253-174-2

a) Керамика - Технологија - Апстракти  
COBISS.SR-ID 126081289



The Book of Abstracts of the 15<sup>th</sup> ECerS Conference for Young Scientists in Ceramics is licensed under a [Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License](https://creativecommons.org/licenses/by-nc-nd/4.0/)



OA-29

**PREPARATION, SYNTHESIS AND CHARACTERIZATION OF  
NANOMETRIC  $\text{Ca}_{0.9}\text{Er}_{0.1}\text{MnO}_3$**

Tijana B. Vlašković<sup>1</sup>, Bojana Laban<sup>1</sup>, Maja Milošević<sup>2</sup>, Maria Čebela<sup>3</sup>,  
Vladimir Dodevski<sup>3</sup>, Milena Rosić<sup>3</sup>

<sup>1</sup>*Faculty of Sciences and Mathematics, University of Priština in Kosovska Mitrovica,  
Lole Ribara 29, 38220 Kosovska Mitrovica, Serbia*

<sup>2</sup>*Department of Mineralogy, Crystallography, Petrology and Geochemistry, Faculty of  
Mining and Geology, Đušina 7, 11000 Belgrade, Serbia, University of Belgrade, Serbia*

<sup>3</sup>*Laboratory for Material Science, Institute of Nuclear Science „Vinča“, National  
Institute of the Republic of Serbia, University of Belgrade Belgrade, Serbia*

e-mail: [tijanaticapantovic@gmail.com](mailto:tijanaticapantovic@gmail.com)

The present research demonstrates the synthesis and characterization of  $\text{Ca}_{0.9}\text{Er}_{0.1}\text{MnO}_3$  perovskite powder using the sucrose nitrate procedure (SNP) technique. The following substances were used to obtain this complex perovskite: sucrose  $\text{C}_{12}\text{H}_{22}\text{O}_{11}$ , which has a dual role (complexant and fuel), and metal nitrates were used as oxidants - calcium nitrate tetrahydrate  $\text{Ca}(\text{NO}_3)_2 \times 4\text{H}_2\text{O}$ , manganese(II) nitrate hydrate  $\text{Mn}(\text{NO}_3)_2 \times \text{H}_2\text{O}$ , erbium(III) nitrate pentahydrate  $\text{Er}(\text{NO}_3)_3 \times 5\text{H}_2\text{O}$ . Nanopowder was prepared by combining metal nitrates in their respective stoichiometric ratios. The synthesized  $\text{Ca}_{0.9}\text{Er}_{0.1}\text{MnO}_3$  powder was calcined in a temperature range of 800–1000 °C for a period of 15 min. The effects of calcination were characterized through different experimental techniques (differential thermal analysis (DTA), X-ray diffraction (XRD), Fourier transform infrared spectroscopy (FTIR), Field emission scanning electron microscopy (FESEM), and inductively coupled plasma (ICP)).