

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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HIGH-ENTROPY SPINEL OXIDES: FUNDAMENTALS, SYNTHESIS AND CHARACTERIZATION

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High-entropy spinel oxides (HESOs) are oxides with 5 or more cations with the general formula AB_2O_4 and the spinel ($Fd\bar{3}m$) structure. Due to their unique structure and properties, HESOs have shown great potential in various technological applications, i.e. they can be used as catalysts, adsorbents and photocatalysts. Since the first successful synthesis in 2018, researchers have been experimenting with different precursors and synthesis methods. However, further research is still needed in order to fully understand their capabilities and exploit their properties. The aim of this research is to synthesize novel HESOs using the self-propagating room temperature (SPRT) method, which is time and cost-effective and has not been utilized so far. Our results indicate that chlorides are not good precursors, since the formation of spinel structure has not been achieved. On the other hand, the use of nitrates has successfully led to a primary spinel ($Fd\bar{3}m$) phase. Still, certain issues persist, as secondary phases are commonly formed, especially in the presence of Mg or Cu. A potential solution that could ensure the formation of a single phase is the use of quenching from high temperatures (1000 °C), instead of gradual cooling.