

SERBIAN CERAMIC SOCIETY CONFERENCE  
ADVANCED CERAMICS AND APPLICATION V  
New Frontiers in Multifunctional Material Science and Processing

Serbian Ceramic Society  
Institute of Technical Science of SASA  
Institute for Testing of Materials  
Institute of Chemistry Technology and Metallurgy  
Institute for Technology of Nuclear and Other Raw Mineral Materials  
School of Electrical Engineering and Computer Science of Applied Studies

## **PROGRAM AND THE BOOK OF ABSTRACTS**

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Dear Colleagues,

We have great pleasure to welcome you to the Advanced Ceramic and Application Conference V 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, Institute for Technology of Nuclear and Other Raw Mineral Materials and School of Electrical Engineering and Computer Science of Applied Studies.


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 spread 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.

**Advanced Ceramic & Application Conference V is dedicated to Academician Momčilo Ristić.**



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*  
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**General Conference Topics**

- Basic Ceramics Science
- Nanostructural, Bio- and Opto-Ceramic Materials and Technologies
- Multifunctional Materials
- Magnetic and Amorphous Materials
- Construction Materials and Eco-ceramics
- Composite Materials, Catalysis and Electrocatalysis
- Artistic Ceramics and Design, Archaeology and Heritage
- Young Researchers
- Sintering processes
  - kinetics
  - microstructure
  - thermodynamics
  - modeling

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bands in  $\text{Sm}^{3+}$  emission spectrum were observed, located at 563 nm ( ${}^4\text{G}_{5/2} - {}^6\text{H}_{5/2}$ ), 600 nm ( ${}^4\text{G}_{5/2} - {}^6\text{H}_{7/2}$ ), and 644 (653) nm ( ${}^4\text{G}_{5/2} - {}^6\text{H}_{9/2}$ ), respectively. The weak emission at 700-710 nm ( ${}^4\text{G}_{5/2} - {}^6\text{H}_{11/2}$ ) was also observed by detection system.

## P28

### **Chitosan-montmorillonite bionanocomposite as textile dyes adsorbent**

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The removal of color dyes from wastewater before they are released in natural waters is important since some dyes are highly toxic for environment. Although several traditional chemical and biological processes exist for dye removal, application of these techniques has been restricted due to the essentially non-biodegradable nature of dyes. Some modified clays, may play a role of low cost adsorbents suitable for dye removal. Since natural clays are ineffective as adsorbents for organic compounds it is necessary to modify their surface. Chitosan-clay nanocomposites are promising materials with organic-inorganic hybrid interfaces. These materials contain a biopolymer chitosan and they represent a green alternative to conventional organoclays in their applications, i.e. as adsorbents. The intercalation of chitosan into smectite clay can result in monolayer and/or bilayer arrangements. When bilayer structures are formed some free  $-\text{NH}_3^+$  groups present in the interlamellar region are making these materials suitable for adsorption of anionic species, i.e. anionic textile dyes. In this work chitosan-clay nanocomposite was synthesized using  $\text{Na}^+$ -enriched smectite clay and characterized using physical-chemical methods. In this manner the bionanocomposite with bilayered intercalation of chitosan chain was obtained and tested as adsorbent. The adsorption of anionic dyes Acid Orange 10 (AO10), Acid Yellow 99 (AY99) and Reactive Black 5 (RB5) has been studied by varying the different adsorbate concentrations, temperature and shaking time. The concentration of commercial textile dyes was analyzed before and after adsorption test using Thermo Electron Nicolet Evolution 500 UV-VIS spectrophotometer in wavelength range from 250 – 800 nm.

## P29

### **MAGNETOIMPEDANCE EFFECT IN FINEMET MICROWIRES FOR SENSOR APPLICATION**

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In this study magnetoimpedance (MI) effect of FINEMET alloy microwires for magnetic sensor application is presented. Amorphous magnetic wires were produced from arc-melted ingots of master prealloys of nominal composition  $\text{Fe}_{73}\text{Cu}_1\text{Nb}_3\text{Si}_{13.5}\text{B}_{9.5}$  by in-rotating water spinning