Serbian Ceramic Society Conference
ADVANCED CERAMICS AND APPLICATION VII
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, 17-19. September 2018.

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Dear Colleagues,

We have great pleasure to welcome you to the Advanced Ceramic and Application Conference VII 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, 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.

This year, the conference is dedicated to the memory of Academician Momčilo M. Ristić (1929-2018), Honorary President of the Serbian Ceramic Society and founder of Material Science in our country.

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 Ceramic Science & Sintering – *in memoriam Momčilo M.Ristić, academician*
Optical, Glass & Electro Ceramics
Nano & Bio Ceramics
Modeling & Simulation
Advanced Ceramics
Heritage, Arts & Design
Guide on Science Writing

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The properties of materials at the nano scale differ from the ones at corresponding bulk materials. These differences depend on particle sizes, shape and surface characteristics. Nanomaterials have a much greater surface area to volume ratio than their conventional forms, which can lead to greater chemical reactivity and affect their strength. The enhanced surface area increases surface states, which change the activity of electrons and holes, and affects the chemical reaction dynamics. Also at the nano scale, quantum effects can become much more important in determining the materials properties and characteristics, leading to novel optical, electrical and magnetic behaviours.

We discuss recent advances in understanding the nanostructure and optical properties of semiconductor nanocrystals. Spectroscopic methods can provide a great deal of information about the electronic and spatial structure of the nanocrystals. As consequence of miniaturization, we expect bulk modes to be shifted and broadening. Linking these characteristics with the synthesis methods will play key roles in the further development of these particles for optoelectronic and biomedical applications.

INV-OGE 5

Forensic Science and Fractal Nature Analysis

Goran Lazović[1], Vojislav V. Mitić [2,3], Ana S. Radosavljević-Mihajlović[4], Dragan Simeunović[5]

[1] *University of Belgrade, Faculty of Mechanical Engineering, Belgrade, Serbia*
[2] *University of Nis, Faculty of Electronic Engineering, Nis, Serbia;*
[3] *Institute of Technical Sciences of SASA, Belgrade, Serbia;*
[4] *Institute for technology nuclear and other raw materials. Franshe D EPERE 86, 1100 Belgrade, Serbia*
[5] *Academy of Nacional Security Republic of Serbia*

The forensic photography**,** also referred to as crime scene photography, is an activity that records the initial appearance of the crime scene and physical evidence, in order to provide a permanent record for the court. Now a day, we can imagine the crime scene investigation without photography evidence. Crime or accident scene photographs can often be re-analysed in cold cases or when the images need to be enlarged to show critical details. Fractals are rough or fragmented geometric shape that can be subdivided in parts, each of which is a reduced copy of the whole Fractal dimension (FD) is an important fractal geometry feature. There are many applications in various fields including image processing, image analysis, texture segmentation, shape classification and identifying the image features such as roughness and smoothness of an image. The damage image can be reviewed, analyzed and reconstructed by fractals.