Serbian Ceramic Society Conference

ADVANCED CERAMICS AND APPLICATION IX

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, 20-21. September 2021.

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Dear colleagues and friends,

We have great pleasure to welcome you to the Advanced Ceramic and Application IX Conference organized by the Serbian Ceramic Society in cooperation with the Institute of Technical Sciences of SASA, Institute of Chemistry Technology and Metallurgy, Institute for Technology of Nuclear and Other Raw Mineral Materials and Institute for Testing of Materials.

It is nice to host you here in Belgrade in person. As you probably know, Serbia launched a vaccination campaign at the beginning of this year, so up to date more than 50 percent of the adult population has been vaccinated. Since there is no one statistic to compare the COVID19 outbreaks and fears for loved ones in different countries, we believe that we all suffer similarly during this pandemic. That is why we appreciate even more your positive attitude and readiness to travel in this uncertain time. We understand that some of you had to cancel your lectures in the last minute due to the travel limitation in your countries, but we hope that you will come next year. We deeply hope that the ACA IX Conference will be worth remembering, that you will respect all COVID-19 safety measures at SASA building, that you will have a nice time here and that ultimately you will return to your home safely. We are very proud that we succeeded in bringing the scientific community together again and fostering the networking and social interactions around an interesting program on emerging advanced ceramic topics. The chosen topics cover contributions from fundamental theoretical research in advanced ceramics, computer-aided design and modeling of new ceramics products, manufacturing of nanoceramic devices, developing of multifunctional ceramic processing routes, etc.

Traditionally, ACA Conferences gather leading researchers, engineers, specialists, professors and PhD students trying to emphasize the key achievements which will enable the widespread use of the advanced ceramics products in the High-Tech industry, renewable energy utilization, environmental efficiency, security, space technology, cultural heritage, etc.

Serbian Ceramic Society was 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 the Serbian Ceramic Society in accordance with Serbian law procedure. Serbian Ceramic Society is almost the only one Ceramic Society in South-East Europe, with members from more than 20 Institutes and Universities, active in 16 sessions. Part of our members are also members of the Serbian Chapter of ACerS since 2019. Their activities in the organization of this conference is highly recognized. To them and all of you thanks for being with us here at ACA IX.

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
- Nano-, Opto- & Bio-ceramics
- Modeling & Simulation
- Glass and Electro Ceramics
- Electrochemistry & Catalysis
- Refractory, Cements & Clays
- Renewable Energy & Composites
- Amorphous & Magnetic Ceramics
- Heritage, Art & Design

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P

THE CLAY MINERALS FROM GREDA DEPOSIT

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The term "clay" refers to natural materials composed of fine minerals, which in their composition contain water molecules, which give it the property of plasticity, which is lost by drying processes.The basic physical and chemical characteristics of clay are low permeability, the possibility of cation exchange, thermal structural stability, swelling processes.These characteristic properties appear as a consequence of the crystal structure, in which the layers of SiO_4, tetrahedra, extend infinitely in two dimensions.In this paper are presented the basic structural and crystallochemical properties of clay from Greda deposit.

P

Preparation and Characterization Of Active Carbon Microspheres Obtained From Fructose And Adsorption Application

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A carbon-rich solid product has been synthesized by hydrothermal treatment from fructose with phosphoric acid (H_3PO_4) at temperature of 250°C and pH value of 0.65. The concentration of the precursor was constant, i.e. 2M of fructose in form of aqueous solution. The formation of the carbon-rich solid material through the hydrothermal carbonization of fructose is the consequence of dehydration reactions. Obtained carbon material is made of spherical micrometer-sized particles with the diameter in the 4-7 μm. The structure and surface chemical properties of obtained material were characterized by scanning electron microscopy (SEM), Fourier-transform infrared (FTIR) spectra. Investigation of surface area was determined by gravimetric McBain method where adsorption and desorption isotherms of N_2 were measured on carbon material at -196 °C. Adsorption of Methylene Blue (MB) onto prepared carbon material were conducted by changing concentration of MB from 200-500 mg/dm ^{3} from aqueous solutions of investigated dye. Kinetic results were determined by a pseudo second-order equation.