

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
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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The cooperation of the Faculty of Technology, University of Novi Sad, with the institutions of protection of cultural heritage and other relevant stakeholders in the field of characterization of historic materials, development of new advanced materials, their in-situ application and monitoring, represents a good example of multidisciplinary approach to implementation of national and international initiatives. As spin off outcomes of this cooperation the new teaching course *Materials in Cultural Heritage* was introduced on the master level of studies and a new *Laboratory for Materials in Cultural Heritage* established. This way it is given the multidisciplinary and intersectoral contribution to the protection of objects from degradation, while preserving the authenticity, functionality and aesthetic values, taking into account social and economic aspects. This approach serves as a good example of linking experts involved in cultural heritage that comes from variety of fields including education, research, culture, tourism and economy. It enables them to better understand each other, the needs of different disciplines and approaches, and brings shared responsibility in preservation of the cultural heritage in our country.

INV13

Characteristics of Mortar from the Archeological Site Romuliana – Gamzigrad

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Felix Romuliana is a palace erected during the reign and after the design of the Emperor Gaius Valerius Galerius Maximianus. It belongs to the category of monuments of Roman court architecture which is associated with the time of Tetrarchy. During the archeological excavations, two fortification systems were discovered, the younger outer system with twenty polygonal massive towers, and an older inner system with sixteen towers of quadrangular and octagonal towers flanking the gates. The younger outer fortification is polygonal. The communication east-west connecting two gates divides interior space into two entities. Systemic archeological research last since 1953 by probing the northwest part of the inner space. Conservation works run simultaneously with the excavations. Mortar samples were taken from the towers XI and XII of the old fortification, as well as from the tower 15 and the part of the rampart between towers 1 and 3 of the younger fortification. Mortars were analyzed with the goal of obtaining information about morphological, mineralogical, chemical and basic physical properties of mortar. For analysis of these properties, optical microscopy and scanning electronic microscope were used. Depending on the location sampled mortars, there are differences of individual properties of mortar. The optical examination of macroscopic appearance of mortar samples indicated that those are limestone binder mortars. Aggregate grains are both river and stone aggregate. Mortar porosity differs depending on the location where samples were taken.