

**13th CONFERENCE for
YOUNG SCIENTISTS in CERAMICS**

**PROGRAMME
and
BOOK OF ABSTRACTS**

**October 16-19, 2019
Novi Sad, Serbia**

Programme and Book of Abstracts of The 13th Conference for Young Scientists in Ceramics (CYSC-2019) publishes abstracts from the field of ceramics, which are presented at traditional international Conference for Young Scientists in Ceramics.

Editors-in-Chief

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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

SLUŽBENI GLASNIK, Beograd

CIP – Каталогизација у публикацији
Библиотека Матице српске, Нови Сад

666.3/.7(048.3)

CONFERENCE for Young Scientists in Ceramics (13 ; 2019 ; Novi Sad)

Programme and book of abstracts / 13th Conference for Young Scientists in Ceramics (CYSC-2017), October 16-19, 2019, Novi Sad ; [editor-in-chief Vladimir V. Srdić]. - Novi Sad : Faculty of Technology, 2019 (Beograd : Službeni glasnik). - XX, 152 str. : ilustr. ; 24 cm

Tiraž 180. - Registar.

ISBN 978-86-6253-104-9

a) Керамика - Технологија - Апстракти
COBISS.SR-ID 331006727



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OC-6

COATING OF CERIUM OXIDE NANOPARTICLES WITH DIFFERENT CARBOHYDRATES AND THEIR APPLICATION ON PLANTS

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Cerium oxide nanoparticles ($n\text{CeO}_2$) are nanomaterial with various applications in biomedicine, electronics and cosmetics. The aim of this research was to improve their low suspension stability by coating with carbohydrates - glucose, levan, and pullulan. The coating was performed at different temperatures and coating times, by adding the carbohydrates during or after the synthesis of $n\text{CeO}_2$. Characterization of nanoparticles' powders was performed by X-ray diffraction analysis, Fourier transform infrared spectroscopy (FT-IR), scanning electron microscopy (SEM) and transmission electron microscopy (TEM). Nanoparticles' suspension stability was estimated by measuring of zeta potential, hydrodynamic size and turbidity. The differences among coated $n\text{CeO}_2$ have been confirmed with FT-IR spectra. The results showed improved stability of the $n\text{CeO}_2$ suspension and decreased size of aggregates after carbohydrate coating. Levam- and glucose-coated $n\text{CeO}_2$ suspensions showed the best stability. The obtained $n\text{CeO}_2$ were used for the investigation of their ecotoxicity on different plant species.

OC-7

PROCESSING AND CHARACTERIZATION OF Al_2O_3 -Cu-Ni COMPOSITES

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In the study the results of investigation considering the use of centrifugal slip casting method in fabrication Al_2O_3 -Cu-Ni composites are presented. Suspension consisted of alumina, copper and nickel powders suspended in water with addition of a liquidiser composition. The microstructure and chemical composition of the fabricated specimens were analysed using a scanning electron microscope equipped with an EDX detector. Interface between ceramic and metal phases was characterized. The distribution