

15TH ECerS CONFERENCE FOR YOUNG SCIENTISTS IN CERAMICS

CYSC
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FOR YOUNG SCIENTISTS IN CERAMICS

BOOK OF ABSTRACTS

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

**15th ECerS CONFERENCE for
YOUNG SCIENTISTS in CERAMICS**

**PROGRAMME
and
BOOK OF ABSTRACTS**

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

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Preface

Dear colleagues and guests we are delighted to welcome you all to Novi Sad, Serbia and the 15th ECerS Conference for Young Scientists in Ceramics. This biannual event is once again jointly organized by the Faculty of Technology Novi Sad, University of Novi Sad and the Young Ceramists Network (YCN) of the European Ceramic Society (ECerS).

The ECerS Conference for Young Scientists in Ceramics is celebrating its 25th anniversary since it started back in 1998 as a national event and now it gathers scientists from all over the world. During all these 25 years the conference has been growing constantly and we are proud to say that it became one of the trademark events in the field of ceramics in Europe.

During the four days of the Conference we will have an opportunity to hear 104 oral presentations given by young scientists together with 12 invited talks and 5 plenary lectures of the more experienced scientists and experts from 29 countries. In addition, we will host a satellite event “Workshop on atomistic calculations in materials science”, thoughtfully designed to introduce fundamental computational methods that are accessible to beginners in this field. Thus, we continue to be the venue for the vivid exchange of ideas and knowledge intertwined with fruitful discussions about the one topic that gathers us all - ceramic materials and all its subfields. Young scientists especially have the opportunity to meet with their peers and senior colleagues to promote their work and make new connections that can benefit them throughout their carrier. We have to emphasize that the feedback from our past conferences, which we get from former participants and guests, is more than positive and gives us ever new energy to endure in our mission of bringing young people involved in ceramics closer together. This is why we are confident that you will enjoy your stay in Novi Sad and be able to broaden your knowledge since topics covered by the conference include various aspects of the ceramics including processing, characterisation and application of advanced and traditional ceramics but also cutting edge results in advance manufacturing, high entropy oxides, computer modelling and physics of the ceramic materials and structures.

Our deepest gratitude goes to our sponsors and co-organizers since we would not be able to organize this conference without them. Once again, the JECS Trust Fund of the European Ceramic Society has recognized the significance of the CYSC and became our greatest financial benefactor. Also, we are thankful to the Serbian Ministry of science and technological development which once again endorsed the conference financially. At the end, we would like to thank to all the people in the local organizing committee and colleagues from YCN who participated in the preparations of the Conference.

Editors

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**PROCESSING AND CHARACTERIZATION OF ULTRATHIN
EPITAXIAL LaMnO₃ BASED FILMS BY CHEMICAL
SOLUTION DEPOSITION**

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Development of faster, smaller and less energy consuming devices led to new concept of electronics called spintronics. Spintronics are based on properties of electrons and associated magnetic moments. Promising materials which can follow this concept are materials based on lanthanum manganite (LaMnO₃). LaMnO₃ is specific due its magnetoelectric properties such as giant magnetoresistance (GMR) and multiferroic behaviour. Also, perovskite structure of LaMnO₃ is very sensitive to external stimuli and ions substitution which gives possibility of phase control and fast manipulation of electric and magnetic properties. Ultrathin epitaxial films are conventionally obtained from gas phase, utilizing sophisticated equipment and a lot of energy. Following the trend of devices miniaturization, this form of material is very desirable. The aim of this work was obtaining epitaxial thin film based on LaMnO₃ / La_{1-x}Sr_xMnO₃ from liquid phase. Polymer assisted deposition (PAD) technique was used as synthesis method. LaMnO₃ / La_{1-x}Sr_xMnO₃ solutions were prepared by dissolving of La(NO₃)₃·6H₂O and Mn(NO₃)₂·4H₂O in the distilled water, while strontium nitrate was used as a source of Sr²⁺ ions. Polyethyleneimine and EDTA were added to stabilize aqueous solution of precursors. Prepared solutions of polymer and precursors were deposited on single crystal SrTiO₃ (001) substrate in order to achieve highly oriented growth. Deposited films were thermally treated up to 900 °C. After the annealing process, structural characterization was performed by XRD and HR-TEM, while functional properties were investigated by magnetic measurements.

Keywords: lanthanum-manganite, epitaxial film, chemical solution deposition

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