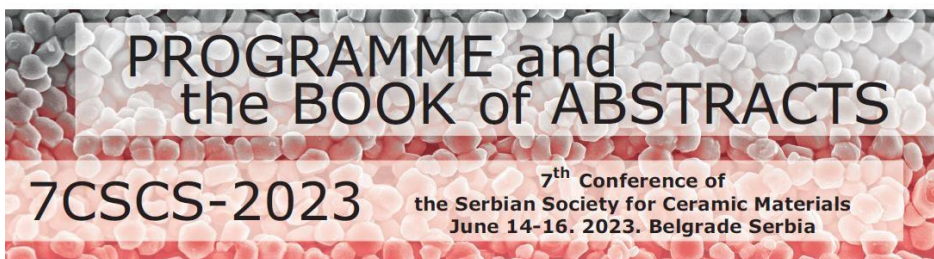


The Serbian Society for Ceramic Materials
Institute for Multidisciplinary Research (IMSI), University of Belgrade
Institute of Physics, University of Belgrade
Center of Excellence for the Synthesis, Processing and Characterization of
Materials for use in Extreme Conditions "CEXTREME LAB" - Institute 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:
Branko Matović
Jelena Maletaškić
Vladimir V. Srdić

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PROGRAMME AND THE BOOK OF ABSTRACTS

**7th Conference of The Serbian Society for
Ceramic Materials**

June 14-16, 2023
Belgrade, Serbia
7CSCS-2023

Edited by:
Branko Matović
Jelena Maletaškić
Vladimir V. Srdić

SPECIAL THANKS TO



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ТЕХНОЛОШКОГ РАЗВОЈА И ИНОВАЦИЈА



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WELCOME MESSAGE

On behalf of the organizers and organizing committee of the 7th Conference of the Serbian Society for Ceramic Materials (7CSCS-2023), I would like to extend my warmest welcome to all of you for attending the 7CSCS-2023. The conference is hosted and organized by the Serbian Society for Ceramic Materials, and co-organized by Institute for Multidisciplinary Research - 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, and Faculty of Technology and Metallurgy - University of Belgrade.

The goal of the Conference is to provide a platform for academic exchange among participants from universities, institutes, companies around the region in the field of ceramics research as well as to explore new direction for future development. 7CSCS-2023 aims to bring together leading academic scientists, researchers and research scholars to exchange and share their experiences and research results about all aspects of ceramic materials. It also provides the premier inter-multi-trans-disciplinary forum for researchers, practitioners and educators to present and discuss the most recent innovations, trends, and concerns, practical challenges encountered and the solutions adopted in the field of ceramic materials. We have received 102 abstracts with researchers from 15 countries.

The Conference will feature three plenary lectures, 30 invited talks and 64 oral and poster presentations as well as exhibitions of some new ceramic materials and devices. 7CSCS-2023 includes Ceramic Powders, Characterization and Processing, High Temperature Phenomena, Sintering, Microstructure Design and Mechanical Properties, Advanced Materials For Energy-Related Applications, Traditional Ceramics and Engineering Materials, Computing In Materials Science, Materials for Environmental Technology, Catalytic Materials, Materials for Sensing Devices, Ceramic Composites, Membranes And Multimaterials and Electro And Magnetic Ceramics. Exhibitions from company sponsors will be held at the Conference as well.

We are grateful for the support from the Ministry of Science, Technological Development and Inovation of the Republic of Serbia. We would also like to express our sincere thanks to the symposia organizers, session chairs, presenters, exhibitors and all the Conference attendees for their efforts and enthusiastic support in this exciting time in Belgrade. I look forward to meeting you and interacting with you at Conference.

7CSCS-2023 President

Branko Matović

O-1

SYNTHESIS AND CHARACTERIZATION OF PURE AND Sm-, Zr-DOPED TiO₂ NANOFIBERS AND ITS PHOTOCATALYTIC ACTIVITY

Sanita Ahmetović¹, Zorka Ž. Vasiljević¹, Vladimir Rajić²,
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Pure, samarium (Sm³⁺) and zirconium (Zr⁴⁺) doped titanium dioxide (TiO₂) nanofibers were synthesized using the electrospinning method followed by calcination at 500 °C for 1 h. The structure, morphology and optical properties of the obtained nanofibers were investigated as a function of different Sm³⁺ and Zr⁴⁺ contents (0.5–5 mol%). XRD and FTIR analysis showed that addition of Sm or Zr suppressed the transformation of anatase to rutile. After calcination all fibers were smooth, fragile and randomly oriented. HRTEM analysis revealed that doping with Sm didn't affect the TiO₂ crystal lattice whilst Zr⁴⁺ ions replaced the substitutional sites in the anatase crystalline lattice. The effects of Sm³⁺ and Zr⁴⁺-dopant content and different doses of photocatalyst on the photodegradation of methylene blue (MB) were monitored under UV-light illumination. TiO₂:0.5%Sm³⁺ and TiO₂:1.0%Zr⁴⁺ nanofibers have shown the highest photocatalytic activity of 97% and 98% due to red shifting of the band gap towards visible light in the case of Sm and suppressed electron-hole recombination shown in recorded PL spectra in the case of Zr.

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