



**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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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