Serbian Ceramic Society Conference

ADVANCED CERAMICS AND APPLICATION VII

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 /

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 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

through the electrolyte, thereby releasing the electrons into external circuit to generate electricity without pollution. There is no need to store energy as it is a continuous reforming process as long as both fuel and oxidant are provided in the fuel cell continuously. Thus, the main characteristic of a fuel cell is the production of highly efficient energy with negligible pollution. Thus, in the 21st century, energy technology such as fuel cell becomes a key determinant factor of economic development and is essential to raising the living standards in the form of the most influencing and challenging alternating source of generation of electricity.

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Fractals applications on fractured archeological samples reconstruction

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The civil engineering materials in the whole existing civilization have many characteristics which do not depend of past historical period, but, there is forever and everywhere fractal characteristic of structures morphology. Many archeological sources which are very reach with samples from prehistorical periods, ancient Greece, Roman and Vestian period, Slovenes and later, are existing in Balkan and South-East Europe. These sources and samples are very important for our civilization evaluation. Sometimes or even often, we fined archeological samples which are fractured and damaged. In such situation, it is very important to reconstruct some of these parts. We developed quite new method based on fractals analysis and characterization which is an excellent tool for reconstruction the archeological and heritage samples. In these paper, we successfully presented this application and opened new perspectives for research in this area.

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Fractal analysis in modern national security analysis

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This study observes the implementation of fractal tools on complex infrastructures critical for national security. We focus on the actual effectiveness of digital decentralisation and complex system operations, in providing reliability of critical resources related with socio-political stability of the state. We find that the process relies on devised value which functions as a mean to characterise the intolerable level of disturbance. This makes fractal analysis useful for operational contemplation of functional and structural components of critical systems. Since the index is computed and the measurements expressed, these tools also provide an estimate of the flows. The findings provide for two principle conclusions. Firstly, the value of fractal tools in national secu-