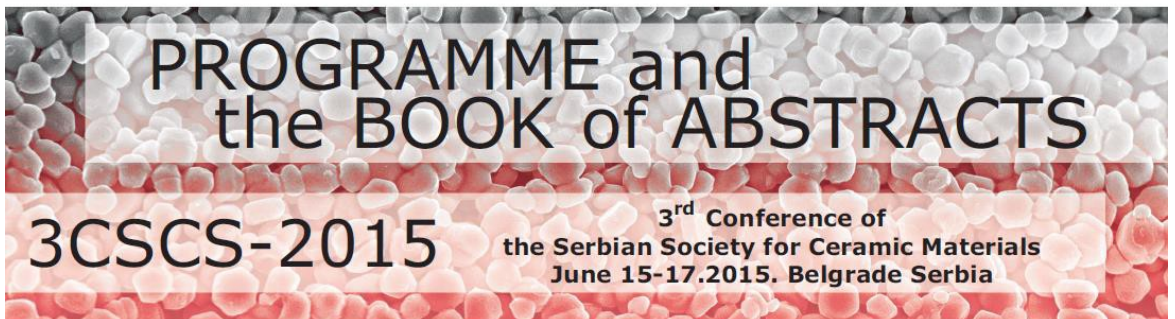


The Serbian Society for Ceramic Materials
The Academy of Engineering Sciences of Serbia
Institute for Multidisciplinary Research - University of Belgrade
Institute of Physics - University of Belgrade
Vinča Institute of Nuclear Sciences - University of Belgrade



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Branko Matović
Zorica Branković
Dušan Bućevac
Vladimir V. Srdić

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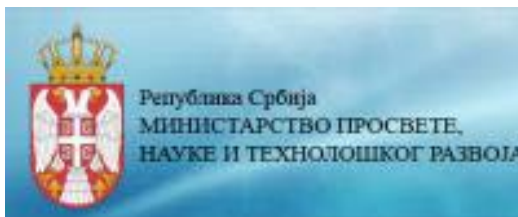
PROGRAMME AND THE BOOK OF ABSTRACTS

**3rd Conference of The Serbian Society for
Ceramic Materials**

**June 15-17, 2015
Belgrade, Serbia
3CSCS-2015**

Edited by:
**Branko Matović
Zorica Branković
Dušan Bućevac
Vladimir V. Srdić**

SPECIAL THANKS TO



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SERBIA

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WELCOME MESSAGE

On behalf of the organizers and organizing committee of the 3rd Conference of the Serbian Society for Ceramic Materials (3CSCS-2015), I would like to extend my warmest welcome to all of you for attending the 3CSCS-2015. The conference is hosted and organized by the Serbian Society for Ceramic Materials, and co-organized by Academy of Engineering Sciences of Serbia, Institute for Multidisciplinary Research - University of Beograd, Institute of Physics - University of Beograd, Vinca Institute for Nuclear Sciences - University of Beograd.

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. 3CSCS-2015 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 more than 100 abstracts submitted from 16 countries.

The Conference will feature four plenary lectures, 25 invited talks and more than 80 oral and poster presentations as well as exhibitions of some new ceramic materials and devices. 3CSCS-2015 includes Ceramic Powders, Characterization and Processing, High temperature Phenomena, Sintering, Microstructure Design and Mechanical Properties, Electro and Magnetic Ceramics, Ceramic Composites, Membranes and Multimaterials, Traditional Ceramics and Computing in Materials Science. Exhibitions from company sponsors will be held at the Conference as well.

We are grateful for the support from the Ministry of Education, Science and Technological Development 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.

3CSCS-2015 President

Branko Matovic

Content

PROGRAMME

| | |
|---------------------------------------|-----------|
| Monday, June 15, 2015 | 17 |
| Tuesday, June 16, 2015 | 19 |
| Wednesday, June 17, 2015 | 21 |

PLENARY LECTURES

| | |
|---|-----------|
| D. Damjanovic MORPHOTROPIC PHASE BOUNDARY SYSTEMS: CONCEPT, MATERIALS AND APPLICATIONS | 24 |
| J. Christian Schön NANOMATERIALS: WHAT DO THEIR ENERGY LANDSCAPES TELL US? | 25 |
| N.K. Kostoglou, C. Rebholz THERMAL STABILITY OF DIFFERENT HEXAGONAL BORON NITRIDE (h-BN) NANOSTRUCTURES | 26 |
| P.M. Vilarinho TO BE OR NOT TO BE POROUS? Open questions on the role of porosity in ferroelectric thin films | 27 |

INVITED LECTURES

| | |
|--|-----------|
| S. Bernik, M. Košir, N. Daneu, A. Rečnik, E. Guilmeau, M. Čeh STRUCTURAL AND MICROSTRUCTURAL CHALLENGES FOR THE ENHANCED THERMOELECTRIC PERFORMANCE OF ZnO-BASED CERAMICS . | 28 |
| T. Rojac, J. Walker, M. Makarovic, E. Khomyakova, H. Ursic, A. Bencan, B. Malic, D. Damjanovic PROCESSING AND CONDUCTIVITY ISSUES IN BiFeO ₃ -BASED PIEZOELECTRIC CERAMICS | 29 |
| V. Stamenković MATERIALS WITH TAILORED PROPERTIES FOR ELECTROCHEMICAL SYSTEMS | 30 |

| | |
|---|----|
| P. Gao, A. Bolon, E. Lara-Curzio, Z. Brankovic, G. Brankovic, M. Radovic ON ANELASTIC AND DIELECTRIC RELAXATION IN DOPED CERIA AND ZIRCONIA CERAMICS | 31 |
| E. Traversa CERIUM OXIDE NANOPARTICLES FOR ANTIOXIDANT THERAPY PERSPECTIVES | 32 |
| D. Makovec SYNTHESIS OF MAGNETIC AND MULTIFUNCTIONAL NANOCOMPOSITES BASED ON THE COLLOIDAL PROCESSING OF NANOPARTICLES | 33 |
| C.E. Ciomaga, L. Padurariu, L. Mitoseriu FERROELECTRIC-FERRITE/CNT CERAMIC COMPOSITES: SYNTHESIS, FUNCTIONAL PROPERTIES AND MODELING | 34 |
| Z. Burghard NANOSTRUCTURED OXIDE BASED THIN FILMS AND PAPERS TAILORED BY NATURE ADAPTED NANOSCALE DESIGN | 35 |
| T. Cagin THERMO-ELECTRO-MECHANICAL COUPLING IN PIEZOELECTRIC MATERILAS: MOLECULAR THEORIES AND ATOMISTIC SIMULATIONS | 36 |
| S. Woodley, M. Farrow, R. Catlow, S. Shevlin, J. Buckeridge, M. Watkins, T. Lazauskas, A. Sokol STRUCTURE PREDICTION OF CRYSTALLINE NANO-COMPOSITES: A BOTTOM UP APPROACH | 38 |
| D. Zagorac, J. Zagorac, M. Rosić, B. Matović THEORETICAL INVESTIGATIONS OF BaS, AlN AND BN SYSTEM ON <i>ab initio</i> LEVEL | 38 |
| A. Gajović, M. Plodinec, A. Šantić, D. Iveković, J. Macan, T. Haramina, M. Ćeh, M. Willinger TITANIA BASED NANOSTRUCTURES FOR VARIOUS APPLICATIONS | 40 |
| T. Bräuniger CHARACTERISATION OF CERAMIC SYSTEMS BY SOLID-STATE NMR SPECTROSCOPY | 41 |
| M. Prekajski, M. Miljević, B. Todorović, A. Matković, M. Marinković- Cicović, J. Luković, B. Matović SYNTHESIS OF NANOSPHERES CARBONATED STRONTIUM HYDROXYAPATITE THROUGH A SIMPLE NANOEMULSION METHOD | 42 |
| C.-A. Wang FABRICATION, STRUCTURE CONTROL AND FUNCTIONAL CHARACTERISTICS OF POROUS CERAMICS | 43 |
| E. Di Bartolomeo, I. Luisetto, F. Basoli, F. Zurlo, S. Licocchia INFILTRATED La _{0.8} Sr _{0.2} Ga _{0.8} Mg _{0.2} O _{3-δ} BASED FUEL CELLS FOR BIOGAS FEEDING | 43 |

| | |
|---|----|
| R. Kumar SYNTHESIS, CHARACTERIZATION AND PHOTOCATALYTIC PROPERTIES OF TITANIA/ZIRCONIA-SILICON OXYCARBONITRIDE NANOCOMPOSITES | 45 |
| K. Yoshida, C.-C. See, S. Yokoyama, M. Takahashi, T. Yano DEVELOPMENT OF POROUS SiC CERAMICS BASED ON IN-SITU GRAIN GROWTH | 46 |
| J.E. Garay PROCESSING AND PERFORMANCE OF TRANSPARENT CERAMICS FOR LIGHT EMISSION AND LIGHT MANIPULATION | 46 |
| M. Komljenović, V. Nikolić, N. Marjanović, Z. Baščarević ALKALI ACTIVATED MATERIALS: CRUCIAL FACTORS AFFECTING THE STRENGTH | 47 |
| M. Gajić-Kvašček PATTERN RECOGNITION TECHNIQUES AS SUPPORT FOR ARCHAOMETRIC STUDY OF CERAMIC ARTEFACTS | 48 |
| M. Grujić-Brojčin, M. Šćepanović THE APPLICATION OF RAMAN SPECTROSCOPY IN THE ANALYSIS OF ANCIENT CERAMICS | 49 |
| Z. Baščarević, V. Nikolić, N. Marjanović, L. Petrašinović-Stojkanović, Z. Miladinović, M. Ršumović, M. Komljenović DURABILITY OF ALKALI ACTIVATED MATERIALS | 50 |
| M. Vlahović, S. Martinović, T. Volkov-Husović NON-DESTRUCTIVE EVALUATION OF SULFUR-POLYMER COMPOSITE BEHAVIOR UNDER INDUCED DESTRUCTION INFLUENCE | 51 |
| S. Martinovic, Z. Stevic, Vlahovic, T. Volkov-Husovic BEHAVIOR OF LOW CEMENT CASTABLE IN EXTREME CONDITIONS: THERMAL SHOCK, CAVITATION EROSION, LOW LEVEL LASER ACTION ... | 52 |

ORAL PRESENTATIONS

| | |
|--|----|
| A. Radojković, S. Savić, N. Jović, J. Ćirković, Z. Branković, G. Branković Eu DOPED BARIUM CERIUM OXIDE AS A PROMISING ELECTROLYTE FOR INTERMEDIATE TEMPERATURE SOFCs | 53 |
| D. Luković Golić, A. Radojković, J. Ćirković, N. Tasić, D. Pajić, G. Branković, Z. Marinković Stanojević, Z. Branković STRUCTURAL, FERROELECTRIC AND MAGNETIC PROPERTIES OF BiFeO ₃ SYNTHESIZED BY HYDRO-EVAPORATION AND SONOCHEMICALLY ASSISTED HYDROTHERMAL METHODS | 54 |
| D. Tripkovic, J. Vukmirovic, B. Bajac, J. Stanojev, N. Samardzic, E. Djurdjic, S. Rakic, G. Stojanovic, V.V. Srdic ELECTRICAL AND STRUCTURAL CHARACTERIZATION OF INKJET SHAPED PASSIVE COMPONENTS BASED ON BARIUM TITANATE AND Ni-Zn FERRITE CERAMICS | 55 |

| | |
|---|----|
| V. Fruth, M. Cernea, I. Atkinson, J. Pandeale, E. Tenea, E. Volceanov, F. Craciun, C. Galassi, M. Dinescu, M. Zaharescu MULTIFERROIC PROPERTIES OF (Nd,Fe)-DOPED PbTi(Mn)O ₃ PEROVSKITE CERAMICS | 56 |
| S. Pršić, S.M. Savić, Z. Branković, S. Vrtnik, S. Bernik, G. Branković THERMOELECTRIC PROPERTIES OF Cu- DOPED SODIUM COBALTITE CERAMICS | 57 |
| N. Ilić, B. Stojadinović, A. Džunuzović, J. Bobić, N. Tasić, L. Curecheriu, Z. Dohčević-Mitrović, B. Stojanović IMPROVED ELECTRICAL AND MAGNETIC PROPERTIES IN Y DOPED BiFeO ₃ CERAMICS | 58 |
| N. Tasić, Z. Marinković Stanojević, Z. Branković, M. Podlogar, M. Gilić, A. Matković, G. Branković NANO-ANATASE TiO ₂ FILMS PREPARED BY HYDROTHERMAL SYNTHESIS AND THEIR PHOTOVOLTAIC PERFORMANCE | 59 |
| R. Rudeř, S. Bernik THE EFFECT OF Bi ₂ O ₃ AND Sb ₂ O ₃ ON THE MICROSTRUCTURE AND ELECTRICAL PROPERTIES OF THE THICK-FILM VARISTORS | 60 |
| J. Stanojev, B. Bajac, D. Tripkovic, J. Vukmirovic, M. Ivanov, R. Grigalaitis, J. Banys, V.V. Srdic STRUCTURAL CHARACTERIZATION AND DIELECTRIC PROPERTIES OF BaTiO ₃ /NiFe ₂ O ₄ MULTILAYER THIN FILMS | 61 |
| S. Neelamraju ATOMISTIC MODELING OF THE LOW-TEMPERATURE ATOM-BEAM DEPOSITION OF MAGNESIUM FLUORIDE | 62 |
| A. Dapčević, D. Poleti, J. Rogan, A. Radojković, G. Branković HIGHLY CONDUCTIVE LANTHANOIDE STABILIZED δ-Bi ₂ O ₃ PHASES | 63 |
| I. Stijepović, M. Milanović, V.V. Srdić SURFACE MODIFICATION OF ZINC FERRITE NANOPARTICLES AND THEIR PROPERTIES | 64 |
| J.P. Cusu, C. Stan, C. Munteanu, D. Culita, I. Atkinson, V. Parvulescu, V. Fruth SYNTHESIS AND CHARACTERIZATION OF CeO ₂ -SiO ₂ MESOPOROUS MATERIALS FOR PHOTOCATALYTIC OXIDATION OF CH ₄ | 65 |
| I. Atkinson, J.P. Cusu, V. Parvulescu, M. Filip, M. Voicescu, D. Culita, C. Munteanu, V. Fruth MESOPOROUS NITROGEN DOPED SrTiO ₃ OBTAINED BY DIFFERENT METHODS | 66 |
| A. Mrkonjić BRUKER INSTRUMENTS FOR MATERIAL RESEARCH - NEW DETECTORS AND TECHNICAL SOLUTIONS FOR XRD | 66 |

| | |
|--|----|
| C. Stan, J. P. Cusu, I. Atkinson, C. Munteanu, D. Culita, A. Rusu, V. Fruth MESOPOROUS BIOACTIVE SrO-SiO ₂ GLASSES AS DRUG DELIVERY | 67 |
| L. Predoana, D.C. Nastac, I. Atkinson, J. Pandele, C. Munteanu, V. Fruth INCORPORATION OF Sn IN TRICALCIUM SILICATE AND DICALCIUM SILICATE | 68 |
| N. Stanković, A. Rečnik, N. Daneu ILMENITE SINGLE CRYSTAL TRANSFORMATION TO RUTILE AND HEMATITE INDUCED BY HEATING IN AIR ATMOSPHERE | 69 |
| B. Matovic PREPARATION AND CHARACTERIZATION OF NANOCRYSTALLINE Mg DOPED CERIA POWDERS | 70 |
| R. Benitez, G. Proust, I. Karaman, M. Radovic HYSTERETIC STRESS-STRAIN BEHAVIOR OF Ti ₂ AlC | 71 |
| M. Presečnik, S. Bernik MICROSTRUCTURAL AND THERMOELECTRIC CHARACTERISTICS OF WO ₃ -DOPED Ca ₃ Co ₄ O ₉ | 72 |
| E. Khomyakova, J. Pavlič, J. Walker, M. Makarovič, T. Rojac, B. Malič, A. Benčan BiFeO ₃ THICK FILMS ON DIFFERENT SUBSTRATES | 73 |
| J. Pantić, M. Milošević, J. Luković, M. Prekajski, M. Mirković, B. Matović PHASE EVOLUTION OF SPHENE (CaTiSiO ₅) DURING ANNEALING | 74 |
| D. Bučevac, V. Krstić, A. Kocjan, T. Kosmač EFFECT OF Y ₂ O ₃ PARTITIONING ON AGEING OF Y ₂ O ₃ -STABILIZED TETRAGONAL ZrO ₂ DENTAL CERAMICS | 75 |

POSTER PRESENTATIONS

| | |
|--|----|
| A. Radojković, M. Radović, S. Krnjajić, I. Kostić, J. Mitrović, Z. Branković, G. Branković INSECTICIDE EFFECT OF ALUMINA POWDERS AGAINST BEAN WEEVILS ... | 76 |
| A.J. Habish, S. Lazarević, B. Jokić, I. Janković-Častvan, Đ. Janačković, R. Petrović SYNTHESIS AND CHARACTERIZATION OF SEPIOLITE-SUPPORTED NANO ZERO-VALENT IRON | 77 |
| A. Savić, D. Čokeša, S. Lazarević, B. Jokić, V. Kusigerski, R. Petrović, L. Tivković EFFECT OF POLYETHYLENE GLYCOL ADDITION ON THE PROPERTIES OF HYDROTHERMALLY SYNTHESIZED MAGNETITE POWDERS | 78 |
| A.Y. Albrbar, V. Đokić, A. Bjelajac, M. Mitrić, R. Petrović, Đ. Janačković INFLUENCE OF THE SOLVENT TYPE ON THE PROPERTIES AND PHOTOCATALYTIC ACTIVITY OF TITANIA POWDERS SYNTHESIZED BY A NONHYDROLYTIC SOL-GEL PROCESS | 79 |

| | |
|---|----|
| A.A. Ahribesh, S. Lazarević, I. Janković-Častvan, B. Jokić, Đ. Janačković, R. Petrović SYNTHESIS OF MAGNETIC SEPIOLITE NANOCOMPOSITES FOR THE REMOVAL OF HEAVY METAL IONS FROM AQUEOUS SOLUTIONS | 80 |
| B. Babić, A. Zarubica, T. Minović Arsić, J. Pantić, B. Jokić, N. Abazović, B. Matović SYNTHESIS, CHARACTERIZATION AND APPLICATION OF NANOSTRUCTURED IRON-DOPED TITANIA | 81 |
| B. Simović, D. Poleti, S. Kovač, A. Bjelajac, A. Dapčević, G. Branković PHOTOCATALYTIC DEGRADATION OF TEXTILE DYE WITH HYDROTHERMALLY MODIFIED NANOANATASE | 82 |
| I. Panić, U. Jovanović, M. Čebela, M. Omerašević THE REMOVAL OF HEAVY METAL CATIONS (Pb, Cu) BY LINDE TYPE-A ZEOLITE | 83 |
| J. Ćirković, K. Vojisljević, P. Vulić, Z. Branković, B. Dojčinović, T. Srečković, G. Branković BST CERAMICS OBTAINED BY HYDROTHERMALLY ASSISTED COMPLEX POLYMERIZATION METHOD | 84 |
| M. Podlogar, I. Ozgur Ozer, E. Suvaci, A. Rečnik, S. Bernik CRYSTAL GROWTH OF ZnO FROM AQUEOUS SOLUTIONS AT LOW TEMPERATURES | 85 |
| Z. Xie, R. Blair, N. Orlovskaya, M. Radovic, D. Cullen, A. Payzant HEXAGONAL Os B ₂ : MECHANOCHEMICAL SYNTHESIS, SPARK PLASMA SINTERING, STRUCTURE AND MECHANICAL PROPERTIES | 86 |
| M. Počuća-Nešić, Z. Marinković Stanojević, M. Jagodić, Z. Branković, G. Branković OPTIMIZATION OF SINTERING CONDITIONS OF MECHANOCHEMICALLY SYNTHESIZED YTTRIUM MANGANITE | 87 |
| M. Mirković, A. Došen, A. Rosić, B. Matović MECHANICAL PROPERTIES OF MICROWAVE SINTERED HYDROXYLAPATITE (HAP) | 88 |
| N. Tomić, S. Aškračić, V. Dantas de Araújo, M. Milićević, S. Lazović, Z. Petrović, Z. Dohčević-Mitrović EFFICIENT PHOTOCATALYTIC DEGRADATION OF AZO-DYE RO16 BY PURE AND Eu-DOPED Pr(OH) ₃ NANOSTRUCTURES | 89 |
| S. Krstić, B. Kaluđerović, V. Dodevski, A. Bjelajac PREPARATION OF CARBONACEOUS MICROSPHERES BY HYDROTHERMAL TREATMENT OF FRUCTOSE WITH PHOSPHORIC ACID AND DIAMETER SIZE COMPARISON | 89 |
| S. Zec, M. Stojmenović, V. Maksimović, S. Ilić, J. Zagorac, B. Babić, B. Matović ELECTRICAL PROPERTIES OF OXZAPATITE La _{0.33} (SiO ₄) ₆ O ₂ | 90 |

| | |
|---|----|
| T. Minović Arsić, J. Pantić, A. Kalijadis, B. Jokić, L. Tivković, M. Stoiljković, B. Matović, B. Babić SYNTHESIS AND CHARACTERIZATION OF CARBON CRYOGEL/CeO ₂ COMPOSITE AND ITS APPLICATION IN ARSENIC (III) ADSORPTION FROM AQUEOUS SOLUTIONS | 91 |
| V. Dodevski, B. Kaludjerović, S. Krstić PREPARATION AND CHARACTERIZATION OF ACTIVE CARBON FROM BIOWASTE PLANE TREE FRUIT USING H ₃ PO ₄ | 91 |
| T. Radovanović, B. Jokić, D. Veljović, S. Lazarević, I. Janković-Častvan, R. Petrović, Đ. Janačković INFLUENCE OF DISODIUM ETHYLENEDIAMINE-TETRAACETATE ON THE MORPHOLOGY OF HYDROTHERMALLY SYNTHESIZED UNDOPED AND COPPER-DOPED CALCIUM DEFICIENT HYDROXYAPATITE | 92 |
| A. Šaponjić, M. Stanković, B. Matović, S. Ilić, A. Egelja, M. Kokunešoski SYNTHESIS AND CHARACTERIZATION OF POROUS CERAMIC MONOLITHS BASED ON DIATOMITE | 93 |
| D. Veljovic, I. Kostic, E. Palcevskis, A. Dindune, R. Petrovic, D. Janackovic IMPROVEMENT IN THE MECHANICAL PROPERTIES OF MICROWAVE AND CONVENTIONALLY SINTERED HAP BASED BIOCERAMICS BY ADDITION OF YTTRIA-STABILIZED ZrO ₂ | 94 |
| H. Lu, C.-A. Wang ENHANCED ANTI-DELIQUESCENT PROPERTY AND ULTRALOW THERMAL CONDUCTIVITY OF MAGNETOPLUMBITE-TYPE LnMeA ₁₁ O ₁₉ VIA A PANOSCOPIC APPROACH | 95 |
| J. Luković, R. Kumar, J. Pantić, M. Prekajski, T. Volkov Husović, B. Matović SINTERING AND CHARACTERIZATION OF TUNGSTEN CARBIDE WITH TUNGSTEN SILICIDES AS SINTERING ADDITIVES | 96 |
| L. Kljajević, S. Nenadović, M. Mirković, M. Stojmenović, A. Egelja, K. Trivunac, S. Stevanović CHARACTERIZATION OF METAKAOLIN BASED GEOPOLYMERS | 97 |
| M. Kokunešoski, J. Majstorović, J. Ružić, B. Matović, S. Ilić, A. Egelja, A. Šaponjić MECHANICAL PROPERTIES OF POROUS CERAMIC MONOLITHS BASED ON DIATOMITE | 98 |
| Z.Z. Vasiljevic, M.V. Nikolic, O.S. Aleksic, N. Labus, M.D. Lukovic, S. Markovic, P.M. Nikolic STRUCTURAL AND ELECTRONIC PROPERTIES OF PSEUDBROOKITE | 98 |
| M. Omerašević, J. Ružić, N. Vuković, U. Jovanović, M. Mirković, M. Čebela, V. Maksimović SAFE TRAPPING OF Cs RADIONUCLIDES IN THERMALLY TREATED MATRIX OF NATURAL ZEOLITE-CLINOPTILOLITE | 99 |

| | |
|---|-----|
| M. Cocić, M. Logar, B. Matović, S. Cocić, S. Dević, T. Volkov-Husović THE ANALYSIS OF KEY PARAMETERS FOR THE PRODUCTION OF GLASS- CERAMICS FROM FINAL FLOTATION WASTE | 100 |
| Z.Z. Vasiljevic, D. Vasiljevic-Radovic, M.V. Nikolic, N. Labus TWO STEP SINTERING OF THE ZnTiO ₃ NANOPOWDER | 101 |
| O.S. Aleksic, P. Milutinov, M.V. Nikolic, N. Blaz, M.D. Lukovic, Z.Z. Vasiljevic, S. Markovic, L.D. Zivanov TAILORING THE MICROSTRUCTURE OF Mn-Zn FERRITE TO ELECTRONIC PROPERTIES | 101 |
| S. Li, C.-A. Wang, F. Yang, L. An HOLLOW NANO-GRAINED CERAMICS WITH ULTRALOW THERMAL CONDUCTIVITY AND HIGH MECHANICAL STRENGTH | 102 |
| S. Dmitrovic, A. Zarubica, B. Matovic SPIDER SILK BASED MATERIALS | 103 |
| S. Ilić, S. Zec, V. Maksimović, V. Urbanovich, A. Egelja, M. Ćebela, B. Matović THE INFLUENCE OF TEMPERATURE ON MICROSTRUCTURE OF MULLITE SINTERED AT HIGH PRESURE | 103 |
| B. Stojadinović, Z. Dohčević–Mitrović, N. Ilić, N. Tasić, B. Stojanović, I. Petronijević, D. Popović COMPARATIVE STUDY OF STRUCTURAL AND ELECTRICAL PROPERTIES OF Pr(Ce)-DOPED BiFeO ₃ CERAMICS BY AUTO-COMBUSTION METHOD | 104 |
| D.L. Sekulić, Z.Ā. Lazarević, N.Ā. Romcević TAILORING THE DIELECTRIC PROPERTIES OF SPINEL FERRITE (MFe ₂ O ₄) CERAMICS BY INCORPORATING DIFFERENT CATIONS (M = Mn, Mg, and Zn) IN THE STRUCTURE | 105 |
| J. Bobić, M. Vijatović Petrović, N. Ilic, A. Đunuzović, M. Ivanov, B. Stojanović ELECTRICAL AND MAGNETIC PROPERTIES OF MULTIFERROIC Bi ₅ FeTi ₃ O ₁₅ AND Bi _{4.25} La _{0.75} Ti ₃ FeO ₁₅ CERAMICS | 106 |
| M. Ćebela, R. Hercigonja, M. Omerašević, S. Ilić, M. Mirković, M. Prekajski, B. Matović MAGNETIC AND ELECTRICAL PROPERTIES OF SINGLE PHASE MULTIFERROIC BiFeO ₃ | 107 |
| M. Vuković, Z. Branković, G. Branković ULTRASONIC PRETREATMENT OF NANOPRECURSORS – INFLUENCE ON ELECTRICAL CHARACTERISTICS OF HIGH VOLTAGE ZnO VARISTORS | 108 |
| M. Rosić, M Stojmenović, J. Zagorac, J. Gulicovski, V. Dodevski, D. Jordanov, B. Matović ELECTRICAL PROPERTIES OF Ca _{1-x} Gd _x MnO ₃ (x = 0.05–0.20) NANOPOWDERS .. | 109 |

| | |
|--|-----|
| M. Vijatović Petrović, J. Bobić, R. Grigalaitis, N. Ilić, A. Džunuzović, B. Stojanović ELECTRICAL PROPERTIES OF BARIUM TITANATE CO-DOPED WITH Nb AND Mn | 110 |
| M.D. Lukovic, Z.Z. Vasiljevic, O.S. Aleksic, M.V. Nikolic, N. Tasic ELECTRONIC PROPERTIES OF PSEUDOBROOKITE NANOSTRUCTURED THICK FILMS | 111 |
| S.M. Savić, M. Tadić, Z. Jagličić, L. Mančić, K. Vojisavljević, G. Branković MAGNETIC PROPERTIES OF NICKEL MANGANITE OBTAINED BY A COMPLEX POLYMERIZATION METHOD | 111 |
| S. Jovanović, M. Kurtjak, M. Spreitzer, D. Suvorov SYNTHESIS AND CHARACTERIZATION OF COBALT FERRITE NANOSPHERES | 113 |
| T. Xu, C.-A. Wang CONTROL OF PORE SIZE AND WALL THICKNESS AND THEIR EFFECTS ON PIEZOELECTRIC COEFFICIENT OF 3-1 TYPE POROUS PZT CERAMICS BY FREEZE-CASTING PROCESS | 114 |
| H. Gao, G. Proust, I. Karaman, Z. Brankovic, G. Brankovic, M. Radovic SYNTHESIS AND CHARACTERIZATION OF BULK $(Cr_{1-x}Mn_x)_2AlC$ ($0 < x < 0.2$) MAX PHASE SOLID SOLUTIONS | 115 |
| A. Egelja, S. Ilić, D. Bučevac THE EFFECT OF VOLUME FRACTION OF YAG ON MECHANICAL PROPERTIES OF Al_2O_3/YAG COMPOSITE | 116 |
| A. Džunuzović, N. Ilić, M. Vijatović Petrović, J. Bobić, B. Stojadinović, Z. Dohčević-Mitrović, B. Stojanović STRUCTURE AND CHARACTERIZATION OF $BaTiO_3-Ni_{(1-x)}Zn_{(x)}Fe_2O_4$ COMPOSITES | 117 |
| B. Ilić, A. Mitrović, M. Zdujić THE EFFECT OF -AMORPHOUS KAOLINI ON PROPERTIES OF CEMENT-BASED COMPOSITES | 118 |
| A. Knöller, Z. Burghard, J. Bill GRAPHENE OXIDE-REINFORCED VANADIA PAPER WITH AN EXTRAORDINARY COMBINATION OF STRENGTH AND FLEXIBILITY | 118 |
| B. Čolović, R. Rudolf, V. Jokanović INVESTIGATION OF THIN TITANIUM OXIDE LAYERS ON THE SURFACE OF TITANIUM IMPLANTS | 119 |
| M. Rančelović, J. Purenović, M. Momčilović, J. Đorđević MODIFIED SERPENTINITE AS AN ACTIVE MATERIAL FOR WATER PURIFICATION: ADSORPTION-SORPTION AND ELECTROCHEMICAL CHARACTERISTICS | 120 |

| | |
|--|------------|
| T. Jahnke, Z. Burghard, J. Bill PAPER-LIKE SnO ₂ NANOHYBRID ELECTRODES REINFORCED BY GRAPHENE OXIDE FOR BATTERY APPLICATIONS | 121 |
| U. Lačnjevac, V. Radmilović, V. Radmilović, N. Krstajić TiO ₂ NANOTUBE ARRAY SUPPORTED RuO _x ELECTROCATALYST FOR THE HYDROGEN EVOLUTION REACTION IN ACID SOLUTION | 122 |
| M. Gajić-Kvaščev, I. Vranić, D. Šubić, R. Jančić-Heinemann MULTIANALYTICAL EXAMINATION OF THE ARCHAEOLOGICAL CERAMIC FINDINGS FROM THE SITE OF KALE, SOUTHEASTERN SERBIA | 123 |
| N. Mirković, M. Gajić-Kvaščev, V. Andrić, S. Amicone, R. Jančić-Heinemann RAW MATERIAL SELECTION STUDY OF THE POTTERY FROM THE MULTILAYER ARCHAEOLOGICAL SITE GRADIŠTE-İDOŠ IN SERBIAN BANAT | 124 |
| S. Milenković, N.Č. Mitić, S.T. Stojiljković, B.Ț. Todorović TILES MADE OF NATURAL HETEROGENEOUS MATERIALS FOR AN URBAN PLANNING APPROACH OF SPACE CLIMATIZATION: CERAMIC CLAY, ZEOLITE AND BENTONITE CLAY | 125 |
| E. Volceanov, A. Micu, C. Cristea, M. Eftimie, V. Fruth, A. Volceanov RECYCLING OF COAL ASH FROM THERMAL POWDER PLANTS AND GLASS WASTES FOR FOAM GLASS | 126 |
| D. Zagorac, J. Zagorac, M. Rosic, B. Matovic MODERN COMPUTATIONAL METHODS USED IN THE MODELING OF ADVANCED MATERIALS: BRIDGING THEORY AND EXPERIMENT | 127 |
| J. Zagorac, A. Zarubica, D. Zagorac, M. Rosić, B. Matović DOPING EFFECT ON COORDINATION NUMBER IN CaMnO ₃ PEROVSKITES ... | 128 |
| Author Index | 129 |
| Sponsors | 134 |

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IMPROVED ELECTRICAL AND MAGNETIC PROPERTIES IN Y DOPED BiFeO₃ CERAMICS

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Bismuth ferrite (BiFeO₃) is considered one of the most promising single phase multiferroic materials thanks to the fact it exhibits ferroelectric and antiferromagnetic properties in the same time in very wide range of temperatures (up to 370 °C). Difficulties in obtaining pure BiFeO₃ phase and dense ceramics, together with occurrence of leakage currents have prevented application of BiFeO₃.

Substitution of Bi³⁺ or Fe³⁺ ions with some transition metal or rare earth ions can improve both electrical and magnetic properties by reducing leakage currents and introducing weak ferromagnetism through structural changes.

Y doped bismuth ferrite, Bi_{1-x}Y_xFeO₃, was synthesized by auto-combustion method using urea as a fuel. Precursor powders were annealed, pressed and sintered. Powders and ceramic samples were characterized by XRD, SEM, Raman, impedance spectroscopy, ferroelectric and magnetic measurements.

X-ray diffractograms and Raman spectra showed no presence of secondary phases. SEM images indicated lowering of grain size with higher concentration of Y³⁺. Electrical resistance is highly improved even at 1 % of Y, while 10 % of Y was necessary to break spiral spin structure, leading to weak ferromagnetism.