**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

## 8th Conference of The Serbian Society for Ceramic Materials

**June 18-20, 2025**
**Belgrade, Serbia**
**8CSCS-2025**

Edited by:
**Branko Matović**
**Jelena Maletaškić**
**Vladimir V. Srdić**

**SPECIAL THANKS TO**

Република Србија
МИНИСТАРСТВО НАУКЕ,
ТЕХНОЛОШКОГ РАЗВОЈА И ИНОВАЦИЈА

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## WELCOME MESSAGE

On behalf of the organizers and the organizing committee of the 8th Conference of the Serbian Society for Ceramic Materials (8CSCS-2025), it is my great pleasure to extend a warm welcome to all attendees. We are delighted to host you in Belgrade for this important gathering.

The conference is organized by the Serbian Society for Ceramic Materials, in collaboration with the 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, and the Faculty of Technology and Metallurgy – University of Belgrade.

The primary aim of 8CSCS-2025 is to serve as a platform for academic and professional exchange in the field of ceramic materials. This conference brings together researchers, scholars, and professionals from universities, institutes, and industries across the region and beyond, encouraging the discussion of novel ideas and directions in ceramic materials research.

This year, we are proud to have received 86 abstracts from researchers representing 15 countries, reflecting the growing global interest in ceramic materials. The program features three plenary lectures, 22 invited talks, and 61 oral and poster presentations.

Covered topics include ceramic powders, characterization and processing; computing in materials science; high temperature phenomena, sintering, microstructure design and mechanical properties; ceramic composites, membranes and multimaterials; materials for environmental technology; traditional ceramics and engineering materials; advanced materials for energy-related applications; materials for sensing devices; catalytic materials; electro and magnetic ceramics.

We gratefully acknowledge the support of the Ministry of Education, Science and Technological Development of the Republic of Serbia. Special thanks go to the organizers, session chairs, presenters, exhibitors, and all participants for your contributions and enthusiastic engagement.

We hope that your time in Belgrade will be both professionally rewarding and personally enjoyable. I look forward to meeting you and engaging in fruitful discussions throughout the conference.

Branko Matović
President of the Serbian Society for Ceramic Material

## PROGRAMME



## PLENARY LECTURES



## INVITED LECTURES

## ORAL PRESENTATIONS

## POSTER PRESENTATIONS

# PROGRAMME

## Day 1. Wednesday - June 18, 2025.

**08.00 – 09.00 Registration**

**09.00 – 09.15 Opening ceremony and welcome addresses**

**09.15 – 09.30 Cocktail**

**Plenary lecture**
Chair: Branko Matović, Jelena Maletaškić

**09.30-10.00 Plenary lecture, PL-1**
Samo B. Hočevar, *MODIFICATION MATERIALS FOR ELECTRO-CHEMICAL SENSORS AND BIOSENSORS*

**Session 1: Materials for Sensing Devices**
Chairs: Nikola Tasić, Samo B. Hočevar

**10.00-10.20 Invited lecture, I-1**
Nikola Tasić, *NANOSTRUCTURED MATERIALS FOR ENHANCED ELECTROCHEMICAL BIOSENSING APPLICATIONS*

**10.20-10.35 Oral presentation, O-1**
Aleksandar Radojković, *THE WATER VAPOR SENSING ABILITY OF RARE-EARTH-DOPED BARIUM CERATE*

**Session 2: Materials for Environmental Technology**
Chairs: Zorica Branković, Kristijan Vidović

**10.35-10.55 Invited lecture, I-2**
Ioannis Pashalidis, *LANTHANIDE ADSORPTION BY OXIDIZED BIOCHAR FIBERS*

**10.55-11.15 Invited lecture, I-3**
Kristijan Vidović, *BISMUTH-BASED ELECTROCHEMICAL APPRO-ACH FOR ENVIRONMENTALLY FRIENDLY DETERMINATION OF SURFACE-ACTIVE SUBSTANCES IN ATMOSPHERIC PARTICLES*

**11.15-11.30 Oral presentation, O-2**
Sanja Perać, *BIOPOLYMER-BASED ENCAPSULATION OF THUJA PLICATA ESSENTIAL OIL: A POTENTIAL BIOPESTICIDE AGAINST PHYTOPHTHORA PATHOGENS*

**11.30-11.45 Oral presentation, O-3**

Jovana Ćirković, *PREPARATION OF BIOPOLYMER BASED PESTICIDE AGAINST PHYTOPHTORA PATHOGENS*

**11.45-12.00 Oral presentation, O-4**

Marija Botić, *ANTHOCYANIN/BIOPOLYMERS-BASED FILMS AS pH SENSORS FOR MONITORING FOOD FRESHNESS*

**12.00-12.15 Coffee break**

**Session 3: Electro and Magnetic Ceramics**

Chairs: Slavko Bernik, Goran Branković

**12.15-12.35 Invited lecture, I-4**

Slavko Bernik, *EXAMINING POSSIBLE ALTERNATIVES IN DOPING THE ZnO-$Cr_2O_3$-BASED VARISTOR CERAMICS*

**12.35-12.55 Invited lecture, I-5**

Tomislav Ivek, *COLOSSAL MAGNETORESISTANCE IN OVER-DOPED $La_{1-x}Ca_xMnO_3$ THIN FILMS*

**Session 4: Catalytic Materials**

Chairs: Matejka Podlogar, Martina Kocijan

**12.55-13.15 Invited lecture, I-6**

Shotaro Tada*, FRUSTRATED LEWIS PAIR FUNCTIONALIZATION OF PRECURSOR-DERIVED CERAMICS AND ORGANIC-INORGANIC HYBRID MATERIALS FOR SMALL MOLECULE ACTIVATION*

**13.15-13.35 Invited lecture, I-7**

Matejka Podlogar, *ZnO NANOSTRUCTURES FOR EFFICIENT PHOTOCATALYTIC DEGRADATION OF ORGANIC CONTAMI-NANTS*

**13.35-13.55 Invited lecture, I-8**

Martina Kocijan, *STRUCTURAL, MORPHOLOGICAL, OPTICAL, AND PHOTOCATALYTIC PROPERTIES OF $TiO_2$ THIN FILMS DEPOSED BY PLASMA-ENHANCED ATOMIC LAYER DEPOSITION*

**13.55-15.00 Lunch break**

**13.55-15.00 Poster Session 1**

# Day 2. Thursday - June 19, 2025

**Plenary lecture**
Chairs: Subramshu S. Bhattacharya, Ioannis Pashalidis

**10.00-10.30 Plenary lecture, PL-2**
Pavol Šajgalík, *IS SILICON NITRIDE BASED CERAMICS SUITABLE FOR THE DRUG DELIVERY?*

**Session 5: Ceramic Powders, Characterization and Processing**
Chairs: Pavol Šajgalík, Ondrej Hanzel

**10.30-10.50 Invited lecture, I-9**
Subramshu S. Bhattacharya, *SYNTHESIS AND STRUCTURE-PROPERTY CORRELATIONS IN HIGH ENTROPY OXIDES*

**10.50-11.10 Invited lecture, I-10**
Ravi Kumar, ESTIMATION OF SINGLE CRYSTAL ELASTIC CONSTANTS FROM POLYCRYSTALLINE CERAMIC MATERIALS – A CASE STUDY WITH AN ENTROPY STABILIZED TRANSITION METAL OXIDE

**11.10-11.25 Oral presentation, O-5**
Mayank Mishra, *MULTI-MODAL MECHANICAL CHARACTERIZATION OF ADDITIVELY MANUFACTURED ALUMINA CERAMICS USING MINIATURE TESTING TECHNIQUES*

**11.25-11.40 Coffee break**

**Session 6: High Temperature Phenomena, Sintering, Microstructure Design and Mechanical Properties**
Chairs: Peter Tatarko, Ravi Kumar

**11.40-12.00 Invited lecture, I-11**
Ondrej Hanzel, *EFFECT OF PHASE COMPOSITION AND LATTICE OXYGEN CONTENT ON THERMAL CONDUCTIVITY OF SILICON CARBIDE CERAMICS*

**12.00-12.20 Invited lecture, I-12**
Peter Tatarko, *NOVEL ULTRA-HIGH TEMPERATURE CERAMICS: PROCESSING AND INTEGRATION*

**12.20-12.40 Invited lecture, I-13**
Hakan Ünsal, *DEVELOPMENT AND ABLATION BEHAVIOR OF ULTRA-HIGH-TEMPERATURE CERAMIC MATRIX COMPOSITES*

**12.40-12.55 Oral presentation, O-6**

Miloš Dujović, *STABILITY AND PROPERTIES OF $M_2AlC$ PHASES WITH COMPOSITIONALLY COMPLEX M-LAYERS*

**12.55-13.10 Oral presentation, O-7**

Asif Ali, *INFLUENCE OF SPARK PLASMA SINTERING ON THE STRUCTURE, MICROSTRUCTURE, AND PROPERTIES OF Nb-DOPED $BATIO_3$ PEROVSKITES*

**13.10-14.10 Lunch break**

**13.10-14.10 Poster Session 2**

**Session 7: Advanced Materials for Energy-Related Applications**

Chairs: Zoltán Lénčéš, M. Balasubramanian

**14.10-14.30 Invited lecture, I-14**

Zoltán Lénčéš, *SILICON/GRAPHITE ANODE PERFORMANCE IMPROVED BY ATOMIC LAYER DEPOSITED ZnO FILMS AND FLUOROETHYLENE CARBONATE ADDITIVE*

**14.30-14.50 Invited lecture, I-15**

M. Balasubramanian, *NITROGEN-DOPED $Fe_3O_4$-$Fe_3C$@RGO CATHODE FOR HIGH-PERFORMANCE LITHIUM-SULFUR BATTERIES*

**14.50-15.10 Invited lecture, I-16**

Jelena Vukmirović, *SOLUTION-PROCESSED PEROVSKITE THIN FILMS: FROM COMPLEX ARCHITECTURES TO EPITAXIAL LAYERS*

**15.10-15.25 Oral presentation, O-8**

Imrongnaro Longkumer, HIGH-ENTROPY PEROVSKITE OXIDES WITH SUBSTITUTIONS ON BOTH A AND B SITES FOR THERMOELECTRIC APPLICATIONS

**15.25-15.40 Oral presentation, O-9**

Emilija Nidžović, *COMPOSITIONALLY COMPLEX SPINEL-TYPE OXIDES FOR ADVANCED APPLICATIONS*

**20.00-01.00 Conference Dinner at AMFORA**

# Day 3. Friday - June 20, 2025

**Plenary lecture**
Chairs: Jelena Zagorac, Dejan Zagorac

**10.00-10.30 Plenary lecture, PL-3**
K.C. Hari Kumar, *THERMODYNAMIC MODELLING OF THE Ta-N-O SYSTEM*

**Session 8: Computing in Materials Science**
Chairs: K.C. Hari Kumar, Elena Raksha

**10.30-10.50 Invited lecture, I-17**
Dejan Zagorac, *KOVIN ALGORITHM: BRIDGING THE GAP BETWEEN THEORY AND EXPERIMENT*

**10.50-11.10 Invited lecture, I-18**
Elena Raksha, *MODEL COMPOUNDS FOR CARBON-BASED SORBENT MATERIALS INVESTIGATION BY EXPERIMENTAL AND COMPUTATIONAL METHODS*

**11.10-11.25 Oral presentation, O-10**
Inga Zhukova, *COMPUTATIONAL AND EXPERIMENTAL INVESTIGATION OF NON-EQUIMOLAR HIGH-ENTROPY DIBORIDES: STRUCTURAL, MECHANICAL, AND THERMODYNAMIC INSIGHTS*

**11.25-11.40 Oral presentation, O-11**
Dušica Jovanović, *ENERGY LANDSCAPE OF NEW HYBRID ORGANIC-INORGANIC PEROVSKITES: GUANIDINIUM-$BX_3$ SUBSTITUTED BY B = ($Be^{2+}$, $Ba^{2+}$, $Zn^{2+}$, $Ge^{2+}$, $Sn^{2+}$) AND X = ($I^-$, $F^-$)*

**11.40-12.00 Coffee break**

**Session 9: Ceramic Composites, Membranes and Multimaterials**
Chairs: Claus Rebholz, Žaklina Burghard

**12.00-12.20 Invited presentation, I-19**
Žaklina Burghard, *CERAMIC MICRO-SCROLLS FOR SOFT ROBOTICS: BIOINSPIRED MAGNETIC ACTUATORS*

**12.20-12.35 Oral presentation, O-12**

Aleksandr Maletskii, *INFLUENCE OF NEUTRON IRRADIATION ON THE AGGREGATE- AND DISPERSION-STRENGTHENED STRUCTURE OF ZTA COMPOSITE CERAMICS*

**12.35-12.50 Oral presentation, O-13**

Svetlana Butulija, *PROTON-IRRADIATED DOX-LOADED MULTI-WALLED CARBON NANOTUBES: TOWARD SAFER CHEMO-THERAPEUTIC DELIVERY*

**12.50-13.05 Oral presentation, O-14**

Gianmarco Taveri, *ISOVALENT SUBSTITUTION OF OCTAHEDRAL SITES IN NaSICON COMPOUNDS: HOW ELECTROCHEMICAL PROPERTIES ARE AFFECTED*

**Session 10: Tradicional Ceramics and Enigeering Materials**

Chairs: Tatjana Volkov-Husović, Zvezdana Baščarević

**13.05-13.25 Invited lecture, I-20**

Claus Rebholz, *TURNING WASTE INTO VALUE: ECO-FRIENDLY THERMAL INSULATING MORTARS FROM RECYCLED RIGID FOAMS*

**13.25-13.45 Invited lecture, I-21**

Tatjana Volkov-Husović, *RECYCLING OF REFRACTORY BRICKS USED IN IRON AND STEEL INDUSTRY*

**13.45-14.05 Invited lecture, I-22**

Zvezdana Baščarević, *DURABILITY OF ALTERNATIVE CEMENTITIOUS BINDER*

**14.05-14.20 Oral presentation, O-15**

Antonis Kyriacou, *ENGINEERING Ni–Al REACTIVE POWDERS: EFFECT OF BALL MILLING TIME AND PARTICLE SIZE ON MATERIAL PROPERTIES*

**14.20-15.20 Lunch break**

**15.20-16.00 Closing Ceremony**

# POSTER SESSION

# Day 1. Wednesday - June 18, 2025

## Poster Session 1: Ceramic Powders, Characterization and Processing

**P1.** Bojana Simović, *TEXTILE DYES REMOVAL USING HYDROTHERMALLY SYNTHESIZED $LiTiO_2$*

**P2.** Milena Rosić, *SYNTHESIS AND CHARACTERIZATION OF $Co_{0.9}Gd_{0.1}MoO_4$ NANOPOWDERS*

**P3.** Tijana B. Vlašković, *FACILE SYNTHESIS AND CHARACTERIZATION OF PEROVSKITE-TYPE OXIDE $Ca_{0.9}Er_{0.1}MnO_3$*

**P4.** Natalija Milojković, *DESIGN OF $Bi_2O_3$ PROPERTIES BY BIOPOLYMER*

**P5.** Neda Nišić, *NOVEL MULTIDOPED SOLID IONIC CONDUCTOR BASED ON $CeO_2$ FOR APPLICATION AS ELECTROLYTE IN IT-SOFC DEVICES*

**P6.** Tamara Matic, *ION-DOPED MESOPOROUS BIOACTIVE GLASS PARTICLES AS CIPROFLOXACIN DRUG DELIVERY VEHICLES*

**P7.** Marija Prekajski Đorđević, *NOVEL Ca-Sr-Ba HYDROXYAPATITE: FROM NANOEMULSION TO DENSE BIOCERAMIC*

**P8.** Tina Radošević, *APPLICATION OF FIB-SEM CHARACTERIZATION IN THE DEVELOPMENT OF PHOTOCATALYTIC MATERIALS FOR ENVIRONMENTAL REMEDIATION*

## Poster Session 2: High Temperature Phenomena, Sintering, Microstructure Design and Mechanical Properties

**P9.** Jelena Mitrović, *THE COLD SINTERED $BaSn_{1-X}In_XO_3$ (X = 0.00, 0.05, 0.10, 0.15 AND 0.20) SAMPLES AND THEIR FUNCTIONAL PROPERTIES*

**P10.** Olivera Zemljak, *OPTIMIZING COLD SINTERING CONDITIONS FOR DENSE YTTRIUM MANGANITE CERAMICS*

**P11.** Vladimir Pavkov, *EFFECT OF SINTERING TEMPERATURE ON THE COLOUR VARIATION OF ANDESITE BASALT CERAMICS*

## Poster Session 3: Advanced Materials for Energy-Related Applications

**P12.** Jovana Ackovic, *A CHRONOPOTENTIOMETRIC EXAMINATION OF CO-DOPED HETEROPOLY ACID AND ITS BRONZE*

**P13.** Jelena Bobić, *POLYCRYSTALLINE AND EPITAXIAL THIN FILMS OF $La_{1-X}Na_XMnO_3$*

## Poster Session 4: Computing in Materials Science

**P14.** Tamara Škundrić, *UNVEILING THE ENERGY LANDSCAPE OF $Cr_3Si_3N_8$ THROUGH A MULTI-METHODOLOGICAL APPROACH*

**P15.** Milan Pejić, *MODELING OF MULTICOMPONENT RARE EARTH COMPOUNDS: ENERGY LANDSCAPE EXPLORATION, STRUCTURE PREDICTION, AND ELECTRONIC PROPERTIES CALCULATION*

**P16.** Tamara Škundrić, *EXPLORING THE STRUCTURAL DIVERSITY AND ENERGY LANDSCAPE OF $CrSi_2N_4$*

**P17.** Jelena Zagorac, *THEORETICAL INSIGHT INTO STRUCTURAL AND MECHANICAL FEATURES OF $Hf_{0.5}Ta_{0.5}C$*

**P18.** Dušica Jovanović, *ENERGY LANDSCAPE OF GLUTAMINE (L) ON Au / Ag / Cu DOPED $TiO_2$ SURFACES AND POTENTIAL BIOMEDICAL APPLICATIONS*

**P19.** Maria Čebela, *SILVER-DOPED BISMUTH FERRITE: ENHANCED MAGNETIZATION AND THEORETICAL PREDICTIONS OF NOVEL PEROVSKITE PHASES*

**P20.** Iva Toković, *DENSITY FUNCTIONAL THEORY STUDY OF LANTHANUM STRONTIUM MANGANITE*

## Poster Session 5: Materials for Environmental Technology

**P21.** Tamara Minović Arsić, *SYNTHESIS AND CHARACTERIZATION OF CARBON CRYOGEL/MULTI-WALLED CARBON NANO TUBES COMPOSITE*

**P22.** Sanja Petrović, *ADSORPTION OF $As^{3+}$ CATION IN A BATCH SYSTEM BY BENTONITE AT pH 3.5 IN SHORT TIME INTERVALS*

**P23.** Jelena Jovanović, *DEVELOPMENT OF A BIOPOLYMER-BASED BIO-PESTICIDE WITH AILANTHUS ALTISSIMA EXTRACT FOR SUSTAINABLE CONTROL OF LYMANTRIA DISPAR IN FOREST ECOSYSTEMS*

**P24.** Kyriacos Ioannou, *FUNCTIONALIZED ACTIVATED CARBON SPHERES FOR ENHANCED WATER DECONTAMINATION*

**P25.** Andrijana Vasić, *WASTE SLAG FROM LIGNITE COMBUSTION AS AN ADSORBENT FOR THE REMOVAL OF ETHYL XANTHATE FROM WASTEWATER OF THE FLOTATION PLANT FOR COPPER ORE AND PRECIOUS METALS PROCESSING IN BOR*

**P26.** Radmila Lišanin, *SHUNGITE AS AN ENVIRONMENTALLY RELEVANT MATERIAL AND ITS STABILITY UNDER pH VARIATIONS*

**P27.** Miodrag Ristović, *INDUSTRIAL WASTE AS A RESOURCE IN ASPHALT PRODUCTION AND ROAD ENGINEERING*

**P28.** Katarina Stefanović, *UNDERSTANDING THE IMPACT OF TECTONICS ON THE FORMATION OF ZLATOKOP ZEOLITE AS AN ECOLOGICAL RAW MATERIAL*

**P29.** Irina Kandić, *ACTIVATED CARBON FROM BLACK ALDER CONE-LIKE FLOWERS FOR MICROCYSTIN-LR REMOVAL*

# Day 2. Thursday - June 19, 2025

## Poster Session 6: Catalytic Materials

**P30.** Miroslav Hnatko, *ELECTROCHEMICAL SYNTHESIS OF NANOTUBULAR $TiO_2$ ON Ti-6Al-4V IN DEEP EUTECTIC SOLVENT: FLUORIDE-FREE AND FLUORIDE-ASSISTED APPROACHES*

**P31.** Stefan T. Jelić, *PHOTOCATALYTIC PERFORMANCE OF RARE EARTH-DOPED $BiVO_4$*

## Poster Session 7: Materials for Sensing Devices

**P32.** Jelena Milićević, *ELECTROCATALYTIC PERFORMANCE AND STRUCTURAL FEATURES OF A Pd-DECORATED MULTIPHASE COMPOSITE ELECTRODE*

**P33.** Slavica Savić Ružić, *ELECTROSPUN $SnO_2$ NANOFIBERS FOR ADVANCED GAS SENSING: FROM MORPHOLOGICAL DESIGN TO FUNCTIONAL PERFORMANCE*

**P34.** Katarina Vojisavljević, *FLEXIBLE AND BIODEGRADABLE PRESSURE SENSORS BASED ON CHITOSAN-GLYCINE REINFORCED WITH MXENE*

**P35.** Milica Počuča-Nešić, *PIEZOELECTRIC NANO-BIOCOMPOSITES BASED ON CHITOSAN, GLYCINE, AND ZINC OXIDE NANOPARTICLES*

**P36.** Zorica Marinković Stanojević, *SYNTHESIS OF $SnO_2$ NANOFIBERS BY ELECTROSPINNING METHOD AND STUDY OF ITS ETHANOL AND ACETONE SENSING PROPERTIES*

## Poster Session 8: Ceramic Composites, Membranes and Multimaterials

**P37.** Polina Kobchikova, *STUDY OF MASS TRANSFER MECHANISMS AT THE INITIAL STAGE OF SINTERING AND THEIR INFLUENCE ON THE STRUCTURE OF ALUMINA-ZIRCONIA COMPOSITE CERAMICS*

**P38.** Michal Hičák, *HIGHLY POROUS SILICON NITRIDE–BASED COMPOSITE AS DRUG DELIVERY CARRIER?*

## Poster Session 9: Electro and Magnetic Ceramics

**P39.** Danijela Luković Golić, *INDUCED MODIFICATIONS IN STRUCTURAL, MICROSTRUCTURAL, AND FERROELECTRIC PROPERTIES OF BISMUTH FERRITE CERAMICS DOPED WITH LANTHANUM AND EUROPIUM*

## Poster Session 10: Tradicional Ceramics and Engineering Materials

**P40.** Gordana Stanojević, *ASSESSMENT OF ALKALI ACTIVATED BINDERS BASED ON FLY ASH FOR IMMOBILIZATION OF CESIUM*

**P41.** Bratislav Todorović, *COMPARISON OF FTIR SPECTRA OF BENTONITE CLAY WITH SPECTRA OF ITS BASIC ACTIVATION BY ULTRASOUND*

**P42.** Svetlana Ilić, *INFLUENCE OF THE PRISMATIC GRAINS ON NANO-INDENTATION BEHAVIOUR OF IRON-DOPED MULLITE*

**P43.** Aleksandra Šaponjić, *MULLITE BASED CERAMICS OBTAINED FROM WASTE CLAY-DIATOMITE*

**P44.** Zvezdana Baščarević, *POSSIBILITY TO USE LOCAL PONDED ASH AS SUPPLEMENTARY CEMENTITIOUS MATERIAL*

**P45.** Branko Matović, COMPOSITION UNIVERSE OF CERAMIC MATERIALS: THE POTENTIAL FOR DISCOVERING NEW FUNCTIONAL CERAMICS THROUGH HIGH-THROUGHPUT ANALYSIS

**P46**. Aleksa Luković, EFFECTS OF CHEMICAL CORROSION ON BASALT BASED GLASS-CERAMIC COMPOSITES

O-3

# PREPARATION OF BIOPOLYMER BASED PESTICIDE AGAINST *PHYTOPHTORA* PATHOGENS

Jovana Ćirković[1], Aleksandar M. Radojković[2], Jelena Jovanović[1,2], Sanja Perać[1], Zorica M. Branković[1,2], Ivan Lj. Milenković[3,4], Slobodan D. Milanović[3,4], Jovan N. Dobrosavljević[3], Vanja M. Tadić[5], Ana R, Žugić[5], Goran Branković[1,2]

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In this work, a new formulation that gradually released encapsulated *Thuja plicata* essential oil (TPEO) as an active component from a biopolymer matrix within a given period was obtained. Firstly, biopolymer matrix consisting of a chitosan-gelatin mixture was prepared. Afterwards, TPEO essential oil was encapsulated into the biopolymer matrix and an oil-in-water emulsion was formed. The main goal of this work was to obtain stable formulation by optimizing synthesis parameters (biopolymers ratio, amount of Tween 80 and homogenization time). FTIR spectra analysis confirmed that the addition of gelatine to the chitosan solution contributed to the forming of strong electrostatic interaction between these polymers, and also revealed hydrogen interactions between active components of TPEO (methyl thujate) and polymer chains. By optimizing biopolymers ratio and amount of Tween 80, nanoemulsion with average droplet size around 150 nm was obtained. The stability of the emulsions was confirmed by zeta potential measurements, with the value of about 30 mV, even after 14 days of ageing at room temperature.