



**Serbian Ceramic Society Conference
ADVANCED CERAMICS AND APPLICATION V
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
School of Electrical Engineering and Computer Science of Applied Studies**

PROGRAM AND THE BOOK OF ABSTRACTS

**Serbian Academy of Sciences and Arts, Knez Mihailova 35
Serbia, Belgrade, 21st-23rd September 2016.**

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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
Academy of Engineering Sciences of Serbia Member

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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Micro-rods of oxidized pentacene obtained by thermal annealing in air of pentacene thin films

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The influence of thermal annealing (in air and nitrogen at ambient pressure) on optical properties of pentacene films, well-known material widely used in organic electronic devices, was studied. Pentacene films, whose thickness varies an order of magnitude (30 – 300 nm) depending on the position on the substrate, were polycrystalline at all thicknesses. Raman and UV-vis absorption spectra depend on the position on film implies changes of the film structure with the thickness. These spectra are not largely affected by annealing if it is not performed in air at temperatures higher than 100°C. Prolonged annealing in air, at temperatures higher than 100°C, leads to formation of nano- and micro-scale rod-shaped structures on film surface. Based on scanning electron microscopy measurements, it is supposed that these structures are crystalline. Their UV-vis absorbance indicates that they are composed of more than one species of oxidized pentacene molecules, including 6,13-pentacenequinone. Further study is necessary to precisely determine composition and structure of micro-rods, as well as the mechanism of their formation.

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Chemical Analysis of Mortars of Archeological Samples form Mediana

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The aim of this study was mineralogical and chemical analysis of mortar from the floor, ceiling and wall of Stibadium B, from the archaeological site of Mediana. ICP-OES and FTIR-spectroscopy were used to determine chemical composition and some major mineralogical species. The obtained results show that lime mortar is probably used. Large contribution of silicon- and aluminum-oxides, indicate the presence of quartz and clay minerals derived from the aggregate, river sand and crushed bricks. The obtained results also show large amount of iron, manganese and copper. The determined metals in samples from floor and wall of Stibadium B, are mostly present in oxide fraction, while in sample from ceiling, they are mostly found in silicate fraction