

# CYSC

2021

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

## BOOK OF ABSTRACTS

October 20-23, 2021  
Faculty of Technology Novi Sad  
Novi Sad, Serbia



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

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

**PROGRAMME  
and  
BOOK OF ABSTRACTS**

**October 20-23, 2021  
Novi Sad, Serbia**

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## **Preface**

*Dear colleagues and guests we have the pleasure to once again welcome you all to Novi Sad, Serbia as the venue for the 14<sup>th</sup> ECerS Conference for Young Scientists in Ceramics. The event is jointly organized by the Faculty of Technology Novi Sad, University of Novi Sad and the European Ceramic Society (ECerS) and its Young Ceramists Network (YCN).*

*The ECerS Conference for Young Scientists in Ceramics is the conference with more than twenty years of tradition. In the beginning in 1998 it was only national conference and it grew constantly to become the international event with participants coming from all over the world. This year we have the honour to co-host biannual ECerS 2021 Student Speech Contest where young ceramist research students, representing each of the ECerS member countries, will give an oral presentation of their research achievements that is evaluated by a jury.*

*In this year of pandemics and crisis we are happy to able to bring scientists from 28 different countries to Novi Sad, Serbia. In this way we will have an opportunity to hear 114 oral presentations given by young scientists and 19 presentations within ECerS 2021 Student Speech Contest together with 9 invited talks of the more experienced scientists and experts. We are sure that these numbers could have been much higher if there wasn't for pandemics. Nevertheless, we are proud to again bring together young scientists and promote their research and their achievements. This conference continues to serve as the meeting point for young people working in the vast field of ceramics, the place where they could broaden their knowledge but also their network of contacts. Within four days of the event young researchers will have a chance to exchange ideas and learn a lot from their peers and senior colleagues. This was and it will always be a basic idea behind the conference which is well recognised within ceramic scientists community. The 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 the modelling and physics of the ceramic materials and structures. Thus, we are confident that the participants will have the opportunity to hear a lot of new results, to learn new concepts and ideas and to expand their knowledge.*

*All of this could not be possible without the help of our sponsors and co-organizers and we want to express our deepest gratitude to all of them. First of all, we want to acknowledge the JECS Trust Fund of the European Ceramic Society for being our greatest financial benefactor. Also, we are thankful to the Serbian Ministry of education, 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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OA-94

**INFLUENCE OF CALCINATION TEMPERATURE ON THE  
STRUCTURE, MORPHOLOGY AND OPTICAL PROPERTIES OF  
ELECTROSPUN PSEUDOBROOKITE NANOFIBERS**

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Novel crystalline iron-titanate fibers were synthesized for the first time to the best of our knowledge, through a simple, low cost electrospinning method followed by calcination treatment at different temperatures (500–750 °C for 3 h and at 500 °C for 6 h and at 550 °C for 4 h). The fibers were prepared from a precursor solution containing polyvinylpyrrolidone (PVP), iron(III) nonahydrate, titanium isopropoxide, N,N-Dimethylformamide and ethanol. As spun fibers were smooth, straight, beadless and uniform forming a nonwoven fibrous mat, with an average diameter of *ca.* 205 nm. Upon calcination in air the PVP matrix was removed and XRD and FTIR analysis showed that the duration of the calcination process, besides the temperature, had a direct influence on phase formation. Pure phase of pseudobrookite was obtained at 600 °C, 500 °C for 6 h and at 550 °C for 4 h. In addition, the morphology of obtained nanofibers was directly affected by the calcination temperature. The surface of fibers obtained after calcination was no longer smooth and the fiber diameter decreased due to complete degradation of PVP. At 700 °C and 750 °C, fibers were thicker which can be attributed to growth of Fe<sub>2</sub>TiO<sub>5</sub> nanoparticles and simultaneous coalescence of small particles. All samples exhibited a type IV nitrogen adsorption isotherm with a type- H3 indicating slit-shaped mesoporous structure. The BET surface areas of 500 °C for 6 h, 550 °C for 4 h and 600 °C for 3 h were estimated to be 62, 38.7 and 33.2 m<sup>2</sup>/g, respectively.

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