
**Serbian Ceramic Society Conference**
**ADVANCED CERAMICS AND APPLICATION VI**
**New Frontiers in Multifunctional Material Science and Processing**

**Serbian Ceramic Society**
**Institute of Technical Sciences of SASA**
**Institute for Testing of Materials**
**Institute of Chemistry Technology and Metallurgy**
**Institute for Technology of Nuclear and Other Raw Mineral Materials**

# PROGRAM AND THE BOOK OF ABSTRACTS

**Serbian Academy of Sciences and Arts, Knez Mihailova 35**
**Serbia, Belgrade, 18-20. September 2017.**

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**Book title:** Serbian Ceramic Society Conference - ADVANCED CERAMICS AND APPLICATION VI Program and the Book of Abstracts

**Publisher:**
Serbian Ceramic Society

**Editors**:
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Dr Lidija Mančić
Dr Nina Obradović

**Technical Editors:**
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**Printing:**
Serbian Ceramic Society

**Edition:**
200 copies

CIP - Каталогизација у публикацији
Народна библиотека Србије, Београд

666.3/.7(048)
66.017/.018(048)

SRPSKO keramičko društvo. Conference Advanced Ceramics and Application : New Frontiers in Multifunctional Material Science and Processing (6 ; 2017 ; Beograd)
Program ; and the Book of Abstracts / Serbian Ceramic Society Conference Advanced Ceramics and Application VI : New Frontiers in Multifunctional Material Science and Processing, Serbia, Belgrade, 18-20. September 2017. ; [organized by] Serbian Ceramic Society ... [et al.] ; [editors Vojislav Mitić, Lidija Mančić, Nina Obradović]. - Belgrade : Serbian Ceramic Society, 2017 (Belgrade : Serbian Ceramic Society). - 86 str. : ilustr. ; 30 cm

Tiraž 200.

ISBN 978-86-915627-5-5

a) Керамика - Апстракти b) Наука о материјалима - Апстракти c) Наноматеријали - Апстракти
COBISS.SR-ID 244577036

Dear Colleagues,

We have great pleasure to welcome you to the Advanced Ceramic and Application Conference VI organized by the Serbian Ceramic Society in cooperation with the Institute for Testing of Materials, Institute of Technical Sciences of SASA, Institute of Chemistry Technology and Metallurgy and Institute for Technology of Nuclear and Other Raw Mineral Materials.

Advanced Ceramics today include many old-known ceramic materials produced through newly available processing techniques as well as broad range of the innovative compounds and composites, particularly with plastics and metals. Such developed new materials with improved performances already bring a new quality in the everyday life. The chosen Conference topics cover contributions from a fundamental theoretical research in advanced ceramics, computer-aided design and modeling of a new ceramics products, manufacturing of nanoceramic devices, developing of multifunctional ceramic processing routes, etc. Traditionally, ACA Conferences gather leading researchers, engineers, specialist, professors and PhD students trying to emphasizes the key achievements which will enable the wide speared use of the advanced ceramics products in High-Tech industry, renewable energy utilization, environmental efficiency, security, space technology, cultural heritage, prosthesis, etc.

Serbian Ceramic Society has been initiated in 1995/1996 and fully registered in 1997 as Yugoslav Ceramic Society, being strongly supported by American Ceramic Society. Since 2009, it has continued as Serbian Ceramic Society in accordance to the Serbian law procedure. Serbian Ceramic Society is almost the only one Ceramic Society in the South-East Europe, with members from more than 20 Institutes and Universities, active in 16 sessions, by program and the frames which are defined by the American Ceramic Society activities.

For the first time Advanced Ceramic and Application Conference hosting delegations from Republics of Ghana, Nigeria, Niger and Cameroon with the idea to connect, share and provide positive influence to the scientific and industrial communities all around world.

Prof. Dr Vojislav Mitić
*President of the Serbian Ceramic Society*
*World Academy Ceramics Member*
*European Academy of Sciences&Arts Member*

Prof. Dr Olivera Milošević,
*President of the General Assembly of the Serbian Ceramic Society*
*Academy of Engineering Sciences of Serbia Member*

**Conference Topics**

- Basic Science & Sintering of Ceramics
- Nano, Bio- & Opto Ceramic
- Electro & Multifunctional Ceramics
- Magnetic, Catalytic & Composite Materials
- Renewable Energy, Heritage & Archeology
- Industrial Talks

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**Sponsors & Endorsements:**

Analysis - Lab equipment, Belgrade (Serbia), Direktna Banka a.d. Kragujevac, Exchange office „Hulk“, LMB Soft, Niš (Serbia), SCAN doo. Preddvor (Slovenia), Voda Vrnjci (Serbia), Regular Authority of Electronic Media (Serbia), Turisticka organizacija Beograd, Štamparija "Format" and GRAND doo (Serbia).

**Acknowledgements:**

The Conference Organizers are grateful to the Ministry of Education and Science of the Republic of Serbia for financial support, as well as to the Serbian Academy of Sciences and Arts, European Academy of Sciences and Arts, American Ceramics Society, Institute of Technical Sciences of SASA, Archeological Institute of SASA, Institute of Physics UB, Vinča Institute of Nuclear Sciences - Laboratory of Physics (010), Electrical Engineering Institute Nikola Tesla and High School-Academy for Arts and Conservation, Serbian Orthodox Church.

FTIR and Raman spectroscopy, thermogravimetry, scanning electron microscopy. Based on the obtained results it was concluded that: i) Microwave assisted synthesis is effective and fast method for OLC production and ii) the optimal syntheses conditions are found to be: carbohydrate precursor is naphthalene, susceptor of microwave energy is carbon molecular sieve, weight ratio precursor to susceptor is 1 to 2, microwave power 300 W, reaction time 3 minutes.

## P14
## Preparation of cordierite-based adsorbents for water purification

Nina Obradović[1], Darko Kosanović[1], Suzana Filipović[1], Jelena Rusmirović[2], Aleksandar Marinković[3], Danka Radić[4], Vladimir Pavlović[1,4]

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In this study, porous cordierite-based ceramics was synthesized. In the first step, MgO, $Al_2O_3$, and $SiO_2$ (all Aldrich, p.a.) were used. MgO and $Al_2O_3$ powders were calcined at 1000 $^oC$ for 2 h, in order to avoid hydroxides. They were mixed in 2:2:5 molar ratio, in order to form cordierite, $Mg_2Al_4Si_5O_{18}$. Ethanol was added to the mixture, and then milled in a Fritsch Pulverisette planetary mill, with 300 rpm, in air atmosfere. Times of activation were 0, 10, 40, and 80 min, while balls and vessels were made from $ZrO_2$, and powder to balls mass ratio was 40:1. After milling, powders were dried, and then pressed under 3 $t/cm^2$. Pallets with 8 mm radius were sintered in air at 1350 $^oC$, for 2 h, heating rate was 20 $^oC$/min. Sintered samples were crashed and sieved.

In the secons step, the as-prepared cordierite was mixed with 20 wt.% yeast (0.1 g yeast + 0.4 g cordierite per sample). The other mixture was with 20 wt.% nanocellulose (0.1 g NC + 0.4 g cordierite per sample). Both mixtures were pressed into pallets under 5 $t/cm^2$ and sintered at 700 $^oC$, with 5 $^oC$/min heating rate, in air atmosfere.

During the second sintering regime, porous cordierite-based ceramics was obtained. The phase composition of the sintered samples as well as microstructures was analyzed by the means of X-ray diffraction method and SEM. Cordierite was the most abundant phase in all sintered samples. It was observed that addition of different pore-forming agent resulted in significantly different microstructures.