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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Prof.dr Vojislav Mitić
Dr Lidija Mančić
Dr Nina Obradović

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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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ORL
Synthesis and characterization of Ag-loaded hematite nanocomposites

Boško Vrbica,[1] Marija Šuljagić,[2] Dejan Jeremić,[3] Ljubica Andjelković,[2]Milica R. Milenković[1]

[1]University of Belgrade, Faculty of Chemistry, Studentski Trg 12-16, Belgrade, Republic of Serbia
[2]University of Belgrade-Institute of Chemistry, Technology and Metallurgy, Department of Chemistry, Njegoševa 12, Belgrade, Republic of Serbia
[3]Innovation Center of the Faculty of Chemistry, University of Belgrade, Studentski Trg 12-16, 11000 Belgrade, Serbia

Hematite (α-Fe_2O_3) nanoparticles have been synthesized by thermal decomposition of iron(III)acetylacetonate precursor. The structure and morphology of the resulting powder were investigated by X-ray powder diffraction (XRPD), Fourier transformation IR (FTIR), scanning electron microscopy (SEM), and energy-dispersive X-ray spectroscopy (EDS). Hematite-loading with silver was conducted using the reduction of silver nitrate by ascorbic acid realized by three different synthetic procedures – simple reduction process, ultrasonically supported reduction, and reduction after pre-treatment of hematite in Lugol's iodine. All synthesized hematite/silver samples were characterized withSEM, supported by EDS maps. Silver content was determined by Inductively Coupled Plasma Optical Emission spectroscopy (ICP-OES). The development of Ag-doped hematite nanocomposites, hetero-structures containing Ag and magnetic iron oxide,is indispensable in orderto take advantage of Ag containing nanocomposites in the field of biomedicine.

ORL
Methods for modeling of NBTS induced threshold voltage shift in p-channel power VDMOSFETs

Nikola Mitrović[1], Sandra Veljković[1], Snežana Đorić-Veljković[2],VojkanDavidović, SnežanaGolubović,Danijel Danković[1], Zoran Prijić[1]

[1]University of Niš, Faculty of Electronic Engineering, Aleksandra Medvedeva 14, Niš, Serbia
[2]University of Niš, Faculty of Civil Engineeringand Architecture, Aleksandra Medvedeva 14, Niš, Serbia.

This study investigates the threshold voltage shift (ΔV_T) of the commercial IRF9520 p-channel power vertical diffused metal-oxide semiconductor fieldeffect transistors (VDMOSFETs) induced by negative bias temperature stressing (NBTS).Lengthy experiments are conducted with the goal to examine instabilities caused by NBTS at different stressing voltages (V_G) and different temperatures (T). Paper discussesthe progression of ΔV_T caused by