



Serbian Ceramic Society Conference
ADVANCED CERAMICS AND APPLICATION XI
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, 18-20. September 2023.

Serbian Ceramic Society Conference
ADVANCED CERAMICS AND APPLICATION XI
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, 18-20th September 2023.

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

Publisher:

Serbian Ceramic Society

Editors:

Dr. Nina Obradović

Dr. Lidija Mančić

Technical Editors:

Dr. Adriana Peleš Tadić

Dr. Jelena Živojinović

Printing:

Serbian Ceramic Society, Belgrade, 2023.

Edition:

120 copies

CIP - Каталогизacija 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 (11 ; 2023 ; Beograd)

Program ; and the Book of abstracts / Serbian Ceramic Society Conference Advanced Ceramics and Application XI New Frontiers in Multifunctional Material Science and Processing, Serbian Academy of Sciences and Art Serbia, Belgrade, 18-20. September 2023. ; [editors Nina Obradović, Lidija Mančić]. - Belgrade : Serbian Ceramic Society, 2023 (Belgrade : Serbian Ceramic Society). - 90 str. : ilustr. ; 30 cm

Tiraž 120.

ISBN 978-86-905714-0-6

a) Керамика -- Апстракти б) Наука о материјалима -- Апстракти

COBISS.SR-ID 122849545



Dear colleagues and friends,

We have great pleasure to welcome you to the Advanced Ceramic and Application XI 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. 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 nano-ceramic 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 9 sessions..

Dr. Nina Obradović
President of the Serbian Ceramic Society

Dr. Suzana Filipović
President of the General Assembly of the Serbian Ceramic Society

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

Conference Programme Chairs:

Dr. Nina Obradović SRB

Dr. Lidija Mančić SRB

Scientific Committee

Academician Antonije Đorđević

Academician Zoran Popović

Academician Velimir Radmilović

Dr. Nina Obradović

Dr. Lidija Mančić

Prof. Dr. Reuben Jin-Ru Hwu

Prof. Dr. Hans Fecht

Prof. Dr. Vladimir Pavlović

Prof. Dr. Bojan Marinković

Dr. Takashi Goto

Dr. Steven Tidrow

Dr. Snežana Pašalić

Dr. Nebojša Romčević

Dr. Zorica Lazarević

Dr. Aleksandra Milutinović–Nikolić

Dr. Predrag Banković

Dr. Zorica Mojović

Dr. Nataša Jović Jovičić

Dr. Smilja Marković

Prof. Dr. Branislav Vlahović

Prof. Dr. Stevo Najman

Dr. Sanja Stojanović

Prof. Dr. Nebojša Mitrović

Dr. Suzana Filipović

Dr. Darko Kosanović

Dr. Milena Rosić

Organizing Committee

Dr. Nina Obradović

Dr. Lidija Mančić

Academician Antonije Đorđević

Dr. Ivana Dinić

Dr. Marina Vuković

Dr. Suzana Filipović

Dr. Anja Terzić

Dr. Milica V. Vasić

Dr. Maja Pagnacco

Dr. Dalibor Marinković

Prof. Dr. Nebojša Mitrović

Prof. Dr. Vesna Paunović

Prof. Dr. Vera Petrović

Dr. Milica Marčeta Kaninski

Dr. Darko Kosanović

Dr. Jelena Vujančević

Dr. Jelena Živojinović

Dr. Adriana Peleš Tadić

Dr. Nebojša Potkonjak

Dr. Marko Perić

Dr. Magdalena Radović

Dr. Miloš Lazarević

Dr. Stanko Aleksić

M. Sci. Isaak Trajković

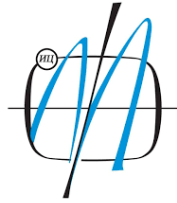
Sponsors:

Analysis - Lab equipment,

Turistička organizacija Beograda, Inovacioni centar Mašinskog fakulteta,

Institut za ispitivanje materijala,

Institut za tehnologiju nuklearnih i drugih mineralnih sirovina



Acknowledgements:

Ministry of Science, Innovations and Technological Development RS
Serbian Academy of Sciences and Arts
Institute of Technical Sciences of SASA, Institute of Physics BU
Hotel Palace, Shenemil



Република Србија
МИНИСТАРСТВО НАУКЕ,
ТЕХНОЛОШКОГ РАЗВОЈА И
ИНОВАЦИЈА



P10

Characterization of polyurethane/ferrite nanocomposites

Marija V. Pergal¹, Jelena Brkljačić², Dana Vasiljević Radović¹, Miodrag M. Pergal³,
Ivan Pešić¹, Gordana Dević¹, Gordana Tovilović-Kovačević²

¹Institute of Chemistry, Technology and Metallurgy, University of Belgrade, Njegoševa 12, 11000 Belgrade, Serbia

²Department of Biochemistry, Institute for Biological Research “Siniša Stanković”, National Institute of the Republic of Serbia, University of Belgrade, 142 Despot Stefan Blvd, 11060, Belgrade, Serbia

³Faculty of Chemistry, University of Belgrade, Studentski trg 12-16, Belgrade, Serbia

Polyurethane (PU) nanocomposite materials, offer very desirable advantages over pure PU materials, as the nanocomposites have enhanced thermal, surface, mechanical and biological properties. The main goal of this study was to develop a new kind of novel nanocomposites consisting of crosslinked PUs (based on poly(dimethylsiloxane) and hyperbranched polyester) and ferrite nanoparticles (based on copper and zinc) for possible application as coatings on biomedical devices and implants. A series of PU/ferrite nanocomposites was prepared by *in situ* polymerization in solution. Characterization of prepared nanocomposites was conducted by Fourier transform infrared spectroscopy (FTIR) and atomic force microscopy (AFM). Copper and zinc releases were investigated by microwave plasma atomic emission spectrometry (MP-AES). Characteristics of the prepared nanocomposites when in contact with a biological environment were examined through testing their biocompatibility, and adhesion of fibroblast cells. The presence of the nanoferrite nanoparticles influenced on surface and biological properties of PU nanocomposites. The prepared PU nanocomposites with noncytotoxic chemistry could be used as promising materials for vascular implants development.

Acknowledgment: The authors would like to thank the Ministry of Science, Technological Development, and Innovation of Republic of Serbia (Contract No: 451-03-47/2023-01/200026 and Contract No: 451-03-47/2023-01/ 200007).