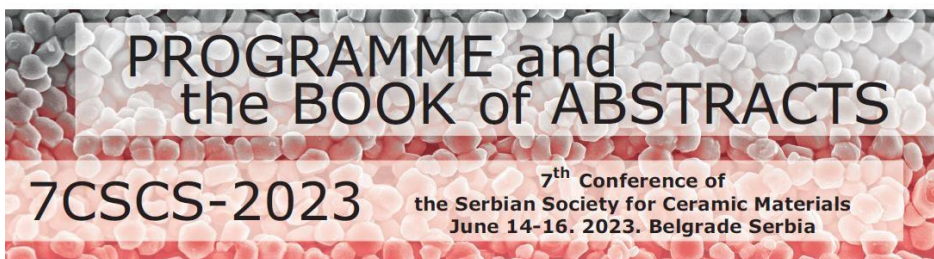


The Serbian Society for Ceramic Materials
Institute for Multidisciplinary Research (IMSI), University of Belgrade
Institute of Physics, University of Belgrade
Center of Excellence for the Synthesis, Processing and Characterization of
Materials for use in Extreme Conditions "CEXTREME LAB" - Institute of
Nuclear Sciences "Vinča", University of Belgrade
Faculty of Mechanical Engineering, University of Belgrade
Center of Excellence for Green Technologies, Institute for Multidisciplinary
Research, University of Belgrade
Faculty of Technology and Metallurgy, University of Belgrade



Edited by:
Branko Matović
Jelena Maletaškić
Vladimir V. Srdić

Programme and Book of Abstracts of The Seventh Conference of The Serbian Society for Ceramic Materials **publishes abstracts from the field of ceramics, which are presented at international Conference.**

Editors-in-Chief

Dr Branko Matović
Dr. Jelena Maletaškić
Prof. Vladimir V. Srdić

Publisher

Institut za multidisciplinarna istraživanja
Kneza Višeslava 1, 11000 Belgrade, Serbia

For Publisher

Dr Dragica Stanković

Printing layout

Dr. Jelena Maletaškić, Vladimir V. Srdić

Press

Faculty of Technology and Metalurgy, Research and Development Centre of Printing
Technology, Karnegieva 4, Belgrade, Serbia

Published: 2023

Circulation: 120 copies

CIP – Каталогизacija u publikaciji
Narodna biblioteka Srbije, Beograd

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

DRUŠTVO za keramičke materijale Srbije, Konferencija (7; 2023, Beograd)

Programme ; and the Book of Abstracts / 7th Conference of The Serbian Society for Ceramic Materials, 7CSCS-2023, June 14-16, 2023 Belgrade, Serbia ; [organizers] The Serbian Society for Ceramic Materials ... [et al.] ; edited by Branko Matović, Aleksandra Dapčević, Vladimir V. Srdić. - Belgrade :

Institut za multidisciplinarna istraživanja, 2023 (Belgrade : Faculty of technology and metalurgy, Research and development centre of printing technology). -124 str. : ilustr. ; 25 cm

Tiraž 120. – Str. 7: Welcome message / Branko Matović. - Registar.

ISBN 978-86-80109-24-4

a) Керамика -- Апстракти b) Наука о материјалима -- Апстракти v)
Наноматеријали -- Апстракти

COBISS.SR-ID 117544969

The Serbian Society for Ceramic Materials
Institute for Multidisciplinary Research, University of Belgrade
Institute of Physics, University of Belgrade
Center of Excellence for the Synthesis, Processing and Characterization of
Materials for use in Extreme Conditions “CEXTREME LAB” -
Institute of Nuclear Sciences “Vinča”, University of Belgrade
Faculty of Mechanical Engineering, University of Belgrade
Center of Excellence for Green Technologies, Institute for Multidisciplinary
Research, University of Belgrade
Faculty of Technology and Metallurgy, University of Belgrade

PROGRAMME AND THE BOOK OF ABSTRACTS

**7th Conference of The Serbian Society for
Ceramic Materials**

June 14-16, 2023
Belgrade, Serbia
7CSCS-2023

Edited by:
Branko Matović
Jelena Maletaškić
Vladimir V. Srdić

SPECIAL THANKS TO



**Република Србија
МИНИСТАРСТВО НАУКЕ,
ТЕХНОЛОШКОГ РАЗВОЈА И ИНОВАЦИЈА**



**NATIONAL TOURISM
ORGANISATION of
SERBIA**



**Turistička
organizacija
Beograda**

Committees

Organizer

- The Serbian Society for Ceramic Materials
- Institute for Multidisciplinary Research (IMSI), University of Belgrade
- Institute of Physics, University of Belgrade
- Center of Excellence for the Synthesis, Processing and Characterization of Materials for use in Extreme Conditions “CEXTREME LAB” – Institute of Nuclear Sciences “Vinča”, University of Belgrade
- Faculty of Mechanical Engineering, University of Belgrade
- Center of Excellence for Green Technologies, Institute for Multidisciplinary Research, University of Belgrade
- Faculty of Technology and Metallurgy, University of Belgrade

Scientific Committee

1. Dr. Snežana Bošković, Institute of Nuclear Sciences “Vinča”, University of Belgrade, *Serbia*
2. Prof. Biljana Stojanović, Institute for Multidisciplinary Research, University of Belgrade, *Serbia*
3. Dr. Branko Matović, Institute of Nuclear Sciences “Vinča”, University of Belgrade, *Serbia*
4. Prof. Vladimir V. Srdić, Faculty of Technology, University of Novi Sad, *Serbia*
5. Dr. Zorica Branković, Institute for Multidisciplinary Research, University of Belgrade, *Serbia*
6. Dr. Goran Branković, Institute for Multidisciplinary Research, University of Belgrade, *Serbia*
7. Dr. Zorana Dohčević-Mitrović, Institute of Physics, University of Belgrade, *Serbia*
8. Prof. Tatjana Volkov-Husović, Faculty of Technology and Metallurgy, University of Belgrade, *Serbia*
9. Dr. Gordana Bakić, Faculty of Mechanical Engineering, University of Belgrade, *Serbia*
10. Dr. Aleksandar Maslarević, Faculty of Mechanical Engineering, University of Belgrade, *Serbia*
11. Dr. Zvezdana Bašćarević, Institute for Multidisciplinary Research, University of Belgrade, *Serbia*
12. Dr. Dejan Zagorac, INN Vinca, University of Belgrade, *Serbia*

International Advisory Board

GERMANY:

Žaklina Burghard, *Institute for Material Science, Univeristy of Stuttgart*

UNITED STATES OF AMERICA:

Yuri Rostovtsev, *Department of Physics and the Center for Nonlinear Sciences, University of North Texas, Denton*

Miladin Radović, *Department of Material Science and Engineering, Texas A&M University*

SLOVENIA:

Matejka Podlogar, *Jožef Stefan Institute, Ljubljana*

Slavko Bernik, *Jožef Stefan Institute, Ljubljana*

CROATIA:

Tomislav Ivek, *Institut of Physics, Zagreb*

INDIA:

Hari Kumar, *Laboratory for High Performance Ceramics, Department of Metallurgical and Materials Engineering & Ceramic Technologies Group-Centre of Excellence in Materials & Manufacturing for Futuristic Mobility, Indian Institute of Technology-Madras*

Ravi Kumar, *Laboratory for High Performance Ceramics, Department of Metallurgical and Materials Engineering & Ceramic Technologies Group-Centre of Excellence in Materials & Manufacturing for Futuristic Mobility, Indian Institute of Technology-Madras*

SLOVAKIA:

Peter Tatarko, *Institute of Inorganic Chemistry, Slovak Academy of Sciences, Dúbravská cesta 9, 845 36, Bratislava*

Organizing Committee

1. Dr. Jelena Maletaškić, *Institute of Nuclear Sciences “Vinča”, University of Belgrade, Serbia*
2. Prof. Marija Milanović, *Faculty of Technology, University of Novi Sad, Serbia*
3. Dr. Maria Čebela, *Institute of Nuclear Sciences “Vinča”, University of Belgrade, Serbia*
4. Aleksa Luković, *Institute of Nuclear Sciences “Vinča”, University of Belgrade, Serbia*

5. Emilija Nidžović, Institute of Nuclear Sciences “Vinča”, University of Belgrade, *Serbia*
6. Dr. Milica Počuča Nešić, Institute for Multidisciplinary Research, University of Belgrade, *Serbia*
7. Jelena Mitrović, Institute for Multidisciplinary Research, University of Belgrade, *Serbia*
8. Dr. Bojan Stojadinović, Institute of Physics, University of Belgrade, *Serbia*
9. Dr. Bojana Simović, Institute for Multidisciplinary Research, University of Belgrade, *Serbia*
10. Natalija Milojković, Faculty of Technology and Metallurgy, University of Belgrade, *Serbia*
11. Dr. Nikola Kanas, Biosense Institute, University of Novi Sad, *Serbia*

WELCOME MESSAGE

On behalf of the organizers and organizing committee of the 7th Conference of the Serbian Society for Ceramic Materials (7CSCS-2023), I would like to extend my warmest welcome to all of you for attending the 7CSCS-2023. The conference is hosted and organized by the Serbian Society for Ceramic Materials, and co-organized by Institute for Multidisciplinary Research - University of Belgrade, Institute of Physics - University of Belgrade, Center of excellence for the synthesis, processing and characterization of materials for use in extreme conditions “CEXTREME LAB”, Institute of Nuclear Sciences “Vinča” - University of Belgrade, Faculty of Mechanical Engineering - University of Belgrade, Center of excellence for green technologies, Institute for Multidisciplinary Research - University of Belgrade, and Faculty of Technology and Metallurgy - University of Belgrade.

The goal of the Conference is to provide a platform for academic exchange among participants from universities, institutes, companies around the region in the field of ceramics research as well as to explore new direction for future development. 7CSCS-2023 aims to bring together leading academic scientists, researchers and research scholars to exchange and share their experiences and research results about all aspects of ceramic materials. It also provides the premier inter-multi-trans-disciplinary forum for researchers, practitioners and educators to present and discuss the most recent innovations, trends, and concerns, practical challenges encountered and the solutions adopted in the field of ceramic materials. We have received 102 abstracts with researchers from 15 countries.

The Conference will feature three plenary lectures, 30 invited talks and 64 oral and poster presentations as well as exhibitions of some new ceramic materials and devices. 7CSCS-2023 includes Ceramic Powders, Characterization and Processing, High Temperature Phenomena, Sintering, Microstructure Design and Mechanical Properties, Advanced Materials For Energy-Related Applications, Traditional Ceramics and Engineering Materials, Computing In Materials Science, Materials for Environmental Technology, Catalytic Materials, Materials for Sensing Devices, Ceramic Composites, Membranes And Multimaterials and Electro And Magnetic Ceramics. Exhibitions from company sponsors will be held at the Conference as well.

We are grateful for the support from the Ministry of Science, Technological Development and Inovation of the Republic of Serbia. We would also like to express our sincere thanks to the symposia organizers, session chairs, presenters, exhibitors and all the Conference attendees for their efforts and enthusiastic support in this exciting time in Belgrade. I look forward to meeting you and interacting with you at Conference.

7CSCS-2023 President

Branko Matović

Content

Program - Wednesday, June 14, 2023	17
Program - Thursday, June 15, 2023	20
Program - Friday, June 16, 2023	23

PLENARY LECTURES

Neven Barišić OPTICAL CONDUCTIVITY OF CUPRATES IN A NEW LIGHT	29
Johann Christian Schön THIN FILMS AND MONOLAYERS - PREDICTION, MODELING, AND EXPERIMENTS	30
Miladin Radović TOWARDS SAFER AND SCALABLE SYNTHESIS OF MXene	31

INVITED LECTURES

Zoltán Lenčės TRANSLUCENT/TRANSPARENT SPINEL PHOSPHORS FOR SOLID STATE LIGHTING AND PHOTOCATALYTIC APPLICATIONS.....	32
Ravi Kumar COOLING RATE DEPENDENT MECHANICAL AND THERMAL PROPERTIES OF ENTROPY STABILIZED OXIDES	33
Ankit Srivastava IN-SITU ANALYSIS OF DAMAGE TOLERANCE MECHANISMS IN LAYERED CRYSTALS.....	34
Peter Tatarko NEW HIGH-ENTROPY CERAMICS FOR EXTREME ENVIRONMENT APPLICATIONS.....	35
Jelena Mitrović CORRELATION BETWEEN THE MICROSTRUCTURE AND ELECTRICAL PROPERTIES OF Sb-DOPED BaSnO ₃ CERAMICS	36
Jelena Bobić TWO-PHASE AND THREE-PHASE FLEXIBLE THICK FILMS: POTENTIAL USE AS ENERGY STORAGE AND ENERGY HARVESTING SYSTEMS	37

Nataša Džunuzović ENHANCING THE REACTIVITY OF THE INDUSTRIAL FLY ASH IN THE PROCESS OF ALKALI ACTIVATION.....	38
Tatjana Volkov-Husović CAVITATION EROSION RESISTANCE OF REFRACTORY CERAMICS FOR FOUNDRY COATINGS APPLICATION.....	39
Snežana Vučetić ECO-LOGICAL: DESIGN OF CERAMIC MATERIALS BASED ON THE INDUSTRIAL WASTES.....	40
Dasari L.V.K. Prasad DATA-MINING FOR NOVEL CERAMIC MATERIALS.....	41
K.C. Hari Kumar THERMODYNAMIC MODELLING OF CaO-MgO SYSTEM.....	42
Yuri Rostovtsev QUANTUM SENSORS FOR GAS MIXTURE DETECTION	43
Dejan Zagorac SCANDIUM OXYCHLORIDE (ScOCl): STRUCTURE PREDICTION USING A MULTI-METHODOLOGICAL APPROACH.....	44
Jovana Ćirković PHOTOCATALYTIC DEGRADATION OF MORDANT BLUE 9 BY SINGLE- PHASE BiFeO ₃ NANOPARTICLES	45
Matejka Podlogar BIO AND PHOTOCATALYTIC DEGRADATION OF TEXTILE FIBER-BASED MICROPLASTICS.....	46
Uroš Čakar THE INFLUENCE OF TECHNOLOGICAL PROCESS ON THE CONTENT OF NATURAL ACTIVE PRINCIPLES FROM FRUIT WINES AND ITS BENEFICIAL HEALTH EFFECTS.....	47
Malcolm Watson ADSORBENT MATERIALS: RECENT ADVANCES IN WATER TREATMENT.....	48
Slavica Lazarević SEPIOLITE-BASED NANOMATERIALS: STRUCTURE, PROPERTIES, AND APPLICATIONS FOR THE REMOVAL OF POLLUTANTS FROM WATER SOLUTIONS.....	49
Samo B. Hočevar DEVELOPMENT OF DISPOSABLE TRACE METAL SENSORS, BIOSENSORS, AND GAS SENSORS USING VARIOUS MODIFICATION MATERIALS AND SCREEN-PRINTED ELECTRODES.....	50
Nikola Tasić POINT-OF-INTEREST ELECTROCHEMICAL DETECTION OF SARS-CoV-2 VIRUS.....	51

Jelena Isailović INCORPORATION AND STABILIZATION OF Ti ₃ C ₂ T _x MXENE INTO THE SENSITIVE H ₂ O ₂ GAS SENSING PLATFORM.....	52
Waltraud M. Kriven MULTIFUNCTIONAL, REFRACTORY, GEOPOLYMER COMPOSITES.....	53
Konstantina Lambrinou DEGRADATION OF CVD SiC DURING SYNERGISTIC PROTON IRRADIATION/CORROSION TESTS.....	54
Kamila Komędera MOSSBAUER SPECTROSCOPY OF BiFeO ₃ -BASED COMPOUND.....	55
Slavko Bernik INFLUENCE OF PARTICULAR DOPANTS ON THE CHARACTERISTICS OF A NOVEL ZnO-Cr ₂ O ₃ -BASED VARISTOR CERAMIC.....	56
Tomislav Ivek COLOSSAL MAGNETORESISTANCE AND METASTABILITY IN La _{1-x} Ca _x MnO ₃ (0.5 ≤ x ≤ 0.75) THIN FILMS.....	57
Zoran Jovanović PLD GROWTH OF FUNCTIONAL OXIDES ON rGO-BUFFERED SILICON SUBSTRATE.....	58
Nikola Kanas RECENT PROGRESS ON OXIDE THERMOELECTRIC MATERIALS AND DEVICES.....	58
Sanja Perac THERMOELECTRIC Cu DOPED SODIUM COBALTITE – STRUCTURAL, MAGNETIC AND MECHANICAL PROPERTIES.....	59
Dorota Chudoba NANOMATERIALS IN APPLICATION IN BIOMEDICINE.....	78

ORAL PRESENTATIONS

Sanita Ahmetović SYNTHESIS AND CHARACTERIZATION OF PURE AND Sm-, Zr-doped TiO ₂ NANOFIBERS AND ITS PHOTOCATALYTIC ACTIVITY.....	61
Jovana Acković CRYSTALLOGRAPHIC INVESTIGATION OF THE IRON PHOSPHATE TUNGSTEN BRONZE (Fe-PWB).....	62
Manuel Gruber EXPLORING THE USE OF ADVANCED CERAMICS FOR SPARK PLUG ELECTRODES OF LARGE GAS ENGINES.....	63

Inga Zhukova DESIGN, SYNTHESIS, AND MECHANICAL PROPERTIES OF DIBORIDE STRUCTURES WITH DIFFERENT MOLAR RATIOS OF TRANSITION METALS (Ti-Zr-Hf-Nb-Ta).....	64
Miloš Dujović DEFORMATION AND FRACTURE RESPONSE OF SINGLE CRYSTAL MAX PHASES.....	65
Mirjana Vijatović Petrović ENHANCED PROPERTIES OF PVDF COMPOSITES BY ACTIVE PHASE SILANIZATION.....	66
Priyanka Reddy NOVEL ELECTRONIC MATERIALS ON THE VERGE OF METALLICITY AND IONICITY.....	67
Damjan Vengust OVERCOMING SYNTHESIS AND DENSIFICATION CHALLENGES TO IMPROVE THE PROPERTIES OF PMN-33PT PIEZOELECTRIC CERAMICS.....	68
Zvezdana Baščarević DURABILITY OF HIGH VOLUME FLY ASH BINDERS.....	68
Jelena Rakić CHEMICAL ACTIVATION OF HIGH VOLUME FLY ASH BINDERS BY SELECTED SODIUM SALTS.....	69
Jelena Zagorac COMPUTATIONAL DISCOVERY OF NEW FEASIBLE CRYSTAL STRUCTURES IN Ce ₃ O ₃ N	70
Iva Toković EXPERIMENTAL STUDY AND DFT CALCULATION OF LaMnO ₃ BASED THIN FILMS.....	71
Milan Pejić STRUCTURAL PROPERTIES OF MULTICOMPONENT SOLID SOLUTIONS WITH PYROCHLORE STRUCTURE ON DFT LEVEL.....	72
Uroš Lačnjevac TiO ₂ NANOTUBE ARRAYS DECORATED WITH IR NANOPARTICLES FOR ENHANCED HYDROGEN EVOLUTION ELECTROCATALYSIS.....	73
Stefan T. Jelić SYNTHESIS OF BISMUTH VANADATE PHOTOCATALYST WITH ENHANCED ADSORPTION PROPERTIES.....	74
Sara Joksović THE DEVELOPMENT OF COST-EFFECTIVE CARBON-BASED TRANSPARENT ELECTRODES IN THE MID-INFRARED REGION.....	75
Aleksandar Malešević HIGH-TEMPERATURE HUMIDITY SENSING ABILITY OF INDIUM-DOPED BARIUM CERATE.....	76

Zaklina Burghard

A STRAIGHTFORWARD METHOD FOR SCROLLING PLANAR MATERIALS INTO FREE-STANDING 3D STRUCTURES WITH A SIGNIFICANT REDUCTION IN AREA FOOTPRINT..... 77

Aleksandar Radojković

TUNING OF FERROELECTRIC PROPERTIES OF BiFeO₃ CERAMICS BY CATION SUBSTITUTIONS AT BI-SITE AND FE-SITE..... 79

POSTER PRESENTATIONS

Bratislav Todorović

ELECTRON SPIN RESONANCE OF VANADYL IONS IN THE KAOLINITE STRUCTURE: KGa-1 KAOLINITE (GEORGIA, USA)..... 80

Milena Rosić

SYNTHESIS, CHARACTERIZATION AND PHOTOCATALYTIC EXAMINATION OF Co_{0,9}Ho_{0,1}MoO₄ NANOPOWDERS..... 81

Tijana B. Vlašković

SYNTHESIS AND CRYSTAL STRUCTURE OF Ca_{0,9}Er_{0,1}MnO₃..... 82

Božana Petrović

Mg SUBSTITUTED HYDROXYAPATITE FOR APPLICATION IN BONE TISSUE ENGINEERING..... 83

Aleksa Luković

CHARACTERIZATION OF HIGH-ENTROPY A₂B₂O₇ PYROCHLORE OBTAINED VIA COMBUSTION SYNTHESIS AND POST-CALCINATION..... 84

Marija Prekajski Đorđević

ENTROPY-STABILIZED OXIDES OWNING FLUORITE STRUCTURE: PREPARATION AND SINTERING..... 85

Jelena Mitrović

THE INFLUENCE OF SPARK PLASMA SINTERING TEMPERATURE ON THE PROPERTIES OF Sb-DOPED BARIUM STANNATE CERAMICS..... 86

Vladimir Pavkov

ANDESITE BASALT AS A NATURAL RAW MATERIAL FOR OBTAINING GLASS-CERAMIC..... 87

Jana Mužević

METAL-ORGANIC PEROVSKITES [C(NH₂)₃][MII(HCOO)₃] (M = Cu, Mn and Co).. 88

Aleksandar Maslarević

THERMAL SPRAYING OF Ti₂AlC COATINGS..... 89

Željko Mravik

STRUCTURAL MODIFICATION OF GRAPHENE OXIDE/12 TUNGSTO-PHOSPHORIC ACID COMPOSITES VIA ION BEAM IRRADIATION FOR IMPROVED ELECTROCHEMICAL CHARGE STORAGE..... 90

Tamara Škundrić AB INITIO INVESTIGATION OF THE NOVEL Cr ₂ SiN ₄ COMPOUND UNDER EXTREME PRESSURE CONDITIONS.....	91
Dejan Zagorac THEORETICAL STUDY OF AlN/BN MIXED CHEMICAL SYSTEMS AND THEIR MECHANICAL PROPERTIES.....	92
Tamara Škundrić ENERGY LANDSCAPE EXPLORATION AND CRYSTAL STRUCTURE PREDICTION OF TWO NOVEL COMPOUNDS IN THE Cr-Si-N SYSTEM.....	93
Jelena Zagorac ZnO/ZnS CORE/SHELL NANOSTRUCTURES: EXPERIMENTS COMBINED WITH AB INITIO CALCULATIONS.....	94
Milan Pejić ENERGY LANDSCAPE AND CRYSTAL STRUCTURE INVESTIGATIONS OF LANTHANUM FLUORO SULFIDE LaFS.....	95
Dragana Jordanov ELECTRONIC PROPERTIES OF PREDICTED Y ₂ O ₂ S USING AB INITIO CALCULATIONS	96
Dušica Jovanović DFT STUDY OF GLUTAMINE (L) MOLECULE INTERACTION WITH THE 001 AND 101 ANATASE SLAB SURFACES IN A VACUUM.....	97
Dušica Jovanović DFT STUDY OF NEW HYBRID ORGANIC-INORGANIC PEROVSKITES: GUANIDINIUM-BX ₃ SUBSTITUTED BY B = (Sn ²⁺ , Ge ²⁺ , Ba ²⁺ , Zn ²⁺) AND X = (I ⁻ , Br ⁻).....	99
Vladimir Dodevski EXAMINATION OF IQOS RESIDUE, ENVIRONMENTAL IMPACT AND POTENTIAL APPLICATION.....	100
Vladimir Dodevski EXAMINATION OF DIFFERENT RAW MATERIALS, AS PRECURSORS FOR OBTAINING CARBON MATERIALS.....	101
Sanja Krstić SUPERCAPACITIVE PROPERTIES OF CARBON MATERIALS ACTIVATED BY ALKALI METAL HYDROXIDES OBTAINED FROM SUCROSE.....	102
Nenad Nikolić ZnMn ₂ O ₄ AS A CATHODE MATERIAL IN AN AQUEOUS SOLUTION OF ZnCl ₂ AND Mn(NO ₃) ₂ FOR Zn-ION BATTERIES.....	103
Miroslav Hnatko ELECTROCHEMICAL FABRICATION OF TiO ₂ NANOTUBE ARRAYS IN FLUORIDE-FREE SYSTEM.....	104
Željka Milovanović PREPARATION AND CHARACTERIZATION OF SEPIOLITE/ZrO ₂ COMPOSITES FOR PHOSPHATE REMOVAL FROM AQUEOUS SOLUTIONS.....	105

Bojana Simović Ag/ZnO NANOCOMPOSITES FOR PHOTOCATALYTIC APPLICATION.....	106
Tijana Stamenković CHARACTERIZATION AND PHOTOCATALYTIC ACTIVITY OF NEWLY SYNTHESIZED Er AND Yb DOPED SrGd ₂ O ₄ NANOPHOSPHORUS.....	107
Marija Egerić METAL ORGANIC FRAMEWORK/POLYAMIDE ELECTROSPUN NANOFIBERAS MEAN FOR CONGO RED DYE PHOTOCATALYTIC DEGRADATION.....	108
Marko Jelić INFLUENCE OF SWIFT HEAVY ION IRRADIATION ON PHYSICOCHEMICAL PROPERTIES OF BISMUTH-VANADATE.....	109
Bojan Miljević PHOTOCATALYTIC EFFICIENCY ASSESSED IN SOLID STATE PHASE APPLICATION.....	110
Milinko Perić DEVELOPMENT OF Ti ₃ C ₂ T _x FOR PHOTOCATALYTIC WATER PURIFICATION..	111
Dragana Milošević THE INFLUENCE OF THERMAL ANNEALING OF Pt-BASED THIN FILMS ON ELECTRO-OXIDATION OF FORMIC ACID.....	112
Mihael Brezak SYNTHESIS OF Eu AND Yb BASED DIRAC SEMIMETALS.....	113
Tijana Stamenković ENHANCEMENT OF UP-CONVERSION LUMINESCENT CHARACTERISTICS OF Yb ³⁺ /Ho ³⁺ Co-DOPED Bi ³⁺ BASED SrGd ₂ O ₄ NANOPARTICLES.....	113
Svetlana Butulija BACTERIAL CELLULOSE (BC)-CeO ₂ NANOCOMPOSITE FILM FOR CHRONIC WOUND TREATMENT.....	114
Jelena Maletaškić SYNTHESIS AND CHARACTERIZATION OF REINFORCED ALUMINA COMPOSITES.....	115
Danica Maksimović ALUMINUM-BASED COMPOSITES REINFORCED WITH CERAMIC FIBERS.....	115
Branko Matović SPS DENSIFICATION OF B ₄ C-SiC COMPOSITES.....	117
Milena P. Dojčinović INVESTIGATING NTC THERMISTOR, FERROELECTRIC AND ELECTRIC PROPERTIES OF Fe ₂ TiO ₅	118
Milena Rosić INFLUENCE OF Gd-DOPING ON ELECTRICAL PROPERTIES IN Ca _{1-x} Gd _x MnO ₃ (x=0.05, 0.1, 0.15, 0.2) PEROVSKITES.....	119

Milena Rosić EFFECT OF CoMoO ₄ NANOPOWDERS SYNTHESIZED BY GLYCINE NITRATE PROCEDURE AND CALCINATED AT 450 °C ON BRIGGS-RAUSCHER OSCILLATORY DYNAMICS.....	120
Milica Vujković WHAT HAPPENS WHEN BiFeO ₃ UNDERGOES POTENTIODYNAMIC POLARIZATION?	121
Maria Čebela INFLUENCE OF Ag DOPING ON THE MORPHOLOGICAL AND MAGNETIC PROPERTIES IN CuO NANOPOWDERS.....	122
Karolina Siedliska HYPERFINE INTERACTIONS IN THE HEXAGONAL STRUCTURE OF CuFeO ₂ DELAFOSSITE.....	123
Maria Čebela SYNTHESIS, STRUCTURE AND MAGNETIC PROPERTIES OF Fe ₂ TiO ₅	124
Author Index	125

7th Conference of the Serbian Society for Ceramic Materials
June 14-16, 2023, Belgrade, Serbia

PROGRAM of 7CSCS–2023

Day 1. Wednesday - June 14, 2023

08.00 – 09.00 h, Registration

09.00 – 09.15 h, Opening ceremony and welcome addresses

09.15 – 09.30 h, Cocktail

Plenary lecture

Chair: Brank Matović, Jelena Maletaškić

09.30 – 10.00 h, Plenary lecture, PL-1

Neven Barišić, *OPTICAL CONDUCTIVITY OF CUPRATES IN A NEW LIGHT*

Session 1: Ceramic powders, characterization and processing

Chair: Aleksandar Radojković, Zoltán Lenčéš

10.00 – 10.20 h, Invited lecture, I-1

Zoltán Lenčéš, *TRANSLUCENT/TRANSPARENT SPINEL PHOSPHORS FOR SOLID STATE LIGHTING AND PHOTOCATALYTIC APPLICATIONS*

10.20 – 10.35 h, Oral presentation, O-1

Sanita Ahmetović, *SYNTHESIS AND CHARACTERIZATION OF PURE AND SM-, ZR-DOPED TIO₂ NANOFIBERS AND ITS PHOTOCATALYTIC ACTIVITY*

10.35 – 10.50 h, Invited lecture, O-2

Jovana Acković, *CRYSTALLOGRAPHIC INVESTIGATION OF THE IRON PHOSPHATE TUNGSTEN BRONZE (FE-PWB)*

10.50 – 11.05 h, Coffee break

Session 2: High temperature phenomena, sintering, microstructure design and mechanical properties

Chair: Peter Tatrko, Ravi Kumar

11.05 – 11.25 h, Invited lecture, I-2

Ravi Kumar, *COOLING RATE DEPENDENT MECHANICAL AND THERMAL PROPERTIES OF ENTROPY STABILIZED OXIDES*

11.25 – 11.45 h, Invited lecture, I-3

Ankit Srivastava, *IN-SITU ANALYSIS OF DAMAGE TOLERANCE MECHANISMS IN LAYERED CRYSTALS*

11.45 – 12.05 h, Invited lecture, I-4

Peter Tatarko, *NEW HIGH-ENTROPY CERAMICS FOR EXTREME ENVIRONMENT APPLICATIONS*

12.05 – 12.25 h, Invited lecture, I-5

Jelena Mitrović, *CORRELATION BETWEEN THE MICROSTRUCTURE AND ELECTRICAL PROPERTIES OF Sb-DOPED BaSnO₃ CERAMICS*

12.25 – 12.40 h, Oral presentation, O-3

Manuel Gruber, *EXPLORING THE USE OF ADVANCED CERAMICS FOR SPARK PLUG ELECTRODES OF LARGE GAS ENGINES*

12.40 – 12.55 h, Oral presentation, O-4

Inga Zhukova, *DESIGN, SYNTHESIS, AND MECHANICAL PROPERTIES OF DIBORIDE STRUCTURES WITH DIFFERENT MOLAR RATIOS OF TRANSITION METALS (Ti-Zr-Hf-Nb-Ta)*

12.55 – 13.10 h, Oral presentation, O-5

Miloš Dujović, *DEFORMATION AND FRACTURE RESPONSE OF SINGLE CRYSTAL MAX PHASES*

13.10 – 14.20 h, Lunch break

13.10 – 14.20 h, Poster Session 1 (Posters P1 – P25)

Session 3: Advanced materials for energy-related applications

Chair: Jelena Bobić, Ivana Cvijović Alagić

14.20 – 14.40 h, Invited lecture, I-6

Jelena Bobić, *TWO-PHASE AND THREE-PHASE FLEXIBLE THICK FILMS: POTENTIAL USE AS ENERGY STORAGE AND ENERGY HARVESTING SYSTEMS*

14.40 – 14.55 h, Oral presentation, O-6

Mirjana Vijatović Petrović, *ENHANCED PROPERTIES OF PVDF COMPOSITES BY ACTIVE PHASE SILANIZATION* Priyanka Reddy, *NOVEL ELECTRONIC MATERIALS ON THE VERGE OF METALLICITY AND IONICITY*

14.55 – 15.10 h, Oral presentation, O-7

Priyanka Reddy, *NOVEL ELECTRONIC MATERIALS ON THE VERGE OF METALLICITY AND IONICITY*

Session 4: Traditional ceramics and engineering materials

Chair: Tatjana Volkov-Husović, Zvezdana Baščarević

15.10 – 15.30 h, Invited lecture, I-7

Nataša Džunuzović, *ENHANCING THE REACTIVITY OF THE INDUSTRIAL FLY ASH IN THE PROCESS OF ALKALI ACTIVATION*

15.30 – 15.50 h, Invited lecture, I-8

Tatjana Volkov-Husović, *CAVITATION EROSION RESISTANCE OF REFRACTORY CERAMICS FOR FOUNDRY COATINGS APPLICATION*

15.50 – 16.10 h, Invited lecture, I-9

Snežana Vučetić, *ECO-LOGICAL: DESIGN OF CERAMIC MATERIALS BASED ON THE INDUSTRIAL WASTES*

16.10 – 16.25 h, Oral presentation, O-8

Damjan Vengust, *OVERCOMING SYNTHESIS AND DENSIFICATION CHALLENGES TO IMPROVE THE PROPERTIES OF PMN-33PT PIEZOELECTRIC CERAMICS*

16.25 – 16.40 h, Oral presentation, O-9

Zvezdana Baščarević, *DURABILITY OF HIGH VOLUME FLY ASH BINDERS*

16.40 – 16.55 h, Oral presentation, O-10

Jelena Rakić, *CHEMICAL ACTIVATION OF HIGH VOLUME FLY ASH BINDERS BY SELECTED SODIUM SALTS*

Day 2. Thursday - June 15, 2023

Plenary lecture

Chair: Jelena Zagorac, K.C. Hari Kumar

09.00 – 09.30 h, Plenary lecture, PL-2

Johann Christian Schön, *THIN FILMS AND MONOLAYERS - PREDICTION, MODELING, AND EXPERIMENTS*

Session 5: Computing in materials science

Chair: Dasari L.V. Prasad, Dejan Zagorac

09.30 – 09.50 h, Invited lecture, I-10

Dasari L.V.K. Prasad, *DATA-MINING FOR NOVEL CERAMIC MATERIALS*

09.50 – 10.10 h, Invited lecture, I-11

K.C. Hari Kumar, *THERMODYNAMIC MODELLING OF CaO-MgO SYSTEM*

10.10 – 10.30 h, Invited lecture, I-12

Yuri Rostovtsev, *QUANTUM SENSORS FOR GAS MIXTURE DETECTION*

10.30 – 10.50 h, Invited lecture, I-13

Dejan Zagorac, *SCANDIUM OXYCHLORIDE (SCOCL): STRUCTURE PREDICTION USING A MULTI-METHODOLOGICAL APPROACH*

10.50 – 11.05 h, Oral presentation, O-11

Jelena Zagorac, *COMPUTATIONAL DISCOVERY OF NEW FEASIBLE CRYSTAL STRUCTURES IN Ce_3O_3N*

11.05 – 11.20 h, Oral presentation, O-12

Iva Toković, *EXPERIMENTAL STUDY AND DFT CALCULATION OF $LaMnO_3$ BASED THIN FILMS*

11.20 – 11.35 h, Oral presentation, O-13

Milan Pejić, *STRUCTURAL PROPERTIES OF MULTICOMPONENT SOLID SOLUTIONS WITH PYROCHLORE STRUCTURE ON DFT LEVEL*

11.35 – 11.50 h, Coffee break

Session 6: Catalytic materials

Chair: Matejka Podlogar, Uroš Čakar

11.50 – 12.10 h, Invited lecture, I-14

Jovana Ćirković, *PHOTOCATALYTIC DEGRADATION OF MORDANT BLUE 9 BY SINGLE-PHASE $BiFeO_3$ NANOPARTICLES*

12.10 – 12.30 h, Invited lecture, I-15

Matejka Podlogar, *BIO AND PHOTOCATALYTIC DEGRADATION OF TEXTILE FIBER-BASED MICROPLASTICS*

12.30 – 12.45 h, Oral presentation, O-14

Uroš Lačnjevac, *TiO₂ NANOTUBE ARRAYS DECORATED WITH IR NANOPARTICLES FOR ENHANCED HYDROGEN EVOLUTION ELECTROCATALYSIS* Stefan T. Jelić, *SYNTHESIS OF BISMUTH VANADATE PHOTOCATALYST WITH ENHANCED ADSORPTION PROPERTIES*

12.45 – 13.00 h, Oral presentation, O-15

Stefan T. Jelić, *SYNTHESIS OF BISMUTH VANADATE PHOTOCATALYST WITH ENHANCED ADSORPTION PROPERTIES*

13.00 – 14.10 h, Lunch break

13.00 – 14.10 h, Poster Session 2 (Posters P26 – P47)

Session 7: Materials for environmental technology

Chair: Zorica Branković, Slavica Lazarević

14.10 – 14.30 h, Invited lecture, I-16

Uroš Čakar, *THE INFLUENCE OF TECHNOLOGICAL PROCESS ON THE CONTENT OF NATURAL ACTIVE PRINCIPLES FROM FRUIT WINES AND ITS BENEFICIAL HEALTH EFFECTS*

14.30 – 14.50 h, Invited lecture, I-17

Malcolm Watson, *ADSORBENT MATERIALS: RECENT ADVANCES IN WATER TREATMENT*

14.50 – 15.10 h, Invited lecture, I-18

Slavica Lazarević, *SEPIOLITE-BASED NANOMATERIALS: STRUCTURE, PROPERTIES, AND APPLICATIONS FOR THE REMOVAL OF POLLUTANTS FROM WATER SOLUTIONS*

Session 8: Materials for sensing devices

Chair: Nikola Tasić, Samo B. Hočevar

15.10 – 15.30 h, Invited lecture, I-19

Samo B. Hočevar, *DEVELOPMENT OF DISPOSABLE TRACE METAL SENSORS, BIOSENSORS, AND GAS SENSORS USING VARIOUS MODIFICATION MATERIALS AND SCREEN-PRINTED ELECTRODES*

15.30 – 15.50 h, Invited lecture, I-20

Nikola Tasić, *POINT-OF-INTEREST ELECTROCHEMICAL DETECTION OF SARS-COV-2 VIRUS*

15.50 – 16.10 h, Invited lecture, I-21

Jelena Isailović, *INCORPORATION AND STABILIZATION OF Ti₃C₂TX MXENE INTO THE SENSITIVE H₂O₂ GAS SENSING PLATFORM*

16.10 – 16.25 h, Oral presentation, O-16

Sara Joksović, *THE DEVELOPMENT OF COST-EFFECTIVE CARBON-BASED TRANSPARENT ELECTRODES IN THE MID-INFRARED REGION*

16.25 – 16.40 h, Oral presentation, O-17

Aleksandar Malešević, *HIGH-TEMPERATURE HUMIDITY SENSING ABILITY OF INDIUM-DOPED BARIUM CERATE*

20.00 h, Conference dinner

Day 3. Friday - June 16, 2023

Plenary lecture

Chair: Nikola Kanas, Konstantina Lambrinou

09.00 – 09.30 h, Plenary lecture, PL-3

Miladin Radović, *TOWARDS SAFER AND SCALABLE SYNTHESIS OF MXene*

Session 9: Ceramic composites, membranes and multimaterials

Chair: Miladin Radović, Žaklina Burghard

09.30 – 09.50 h, Invited lecture, I-22

Waltraud M. Kriven, *MULTIFUNCTIONAL, REFRACTORY, GEOPOLYMER COMPOSITES*

09.50 – 10.10 h, Invited lecture, I-23

Konstantina Lambrinou, *DEGRADATION OF CVD SIC DURING SYNERGISTIC PROTON IRRADIATION/CORROSION TESTS*

10.10 – 10.25 h, Invited lecture, I-24

Dorota Chudoba, *NANOMATERIALS IN APPLICATION IN BIOMEDICINE*

10.25 – 10.40 h, Oral presentation, O-18

Zaklina Burghard, *A STRAIGHTFORWARD METHOD FOR SCROLLING PLANAR MATERIALS INTO FREE-STANDING 3D STRUCTURES WITH A SIGNIFICANT REDUCTION IN AREA FOOTPRINT*

10.40 – 11.00 h, Coffee break

Session 10: Electro and magnetic ceramics

Chair: Slavko Bernik, Goran Branković

11.00 – 11.20 h, Invited lecture, I-25

Kamila Komędera, *MOSSBAUER SPECTROSCOPY OF BIFEO₃-BASED COMPOUND*

11.20 – 11.40 h, Invited lecture, I-26

Slavko Bernik, *INFLUENCE OF PARTICULAR DOPANTS ON THE CHARACTERISTICS OF A NOVEL ZnO-Cr₂O₃-BASED VARISTOR CERAMIC*

11.40 – 12.00 h, Invited lecture, I-27

Tomislav Ivek, *COLOSSAL MAGNETORESISTANCE AND METASTABILITY IN La_{1-x}Ca_xMnO₃ (0.5 ≤ X ≤ 0.75) THIN FILMS*

12.00 – 12.20 h, Invited lecture, I-28

Zoran Jovanovic, *PLD GROWTH OF FUNCTIONAL OXIDES ON RGO-BUFFERED SILICON SUBSTRATE*

12.20 – 12.40 h, Invited lecture, I-29

Nikola Kanas, *RECENT PROGRESS ON OXIDE THERMOELECTRIC MATERIALS AND DEVICES*

12.40 – 13.00 h, Invited lecture, I-30

Sanja Perać, *THERMOELECTRIC CU DOPED SODIUM COBALTITE – STRUCTURAL, MAGNETIC AND MECHANICAL PROPERTIES*

13.00 – 13.15 h, Oral presentation, O-19

Aleksandar Radojković, *TUNING OF FERROELECTRIC PROPERTIES OF BiFeO₃ CERAMICS BY CATION SUBSTITUTIONS AT Bi-SITE AND Fe-SITE*

13.15 – 13.30 h, Closing ceremony

13.30 – 14.30 h, Lunch

Day 1. Wednesday - June 14, 2023

Poster session 1: Ceramic powders, characterization and processing

P-1. Bratislav Todorović, *ELECTRON SPIN RESONANCE OF VANADYL IONS IN THE KAOLINITE STRUCTURE: KGA-1 KAOLINITE (GEORGIA, USA)*

P-2. Milena Rosić, *SYNTHESIS, CHARACTERIZATION AND PHOTOCATALYTIC EXAMINATION OF $C_{0.9}Ho_{0.1}MoO_4$ NANOPOWDERS*

P-3. Tijana B. Vlašković, *SYNTHESIS AND CRYSTAL STRUCTURE OF $Ca_{0.9}Er_{0.1}MnO_3$*

P-4. Božana Petrović, *Mg SUBSTITUTED HYDROXYAPATITE FOR APPLICATION IN BONE TISSUE ENGINEERING*

P-5. Aleksa Luković, *CHARACTERIZATION OF HIGH-ENTROPY $A_2B_2O_7$ PYROCHLORE OBTAINED VIA COMBUSTION SYNTHESIS AND POST-CALCINATION*

P-6. Marija Prekajski Đorđević, *ENTROPY-STABILIZED OXIDES OWNING FLUORITE STRUCTURE: PREPARATION AND SINTERING*

Poster session 2: High temperature phenomena, sintering, microstructure design and mechanical properties

P-7. Jelena Mitrović, *THE INFLUENCE OF SPARK PLASMA SINTERING TEMPERATURE ON THE PROPERTIES OF Sb-DOPED BARIUM STANNATE CERAMICS*

P-8. Vladimir Pavkov, *ANDESITE BASALT AS A NATURAL RAW MATERIAL FOR OBTAINING GLASS-CERAMICS*

Poster session 3: Advanced materials for energy-related applications

P-9. Jana Mužević, *METAL-ORGANIC PEROVSKITES $[C(NH_2)_3][MII(HCOO)_3]$ ($M = Cu, Mn$ AND Co)*

P-10. Aleksandar Maslarevic, *THERMAL SPRAYING OF Ti_2AlC COATINGS*

P-11. Željko Mravik, *STRUCTURAL MODIFICATION OF GRAPHENE OXIDE/12 TUNGSTOPHOSPHORIC ACID COMPOSITES VIA ION BEAM IRRADIATION FOR IMPROVED ELECTROCHEMICAL CHARGE STORAGE*

Poster session 4: Computing in materials science

P-12. Tamara Škundrić, *AB INITIO INVESTIGATION OF THE NOVEL CR_2SIN_4 COMPOUND UNDER EXTREME PRESSURE CONDITIONS*

P-13. Dejan Zagorac, *THEORETICAL STUDY OF AlN/BN MIXED CHEMICAL SYSTEMS AND THEIR MECHANICAL PROPERTIES*

P-14. Tamara Škundrić, *ENERGY LANDSCAPE EXPLORATION AND CRYSTAL STRUCTURE PREDICTION OF TWO NOVEL COMPOUNDS IN THE Cr-Si-N SYSTEM*

P-15. Jelena Zagorac, *ZnO/ZnS CORE/SHELL NANOSTRUCTURES: EXPERIMENTS COMBINED WITH AB INITIO CALCULATIONS*

P-16. Milan Pejić, *ENERGY LANDSCAPE AND CRYSTAL STRUCTURE INVESTIGATIONS OF LANTHANUM FLUORO SULFIDE LAFS*

P-17. Dragana Jordanov, *ELECTRONIC PROPERTIES OF PREDICTED Y₂O₂S USING AB INITIO CALCULATIONS*

P-18. Dušica Jovanović, *DFT STUDY OF GLUTAMINE (L) MOLECULE INTERACTION WITH THE 001 AND 101 ANATASE SLAB SURFACES IN A VACUUM*

P-19. Dušica Jovanović, *DFT STUDY OF NEW HYBRID ORGANIC-INORGANIC PEROVSKITES: GUANIDINIUM-BX₃ SUBSTITUTED BY B = (Sn²⁺, Ge²⁺, Ba²⁺, Zn²⁺) AND X = (I⁻, Br⁻)*

Poster session 5: Materials for environmental technology

P-20. Vladimir Dodevski, *EXAMINATION OF IQOS RESIDUE, ENVIRONMENTAL IMPACT AND POTENTIAL APPLICATION*

P-21. Vladimir Dodevski, *EXAMINATION OF DIFFERENT RAW MATERIALS, AS PRECURSORS FOR OBTAINING CARBON MATERIALS*

P-22. Sanja Krstić, *SUPERCAPACITIVE PROPERTIES OF CARBON MATERIALS ACTIVATED BY ALKALI METAL HYDROXIDES OBTAINED FROM SUCROSE*

P-23. Nenad Nikolić, *ZnMn₂O₄ AS A CATHODE MATERIAL IN AN AQUEOUS SOLUTION OF ZnCl₂ AND Mn(NO₃)₂ FOR ZN-ION BATTERIES*

P-24. Miroslav Hnatko, *ELECTROCHEMICAL FABRICATION OF TiO₂ NANOTUBE ARRAYS IN FLUORIDE-FREE SYSTEM*

P-25. Željka Milovanović, *PREPARATION AND CHARACTERIZATION OF SEPIOLITE/ZrO₂ COMPOSITES FOR PHOSPHATE REMOVAL FROM AQUEOUS SOLUTIONS*

Day 2. Thursday - June 15, 2023

Poster session 6: Catalytic materials

P-26. Bojana Simović, *Ag/ZnO NANOCOMPOSITES FOR PHOTOCATALYTIC APPLICATION*

P-27. Tijana Stamenković, *CHARACTERIZATION AND PHOTOCATALYTIC ACTIVITY OF NEWLY SYNTHESIZED Er AND Yb DOPED SrGd₂O₄ NANOPHOSPHORUS*

P-28. Marija Egerić, *METAL ORGANIC FRAMEWORK/POLYAMIDE ELECTROSPUN NANOFIBERAS MEAN FOR CONGO RED DYE PHOTOCATALYTIC DEGRADATION*

P-29. Marko Jelić, *INFLUENCE OF SWIFT HEAVY ION IRRADIATION ON PHYSICOCHEMICAL PROPERTIES OF BISMUTH-VANADATE*

P-30. Bojan Miljević, *PHOTOCATALYTIC EFFICIENCY ASSESSED IN SOLID STATE PHASE APPLICATION*

P-31. Milinko Perić, *DEVELOPMENT OF Ti₃C₂TX FOR PHOTOCATALYTIC WATER PURIFICATION*

P-32. Dragana Milošević, *THE INFLUENCE OF THERMAL ANNEALING OF Pt-BASED THIN FILMS ON ELECTRO-OXIDATION OF FORMIC ACID*

Poster session 7: Materials for sensing devices

P-33. Mihael Brezak, *SYNTHESIS OF Eu AND Yb BASED DIRAC SEMIMETALS*

P-34. Tijana Stamenković, *ENHANCEMENT OF UP-CONVERSION LUMINESCENT CHARACTERISTICS OF Yb³⁺/Ho³⁺ CO-DOPED Bi³⁺ BASED SrGd₂O₄ NANOPARTICLES*

Poster session 8: Ceramic composites, membranes and multimaterials

P-35. Svetlana Butulija, *BACTERIAL CELLULOSE (BC)-CeO₂ NANOCOMPOSITE FILM FOR CHRONIC WOUND TREATMENT*

P-36. Jelena Maletaškić, *SYNTHESIS AND CHARACTERIZATION OF REINFORCED ALUMINA COMPOSITES*

P-37. Danica Maksimović, *ALUMINUM-BASED COMPOSITES REINFORCED WITH CERAMIC FIBERS*

P-38. Branko Matović, *SPS DENSIFICATION OF B₄C-SiC COMPOSITES*

Poster session 9: Electro and magnetic ceramics

P-39. Milena P. Dojčinović, *INVESTIGATING NTC THERMISTOR, FERROELECTRIC AND ELECTRIC PROPERTIES OF Fe_2TiO_5*

P-40. Milena Rosić, *INFLUENCE OF Gd-DOPING ON ELECTRICAL PROPERTIES IN $Ca_{1-x}Gd_xMnO_3$ ($x=0.05, 0.1, 0.15, 0.2$) PEROVSKITES*

P-41. Milena Rosić, *EFFECT OF $CoMoO_4$ NANOPOWDERS SYNTHESIZED BY GLYCINE NITRATE PROCEDURE AND CALCINATED AT 450 °C ON BRIGGS-RAUSCHER OSCILLATORY DYNAMICS*

P-42. Milica Vujković, *WHAT HAPPENS WHEN $BiFeO_3$ UNDERGOES POTENTIODYNAMIC POLARIZATION?*

P-43. Maria Čebela, *INFLUENCE OF Ag DOPING ON THE MORPHOLOGICAL AND MAGNETIC PROPERTIES IN CuO NANOPOWDERS*

P-44. Karolina Siedliska, *HYPERFINE INTERACTIONS IN THE HEXAGONAL STRUCTURE OF $CuFeO_2$ DELAFOSSITE*

P-45. Maria Čebela, *SYNTHESIS, STRUCTURE AND MAGNETIC PROPERTIES OF Fe_2TiO_5*

demands since it enables the obtainment of usable and inexpensive raw materials with known chemical composition from industrial waste and therefore supports the cost-effective production of structural components. The present research was, therefore, directed toward the repurposing of waste materials derived from the metal industry and the civil engineering sector through a simple and economical solid-state recycling procedure to obtain raw materials for the production of innovative AMCs with required characteristics. The aluminum 2xxx series alloy, *i.e.* 2024 alloy, in the form of metallic chips generated during the industrial machining was selected for the obtainment of composite base, while basalt fibers derived from stone mineral wool, as waste material in civil engineering, were used to produce the composite reinforcing phase. Basalt, characterized by high strength and low density, provides improved resistance to chemical and mechanical damage, while the 2024 alloy contributes to good fatigue properties of the final fiber-reinforced AMCs. To obtain usable raw materials for the AMCs preparation from the solid industrial waste the basalt fibers were thermally treated, while aluminum-based metallic chips were ball-milled. Treated aluminum alloy powder and basalt fibers were mixed in a 3D tumbler mixer in a 9:1 ratio, isostatically pressed, and sintered in a protective argon atmosphere at 550 °C. Isostatic pressure and sintering duration were varied during the AMCs preparation to determine the optimal processing parameters for the obtainment of AMCs with the required characteristics for a predetermined purpose. The scanning electron microscopic (SEM), energy dispersive spectroscopic (EDS), and X-ray diffraction (XRD) analyses complemented with hardness and density measurements were conducted to characterize starting and final materials. Obtained composites showed improved mechanical properties compared to the starting aluminum alloy, regardless of the processing conditions. The AMCs processed at a higher pressure and for longer sintering times showed higher density and hardness. The results of the presented research undoubtedly indicated that solid-state recycling, as a simple, energy- and cost-efficient process, can be successfully used for the attainment of innovative composites for lightweight structural components in the transportation industry.

Acknowledgments: This work was financially supported by the Ministry of Science, Technological Development and Innovation of the Republic of Serbia and the OeAD - Austria's Agency for Education and Internationalization through the Bilateral Serbia-Austria Scientific and Technological Cooperation Program (Contract No. 337-00-577/2021-09/39).

P-38

SPS DENSIFICATION OF B₄C-SiC COMPOSITES

Branko Matović

Vinča Institute of Nuclear Sciences – National Institute of the Republic of Serbia, University of Belgrade, Belgrade, Serbia

Boron carbide (B₄C) - silicon carbide (SiC) ceramic composites were obtained through the densification of B₄C and β-SiC powders with different ratios using the spark plasma sintering (SPS) technique. The thermal treatment was carried out for 5 min in Ar atmosphere in a temperature range from 1850 to 2000 °C under a pressure of 70 MPa. The effect of starting powders ratio on the sintering behavior, relative density, microstructural development, and mechanical properties of the obtained composites was investigated. The obtained results showed that only starting compounds, *i.e.* B₄C and SiC phase, are observed in the sintered ceramic materials. SEM micrographs revealed that the sintered composites are composed of densely compacted B₄C and SiC grains with a uniform distribution of both phases. The maximal relative density value (100 %) was achieved for the sample densified at 2000 °C with 25% of B₄C and 75% of SiC. The microhardness of obtained composites ranges from 33 to 43 GPa, depending on the constituents' content and the densification temperature. The maximal microhardness value was achieved for the composite densified at 2000 °C which contains a maximal amount of B₄C (75%). In order to examine the behavior of composites in extreme conditions, the surface changes induced through the interaction of obtained composite materials and CO₂ pulse laser were also studied. During the irradiation, the laser pulse duration was ~2 μs with average pulse energy of 120 mJ. The results of this study show that the SPS technique can be a very effective densification method for the obtainment of additive-free B₄C - β-SiC ceramic composites with promising properties for application in radiation at extremes.

Keywords: B₄C-SiC ceramics, SPS, microstructure, mechanical properties, laser

P-39

INVESTIGATING NTC THERMISTOR, FERROELECTRIC AND ELECTRIC PROPERTIES OF Fe_2TiO_5

Zorka Ž. Vasiljević¹, Milena P. Dojčinović¹, Nikola Ilić²,
Jelena Vujančević³, Maria Vesna Nikolić¹

¹*University of Belgrade, Institute for Multidisciplinary Research,
Belgrade, Serbia*

²*Vinča Institute of Nuclear Sciences - National Institute of the Republic of
Serbia, University of Belgrade, Belgrade, Serbia*

³*Institute of Technical Science of SASA, Belgrade, Serbia*

Pure phase orthorhombic pseudobrookite (Fe_2TiO_5) was synthesized using a modified sol-gel method. Bulk samples were obtained by uniaxial pressing of the obtained powder into compacts sintered at 900 °C for 2 h. A noticeable NTC thermistor effect was noted with a $B_{20/55}$ value of 5747 K and high resistivity of 45 $\text{M}\Omega\cdot\text{cm}$ at 25 °C. A non-linear current-voltage characteristic was observed in the voltage range (0.2–1100 V) at room temperature (25 °C). Non-saturated (lossy) P - E loops were obtained at both measured frequencies (100 Hz and 1 kHz) more expressed for the higher measured frequency, with the maximal polarization of 0.291 $\mu\text{C}/\text{cm}^2$ and remanent polarization of 0.123 $\mu\text{C}/\text{cm}^2$ for 20 kV/cm^2 and 1 kHz. Complex impedance measured in the temperature range 20–330 °C enabled analysis of the contribution of grain boundary and grains to the conduction mechanism. Bulk conductivity data determined in this temperature range was analyzed using Jonscher's universal dielectric response model and showed that the conduction process followed the nearest neighbor hopping conduction mechanism.

AUTHOR INDEX

Acković J.	62	Cordero F.	66
Agbaba J.	48	Craciun F.	66
Ahmetović S.	61	Csanádi T.	64
Akrap A.	67	Čulo M.	57
Alil A.	39	Cvetković S.	105
Armaković S.	71,111	Cvijović-Alagić I.	84,87,115
Aškračić S.	119	Cvjetičanin N.	61
Bajac B.	75	Dapčević A.	106
Bajuk-		Despotović Ž.	36
Bogdanović D.	121	Devečerski A.	108
Bakić G.	87,89	Diem. A.	77
Barišić D.	88	Dimitrijević S.	84
Barišić N.	29,67	Dinić I.	107, 113
Bartolić D.	61	Djukić M.	92
Barudžija T.	113	Dlouhý I.	35,64
Bašćarević Z.	38,68	Dobrota A.	73
Basletić M.	57	Dodevski V.	81,82,100,101,102 120,122,124
Belec B.	90	Dohčević Mitrović	119
Belhadi J.	68	Dojčinović M.	118
Bernejo R.	63	Doll K.	96
Bernik S.	36,56,59,86	Đorđević B.	47
Bill J.	77	Dragić R.	40
Blagojević M.	40	Drev S.	36,86
Blagojević S.	103	Dujović M.	65
Bobić J.	37,66	Đurić S.	73
Branković G.	36,43,45,59,74,76,79 86	Dusza J.	35,64
Branković Z.	36,43,45,59,74,76,79 106	Dutour Sikirić M.	83
Brezak M.	113	Džunuzović A.	37,66
Brunengo E.	66	Džunuzović N.	38
Bučevac D.	87	Egerić M.	102,108
Bunčić A.	40	Einfalt L.	46
Burghard Z.	77	Elezović N.	72
Buscaglia M.T.	66	Engelmayer M.	63
Butulija S.	114	Erčić J.	85,115
Čakar U.	47,122,124	Fabijan D.	68
Canu G.	66	Filipović Tričković	114
Čebela M.	47,81,82,83,100,101 102,107,113,119,120 121,122,124	Fimml W.	63
Černoša A.	49	Fischgrabe F.	57
Četenović B.	114	Fonović M.	44,92
Chia Ho H.	58	Forró L.	67
Chlup Z.	35	Galassi C.	66
Chudoba D.	78	Gavrilov N.	90
Čirković J.	45	Góngora D. R.	57
Čizmić M.	45	Gostinčar C.	46
Čolović M.	45	Green M.	31
		Grigalaitis R.	37
		Gruber M.	63
		Gunde Cimerman	46

Hamzić A.	57	Ljupković R.	81
Hanani Z.	68	Lobato A.	50,51
Harrer W.	63	Lojpur V.	81,107,113,122,124
Hnatko M.	104	Luković A.	84,85,115
Hočevar S. B.	50,51,52	Luković Golić D.	45,79
Hosseini N.	35	Lutkenhaus J.	31
Ilić N.	37,66,118	Maksimović D.	115
Isailović J.	50,51,52	Maksimović V.	84,87,89,115
Ivek T.	36,57	Malešević A.	36,43,76,86
Ivšić T.	67	Maletaškić J.	84,85,115
Jaćimovski D.	102	Mančić L.	107
Jagličić Z.	57	Manojlović D.	73
Janačković Đ.	49,105	Marinković Stanoj.	43
Janković-Častvan I.	49,105	Martinović S.	39
Jelić M.	109	Maslarević A.	89
Jelić S.	74	Matović B.	64,70,72,84,85,87,91 92,93,94,95,97,99 114,115,117
Joksović S.	75	Matović Lj	108
Jordanov D.	96	Mercadelli E.	66
Jovanović D.	44,70,91,92,93,97,99	Micić R.	62
Jovanović J.	74	Mihaljević B.	57
Jovanović S.	109	Milanović M.	71
Jovanović Z.	58, 91, 109, 121	Miljević B.	40,110
Jović-Orsini N.	79	Milošević D.	112
Kanas N.	58,111	Milošević M.	81,122
Kirilkin N.	109	Milošević N.	89
Kityk A.	104	Milovanović Ž.	105
Klement R.	32	Miše N.	113
Kocijan M.	46	Mitrović J.	36,43,86
Kombamuthu V.	64	Mohajernia S.	73
Komędera K.	55,123	Monfort O.	32
Komljenović M.	38	Moshnyaga V.	57
Konjević I.	50,51	Mravik Ž.	90
Korin-Hamzić B.	57	Mudrinić T.	83
Korneeva E.	109	Mužević J.	88
Kothastane V.	31	Nazarova A. Zh.	78
Kovalčiková A	35,64	Nedić Z.	62
Kriven W.M.	53	Nešić A.	108
Kronenberg A.K.	34	Nidžović E.	85,115
Krstić D.	47	Nikić J.	48
Krstić M.	83	Nikolić N.	62,79,103
Krstić S.	100,101,102,122	Nikolić N.	112
Kumar H.	42	Nikolić V.	38
Kumar R.	33,85	Novak M.	113
Laban B.	82	Novaković M.	61
Labus N.	119,124	Novaković T.	74
Lačnjevac U.	73	Novosel N.	57
Lambrinou K.	54	Orelovich O.	109
Lazarević S.	49,105	Ouisse T.	34,65
Lazić A.	111	Pagnacco M.	62,103,120
Lenčేశ Z.	32		
Li G.	56		

Pajić D.	88	Siedliska K.	123
Paskaš J.	111	Simović B.	106
Pašti I.	73	Simović-Pavlović	120
Pavkov V.	87,89,115	Skorodumova N.	73
Pejčić M.	90	Škundrić T.	70,72,91,92,93,95,97
Pejić M.	44,70,72,91,92,93,94		97
	95,97,99	Skuratov V.	90,109
Penić N.	88	Spreitzer M.	58,68
Perać S.	59,76	Srdić V.V.	71,75,111
Perić M.	111	Srivastava A.	34,65
Petrisková P.	32	Šrot V.	94
Petrović A.	47	Stagnaro P.	66
Petrović B.	83	Stamenković T.	107,113
Petrović R.	49	Stanković I.	47
Petrović S.	114	Stanojević J.	75
Pikula T.	123	Stevanović S.	112
Pilić B.	108	Stijepović I.	37
Piper D.	71	Stojković Simatović	103
Počuča-Nešić M.	36,43,86	Stojmenović M.	119
Podlogar M.	36,46,56,86	Sunko D.K.	67
Popović J.	101,102	Švec P.	104
Prasad D.	41	Tadić N.	61
Prekajski-Đorđević	70,85,87,115	Tafra E.	57
Premović P.	80	Tančić P.	62
Putz B.	115	Tasić N.	45,50,51,52
Radovanović Ž.	114	Tatarko P.	35,64
Radmilović N.	113	Tatarková M.	35,64
Radojković A.	45,59,74,76	Tian T.	56
Radošević T.	46	Tilz A.	63
Radovanović Ž.	106,107	Todorović B.	80,84,114
Radović Marko	119	Toković I.	71
Radović Miladin	31,34,65	Tolj T.	67
Rajić V.	61	Tomanec O.	73
Rajičić B.	89	Tomić N.	121
Rakić J.	68,69	Tomić S.	57
Ranđelović M.	94,107	Topić E.	88
Rapljenović Ž.	36	Tot E.	111
Rathod H.J.	34	Tripković D.	112
Reddy P.	67,126	Trstenjak U.	58,68
Ribić V.	36	Truong Nguyen N.	73
Rmuš J.	90	Ünsal H.	35
Romih. T.	50,51	Valenta A.	114
Ronnow H.	67	van Aken P.	94
Rosić M.	81,82,100,101,102	Van der Bergh J.M	110
	119,120,122,124	Vasilić R.	73
Rostovtsev Y.	43	Vasiljević Z.	61,118
Rubčić M.	88	Vengust D.	46,68
Savić S.	36,59,76	Vershina T.	109
Schmuki P.	73	Vesna Nikolić M.	61,118
Schön C.J.	30,44,70,94,95,97,99	Vidović K.	50
Senčanski J.	62,103,120	Vijatović Petrović	37,66

Vlahović M.	39	Wu Y.	108
Vlašковиć T.	82	Zagorac D.	44,64,70,72,84,91,92 93,94,95,96,97,99
Vojisavljević K.	36,43	Zagorac J.	44,70,72,84,91,92,93 94,95,97,99
Volkov-Husovic T.	39	Zarubica A.	81,97,99
Vučetić S.	40,110	Zbožil R.	73
Vujančević J.	118	Zemljak O.	86
Vujasin R.	102,108	Zeng Y. P.	84
Vujković M.	121	Zhukova I.	35,64
Vukmirović J.	71	Zmejkoski D.	114
Vuković M.	107,113	Žunić M.	76
Waisi H.	100,101		
Watson M.	46		
Wimmer A.	63		

7CSCS-2023 PROGRAMME and the BOOK of ABSTRACTS

ISBN 987-86-80109-24-4