Serbian Ceramic Society Conference
ADVANCED CERAMICS AND APPLICATION VIII
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, 23-25. September 2019.

Serbian Ceramic Society Conference
ADVANCED CERAMICS AND APPLICATION VIII
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

Serbian Academy of Sciences and Arts, Knez Mihailova 35
Serbia, Belgrade, 23-25. September 2019

Book title: Serbian Ceramic Society Conference - ADVANCED CERAMICS AND APPLICATION VIII Program and the Book of Abstracts

Publisher:
Serbian Ceramic Society

Editors:
Prof.dr Vojislav Mitić
Dr Lidija Mančić
Dr Nina Obradović

Technical Editors:
Dr Ivana Dinić
Dr Marina Vuković

Printing:
Serbian Ceramic Society, Belgrade, 2019

Edition:
100 copies

CIP - Каталогизација у публикацији
Народна библиотека Србије, Београд

666.3/.7(048)
66.017/.018(048)

SRPSKO keramičko društvo. Conference Advanced Ceramics and Application : New Frontiers in Multifunctional Material Science and Processing (8 ; 2019 ; Beograd)
Program ; and the Book of abstracts / Serbian Ceramic Society Conference Advanced Ceramics and Application VIII : New Frontiers in Multifunctional Material Science and Processing, Serbia, Belgrade, 23-25. September 2019. ; [organized by] Serbian Ceramic Society ... [etc.] ; [editors Vojislav Mitić, Lidija Mančić, Nina Obradović]. - Belgrade : Serbian Ceramic Society, 2019 (Belgrade : Serbian Ceramic Society). - 98 str. : ilustr. ; 30 cm

Tiraž 100.

ISBN 978-86-915627-7-9

а) Керамика -- Апстракти б) Наука о материјалима -- Апстракти в) Наноматеријали -- Апстракти

COBISS.SR-ID 279041804

Dear Colleagues,

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

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 supported by the Serbian Chapter of American Ceramic Society and European Academy of Sciences and Arts.

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 & Electro Ceramics
- Electrochemistry & Catalysis
- Magnetic & Refractory Ceramic
- Renewable Energy, Composites & Amorphous Ceramics
- Heritage, Art & Design

Conference Programme Chairs:

Dr. Lidija Mančić SRB
Dr. Nina Obradović SRB

Conference Co-chairs:

Prof. Dr. Vojislav Mitić SRB
Prof. Dr. Olivera Milošević SRB
Prof. Dr. Rainer Gadow GER
Prof. Dr. Marcel Van de Voorde EU

Scientific Committee

Academician Zoran Đurić SRB
Academician Ninoslav Stojadinović SRB
Academician Zoran Popović SRB
Prof. Dr. Vojislav Mitić SRB
Prof. Dr. Rainer Gadow DEU
Prof. Dr. Marcel Van de Voorde EEZ
Prof. Dr. David Johnson GBR
Prof. Dr. Masohiro Yoshimura JPN
Dr. Mrityunjay "Jay" Singh USA
Prof. Dr. Pavol Šajgalik SVN
Dr. Richard Todd GBR
Prof. Dr. Hans Fecht DEU
Dr. Dušan Jovanović SRB
Prof.Dr. Olivera Milošević SRB
Prof. Dr. Vladimir Pavlović SRB
Dr. Nina Obradović SRB
Dr. Lidija Mančić SRB
Dr. Takashi Goto, Japan
Dr. Snežana Pašalić SRB
Prof. Dr. Zoran Nikolić SRB
Dr. Zagorka Radojević SRB
Dr. Nebojša Romčević SRB
Dr. Zorica Lazarević SRB
Prof. Dr. Ljubica Pavlović SRB
Prof. Dr. Nebojša Mitrović SRB
Dr. Aleksandra Milutinović–Nikolić SRB
Dr. Predrag Banković SRB
Dr. Zorica Mojović SRB
Dr. Dušan Milivojević SRB
Dr. Miomir Korać SRB
Prof. Dr. Branislav Vlahović USA
Dr. Radomir Žikić SRB
Prof. Dr. Stevo Najman SRB
Dr. Biljana Djordjević SRB

Organizing Committee

Prof. Dr. Vojislav Mitić SRB
Dr. Lidija Mančić SRB
Dr. Nina Obradović SRB
Dr. Ivana Dinić SRB
Dr. Marina Vuković SRB
Prof. Dr. Vladimir Pavlović SRB
Dr. Dušan Jovanović SRB
Dr. Nataša Jović Jovičević SRB
Dr. Vesna Paunović SRB
Dr. Suzana Filipović SRB
Dr. Vladimir Blagojević SRB
Sandra Veljković, B.Sc.Eng

Sponsors & Endorsements:

Analysis - Lab equipment, Belgrade (Serbia), HARDER digital SOVA d.o.o. Niš
PTT Communication (Serbia), SCAN doo. Preddvor (Slovenia), Exchange office „Hulk“, LMB Soft, Niš (Serbia), Voda Vrnjci (Serbia) & Turistička organizacija Beograd

Acknowledgements:

Ministry of Education and Science of the Republic of Serbia
Serbian Academy of Sciences and Arts, European Academy of Sciences and Arts, American Ceramics Society – Serbian Chapter, Institute of Technical Sciences of SASA, Archeological Institute of SASA, Institute of Physics UB, Vinča Institute of Nuclear Sciences UB - Laboratory of Physics (010), Electrical Engineering Institute Nikola Tesla and High School-Academy for Arts and Conservation.

5 ml [$MnSO_4$]=0.04 M, 5 ml [$HClO_4$]=0.15 M, 5 ml [KIO_3] =0.38 M, 3 ml [H_2O_2]=9.80 M. The obtained results were compared with basic BR oscillogram, as well as with oscilogram obtained in the presence of undoped tungsten-phosphate bronze. According to the obtained results, the effects of doped bronzes on the BR oscillatory dynamics can be divided into two groups:

i) the reduction of oscillatory period duration and

ii) the drastically change of the form of BR oscillogram,

when doped tungsten-phosphate bronze presence compared to basic oscillogram, or oscillogram with undoped tungsten-phosphate bronze added. The results revealed that BR oscillatory reaction could be used as an innovative method for distinguishing of Li, Na and K doped bronzes.

Acknowledgment: This work was supported by the Ministry of Education, Science and Technological Development of the Republic of Serbia (Projects OI 172016 , III 45001 and OI 172015).

P27
Corrosion of coal fly ash glass

Veljko Savić[1], Vladimir Topalović[1], Srdjan Matijašević[1],
Jelena Nikolić[1], Snežana Zildžović[1], Sonja Smiljanić[2],
Snežana Grujić[2]
[1]Institute for Technology of Nuclear and Other Mineral Raw Materials,
Franchet d' Esperey 86,11000, Belgrade, Serbia,
[2]Faculty of Technology and Metallurgy, Karnegy 4, 11000, Belgrade, Serbia

The increasing production of coal fly ash waste from thermal power plants has compounded environmental and economical problems worldwide. Considerable research has been undertaken because of the environmental problems presented by the fly ash. The goal is to produce usable material from waste. The aim of this paper is to produce glass from fly ash and limestone that will have high resistance to dissolution and leaching. Obtained glass could have wide application in industry.

Coal fly ash was mixed with 37% limestone and melted in electric furnace at T=1500 °C during t=1 h. The obtained glass sample was black, without visible residual gas bubbles. X-ray powder diffraction (XRD) analysis confirmed the quenched melt to be amorphous.

To determine the chemical durability, glass sample was crushed and then sieved to grain size of 0.3-0.5 mm. The corrosion test was performed in a distilled water, HCl, and NaOH solutions (0.01 M) at T = 95 ^{0}C for t =2h using 2 g of samples and 70 ml of solution.

The results of corrosion test revealed a high durability of the glass sample. Potential application of this material would include use as: building blocks, anticorrosive container lining, matrix material in which radioactive wastes and heavy metals could be successfully solidified into the glass structure.