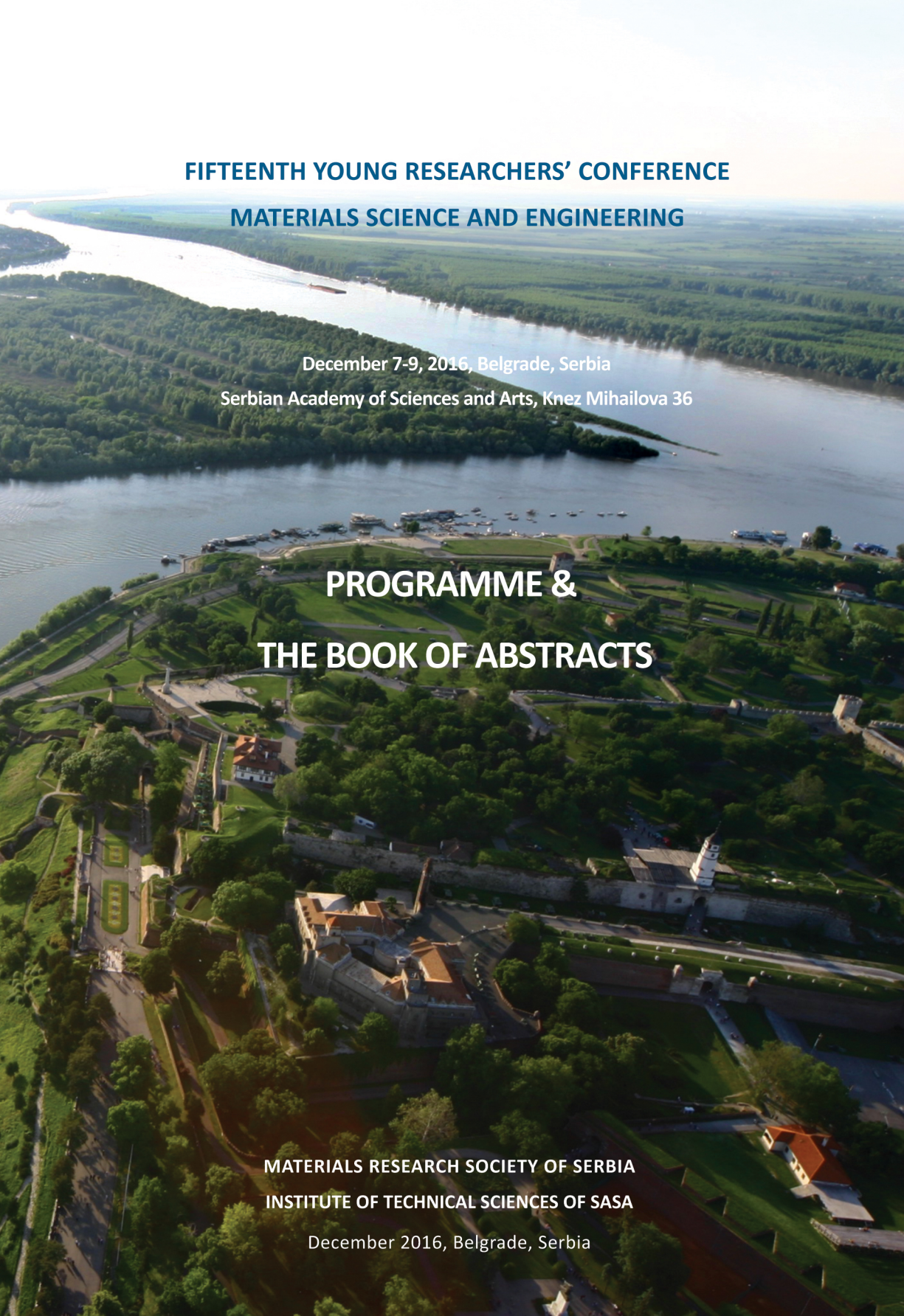

FIFTEENTH YOUNG RESEARCHERS' CONFERENCE

MATERIALS SCIENCE AND ENGINEERING

December 7-9, 2016, Belgrade, Serbia

Serbian Academy of Sciences and Arts, Knez Mihailova 36

PROGRAMME &

THE BOOK OF ABSTRACTS

MATERIALS RESEARCH SOCIETY OF SERBIA

INSTITUTE OF TECHNICAL SCIENCES OF SASA

December 2016, Belgrade, Serbia

FIFTEENTH YOUNG RESEARCHERS' CONFERENCE
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Program and the Book of Abstracts

Materials Research Society of Serbia
&
Institute of Technical Sciences of SASA

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Aim of the Conference

Main aim of the conference is to enable young researchers (post-graduate, master or doctoral student, or a PhD holder younger than 35) working in the field of materials science and engineering, to meet their colleagues and exchange experiences about their research.

Topics

Biomaterials
Environmental materials
Materials for high-technology applications
Nanostructured materials
New synthesis and processing methods
Theoretical modelling of materials

Scientific and Organizing Committee

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Results of the Conference

Beside printed «Program and the Book of Abstracts», which is disseminated to all conference participants, selected and awarded peer-reviewed papers will be published in journals "Tehnika – Novi Materijali" and "Processing and Application of Ceramics". The best presented papers, suggested by Session Chairpersons and selected by Awards Committee, will be proclaimed at the Closing Ceremony.

Sponsors

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Programme
Fifteenth Young Researchers Conference
Materials Science and Engineering

Wednesday, December 7, 2016

08.30 Registration

09.30 – 10.00 Opening Ceremony

10.00 – 11.15 1st Session – Biomaterials I
Chairpersons: Prof. Dr. Bojana Obradović and Dr. Kai-Chiang Yang

10.00 – 10.15 New calcium phosphate - magnesium phosphate ceramic materials with the ratio of (Ca + Mg)/P = 2 for medical applications
Margarita Goldberg, Valeriy Smirnov, Olga Antonova, Sergey Smirnov, Sergey Barinov
Baikov Institute of Metallurgy and Materials Science, Russian Academy of Sciences

10.15 – 10.30 The impact of adipose-derived mesenchymal stem cells in vitro induced into osteogenic cells on vascularization process in ectopic osteogenic implants
Jelena G. Najdanović,[1,2] Stevo J. Najman,[1,2] Vladimir J. Cvetković,[3] Sanja Stojanović,[1,2] Jelena M. Živković,[1,2] Marija Đ. Vukelić-Nikolić,[1,2] Maja M. Čakić-Milošević[4]
[1]Department of Biology and Human Genetics, Faculty of Medicine, University of Niš, Blvd. Dr Zoran Đinđić 81, 18000 Niš, Serbia, [2]Department for Cell and Tissue Engineering, Faculty of Medicine, University of Niš, Blvd. Dr Zoran Đinđić 81, 18000 Niš, Serbia, [3]Department of Biology and Ecology, Faculty of Sciences and Mathematics, University of Niš, Višegradska 33, 18000 Niš, Serbia, [4]Faculty of Biology, Institute of Zoology, University of Belgrade, Studentski trg 16, 11000 Belgrade, Serbia

10.30 – 10.45 Osteogenic potential of freshly isolated adipose-derived stromal vascular fraction cells and platelet-rich plasma loaded on bone mineral matrix in an ectopic bone-forming model
Vladimir J. Cvetković,[1] Stevo J. Najman,[2,3] Jelena G. Najdanović,[2,3] Sanja Stojanović,[2,3] Marija Đ. Vukelić-Nikolić,[2,3] Milica N. Andrejev,[1] Jelena M. Živković[2,3]
[1]Department of Biology and Ecology, Faculty of Sciences and Mathematics, University of Niš, Višegradska 33, 18000 Niš, Serbia, [2]Department of Biology and Human Genetics, Faculty of Medicine, University of Niš, Blvd. Dr Zoran Đinđić 81,

18000 Niš, Serbia, [3]Department for Cell and Tissue Engineering, Faculty of Medicine, University of Niš, Blvd. Dr Zoran Đinđić 81, 18000 Niš, Serbia

10.45 – 11.00 2D-materials heterostructures as a potential sensor of amino acids and proteins

Jasna Vujin, Radmila Panajotović
Graphene Laboratory, Institute of Physics, University of Belgrade, Pregrevica 118, 11080 Belgrade, Serbia

11.00 – 11.15 Regulation of insulin secretion in pancreatic beta cells by intercellular coupling

Kai-Chiang Yang,[1,2] Goichi Yanai,[2] Shoichiro Sumi[1]
[1]School of Dental Technology, College of Oral Medicine, Taipei Medical University, Taipei 11031, Taiwan, [2]Department of Organ Reconstruction, Institute for Frontier Medical Sciences, Kyoto University, Kyoto 6068507, Japan

11.15 – 11.30 Break

11.30 – 13.00 2nd Session – Biomaterials II

Chairpersons: Dr. Magdalena Stevanović and Dr. Pavel Gurikov

11.30 – 11.45 Cytotoxicity studies of alginate hydrogels with silver nanoparticles in cell and tissue cultures

Jelena Petrović, Jovana Zvicer, Vesna Mišković-Stanković, Bojana Obradović
Faculty of Technology and Metallurgy, University of Belgrade, Karnegijeva 4, Belgrade, Serbia

11.45 – 12.00 Synthesis of silver nanoparticles in honey solutions

Nataša Stanojević, Jasmina Stojkovska, Bojana Obradović
Faculty of Technology and Metallurgy, University of Belgrade, Karnegijeva 4, Belgrade, Serbia

12.00 – 12.15 Hybrid pectin-based porous materials for multifunctional applications

Pavel Gurikov,[1] Irina Smirnova,[1] Aleksandra Nešić[2]
[1]Institute of Thermal Separation Processes, Hamburg University of Technology, Germany, [2]University of Belgrade, Vinča Institute for nuclear sciences, Mike Petrovića-Alasa 12-14, Belgrade, Serbia

12.15 – 12.30 Comparison of the release of selenium nanoparticles from poly (ϵ-caprolactone) microparticles in four different degradation mediums

Nenad Filipović,[1] Sanja Jeremić,[2] Lidija Đokić,[2] Slavica Ražić,[3] Magdalena Stevanović[1]

[1]Institute of Technical Sciences of the Serbian Academy of Sciences and Arts, Knez Mihailova 35/IV, Belgrade 11000, Serbia, [2]Institute of Molecular Genetics and Genetic Engineering, University of Belgrade, Serbia, [3]Department of Analytical Chemistry, Faculty of Pharmacy, University of Belgrade, Serbia

12.30 – 12.45 Electrospun biobased bioactive platforms

Aleksandra Miletić, Ivan Ristić, Branka Pilić
University of Novi Sad, Faculty of Technology, Blvd cara Lazara 1, Novi Sad, Serbia

12.45 – 13.00 Silver/polyvinyl alcohol/chitosan/graphene hydrogels - electrochemical synthesis and characterization

Katarina Nešović, Ivana Jevremović, Vesna Mišković-Stanković
Faculty of Technology and Metallurgy, University of Belgrade, Karnegijeva 4, Belgrade, Serbia

13.00 – 14.00 Lunch break

14.00 – 15.30 3rd Session – Biomaterials III

Chairpersons: Dr. Đorđe Veljović and Dr. Aleksandra Nešić

14.00 – 14.15 New eco-sustainable microwave-assisted method for extraction of alginate: From coastal beach waste to agricultural mulching films

Aleksandra Nešić,[1] Antonije Onjia,[1] Valentina Bizzarro,[2] Barbara Immirzi,[2] Giovanni Dal Pogetto,[2] Gabriella Santagata,[2] Maria Valeria De Bonis,[3] Gianpaolo Ruocco,[3] Mario Malinconico[2]
[1]University of Belgrade, Vinča Institute for nuclear sciences, Mike Petrovića-Alasa 12-14, Belgrade, Serbia, [2]Institute for Polymers, Composites and Biomaterials; National Council of Research, via Campi Flegrei 34, 80078 Pozzuoli, Naples, Italy, [3]Scuola d'Ingegneria;Università degli Studi della Basilicata, Campus Macchia Romana, 85100 Potenza, Italy

14.15 – 14.30 Characterization of porous scaffolds based on gellan gum and bioactive glass under biomimetic bioreactor conditions

Gorana Prica,[1] Jovana Zvicer,[1] Kata Trifković,[1] Đorđe Veljović,[1] Ana Gantar,[2,3] Saša Novak[2,3] Bojana Obradović[1]
[1]Faculty of Technology and Metallurgy, University of Belgrade, [2]Department for Nanostructured Materials, Jožef Stefan Institute, Ljubljana, Slovenia, [3]Jožef Stefan International Postgraduate School, Ljubljana, Slovenia

14.30 – 14.45 Operating conditions in the bioreactor prototype applying hydrostatic pressures

Mia Radonjić, Jovana Zvicer, Bojana Obradović
Faculty of Technology and Metallurgy, University of Belgrade, Serbia

14.45 – 15.00 Effect of ethanol storage on the degree of conversion of bulk-fill, low-shrinkage and conventional composites

Dejan Perić,[1] Jovana Stašić,[2] Steva Lević,[3] Vesna Miletić[2]
[1]University of Pristina, School of Medicine, Dental Clinic, Anri Dinana st., 38220 Kosovska Mitrovica, Serbia, [2]University of Belgrade, School of Dental Medicine, DentalNet Research Group, Rankeova 4, 11000 Belgrade, Serbia, [3]University of Belgrade, Faculty of Agriculture, Nemanjina 6, 11081 Belgrade-Zemun, Serbia

15.00 – 15.15 Discoloration of resin-based dental composites from different manufacturers

Milica Antonov,[1] Nikola Jovanović,[2] Miroslav D. Dramićanin,[1] Jovana Stašić,[3] Ivana Zeković,[1] Dragica Manojlović,[1,3]
[1]University of Belgrade, Vinča Institute of Nuclear Sciences, P. Box 522, Belgrade, 11001, Serbia, [2]University of Belgrade, Faculty for Mechanical Engineering, Kraljice Marije 16, 11120, Belgrade, Serbia, [3]University of Belgrade, School of Dental Medicine, Rankeova 4, Belgrade, 11000, Serbia

15.15 – 15.30 Influence of size, concentration and shape of iron oxide nanoparticles on hyperthermic efficiency

Marco Cobianchi,[1] M. Avolio,[1] P. Arosio,[2] A. Guerrini,[3,4] C. Sangregorio,[3,4] C. Innocenti,[3,4] M. Corti,[1] A. Lascialfari[1,2]
[1]Dipartimento di Fisica and INSTM, Università degli Studi di Pavia, Pavia, Italy, [2]Dipartimento di Fisica and INSTM, Università degli Studi di Milano, Milano, Italy, [3]Dipartimento di Chimica and INSTM, Università degli studi di Firenze, Sesto F.no, Italy, [4]ICCOM-CNR, Sesto F.no, Italy

15.30 – 15.45 Break

15.45 – 17.00 4th Session – Environmental Materials I

Chairpersons: Dr. Jasmina Dostanić and Vesna Teofilović

15.45 – 16.00 Agroindustrial waste as substrate for cellulase production by Paenibacillus chitinolyticus CKS1

Neda R. Radovanović, Miona G. Miljković, Slađana Z. Davidović, Milica D. Milutinović, Katarina R. Mihajlovski, Suzana I. Dimitrijević-Branković
University of Belgrade, Faculty of Technology and Metallurgy, Department for Biochemical Engineering and Biotechnology, Karnegijeva 4, Belgrade, Serbia

16.00 – 16.15 Investigation of catalytic possibilities of impregnated soybean hulls in decolorization process
Aleksandra Kulić, Milena Bečelić-Tomin, Đurđa Kerkez, Gordana Pucar, Božo Dalmacija
University of Novi Sad, Faculty of Sciences, Department of Chemistry, Biochemistry and Environmental Protection, Trg Dositeja Obradovića 3, 21000 Novi Sad, Republic of Serbia

16.15 – 16.30 The properties of chitosan beads based on alginate and iron-oxide prepared using layer-by-layer deposition method
Vesna Teofilović,[1] Ayse Aroguz,[2] Sibel Aydogan,[2] Jaroslava Budinski-Simendić, Mirjana Jovičić,[1] Jelena Pavličević,[1] Sinem Karademir[2]
[1]University of Novi Sad, Faculty of Technology, Novi Sad, Serbia, [2]Istanbul University, Faculty of Engineering, Istanbul, Turkey

16.30 – 16.45 Properties of seashell waste as a sorbent material for cationic pollutants
Marija Egerić,[1] Ivana Smičiklas,[1] Mirjana Ristić[2]
[1]University of Belgrade, Institute of Nuclear Sciences "Vinča", P.O.B. 522, 11000, Belgrade, Serbia, [2]University of Belgrade, Faculty of Technology and Metallurgy, Karnegijeva 4, 11000, Belgrade, Serbia

16.45 – 17.00 Determination of experimental conditions for examination of cobalt catalyst supported by polymer Bray-Liebhafsky oscillatory reaction performed in open reactor
Kristina Stevanović, Branislav Stanković, Jelena Maksimović, Maja Pagnacco
Faculty of Physical Chemistry, University of Belgrade, Studentski trg 12-16, Belgrade, Serbia

17.00 – 17.15 Break

17.15 – 18.45 5th Session – Environmental Materials II
Chairpersons: Dr. Irena Nikolić and Tijana Đuričić

17.15 – 17.30 On the preparation of zeolite-based adsorbent for phosphate removal from water media
Iva Kaplanec,[1] Aleksander Rečnik,[2] Nevenka Rajić[1]
[1]Faculty of Technology and Metallurgy, Belgrade, Serbia, [2]Jožef Stefan Institute, Ljubljana, Slovenia

17.30 – 17.45 Determination the content of anionic active agents in detergents
Aleksandra Šinik, Marija Vukobrad
Faculty of Technology, University of Banja Luka, Republic of Srpska, B&H

17.45 – 18.00 Selection and consumption of electrode material for electrocoagulation of landfill leachate

Tijana Đuričić, Borislav N. Malinović, Darko Bodroža, Pero Sailović
University of Banja Luka, Faculty of Technology, Stepe Stepanovica 73, 78000 Banja Luka, B&H

18.00 – 18.15 Hybrid composites prepared from industrial waste: microstructure, water absorption and mechanical properties

Daniel Pugar,[1] Lidija Ćurković,[1] Ivan Primorac,[1] Zrinka Šokčević,[1] Mihone Kerolli-Mustafa[2]
[1]University of Zagreb, Faculty of Mechanical Engineering and Naval Architecture, Ivana Lučića 5, 10000 Zagreb, Croatia, [2]International Business College Mitrovica, Department of Environment and Agriculture Management, 40000 Mitrovica, Kosovo

18.15 – 18.30 Mechanical and physical properties of light-weight ceramic aggregates prepared from different composition of waste materials

Marcin Godzierz, Paweł Wilkołek, Tomasz Pawlik, Małgorzata Sopicka-Lizer
Silesian University of Technology, Piechy 3/10, Ruda Śląska, Poland

18.30 – 18.45 The earth's crust as a catalytic generator of hydrogen emission in the atmosphere and possible role of this process in the phenomena of ozone layer degradation

Viktor V. Barelko,[1] Oleg G. Safonov,[2] Denis A. Bobreshov,[3] Maxim V. Kuznetsov[3]
[1]Institute of Problems of Chemical Physics, Russian Academy of Sciences, 1 Academician Semenov Ave, Chernogolovka, Moscow Region, 424321 Russia, [2]Institute of Experimental Mineralogy, Russian Academy of Sciences, 4 Academician Osipyan Street, Chernogolovka, Moscow Region, 424321 Russia, [3]All-Russian Research Institute on Problems of Civil Defense and Emergencies of Emergency Control Ministry of Russia (EMERCOM), 7 Davidkovskaya Str, Moscow, 121353 Russia

Thursday, December 8, 2016

09.00 – 11.00 6th Session – Theoretical Modeling of Materials

Chairpersons: Dr. Željka Nikitović and Ana Dobrota

09.00 – 09.15 Clustering of OH groups on graphene for enhanced charge storage

Ana S. Dobrota,[1] Sanjin Gutić,[2] Igor A. Pašti,[1] Natalia V. Skorodumova[3,4]
[1]University of Belgrade, Faculty of Physical Chemistry, Studentski trg 12-16, 11158 Belgrade, Serbia, [2]Department of Chemistry, Faculty of Science, Zmaja od Bosne 33-35, Sarajevo, Bosnia and Hercegovina, [3]Department of Materials Science and Engineering, School of Industrial Engineering and Management, KTH – Royal Institute of Technology, Brinellvägen 23, 100 44 Stockholm, Sweden, [4]Department of Physics and Astronomy, Uppsala University, Box 516, 751 20 Uppsala, Sweden

09.15 – 09.30 Theoretical analysis of adsorption properties of doped hexagonal MgO nanotubes

Aleksandar Jovanović
Faculty of Physical Chemisty, University of Belgrade, Serbia

09.30 – 09.45 Collision of hydrogen molecules interacting with two graphene sheets

Dragana Malivuk Gak,[1] Saša Nježić[2]
[1]University of Banjaluka, Faculty of Natural Sciences, Mladena Stojanovića 2, Banjaluka, [2]University of Banjaluka, Faculty of Medicine, Save Mrkalja 14, Banjaluka

09.45 – 10.00 Micromechanical investigating of the critical parameter's influence on adhesive properties of porous EVA/PMMA polymer blends using finite element method

Nataša Z. Tomić,[1] Predrag Milanović,[2] Đorđe Veljović,[2] Bojan Međo,[2] Marko Rakin,[2] Vesna Radojević,[2] Radmila Jančić Heinemann[2]
[1]Innovation center of Faculty of Technology and Metallurgy, University of Belgrade, Karnegijeva 4, 11070 Belgrade, Serbia, [2]Faculty of Technology and Metallurgy, University of Belgrade, Karnegijeva 4, 11070 Belgrade, Serbia

10.00 – 10.15 The analysis of SEM photographs of fractured surfaces of steel P91 and compared with the mechanical properties such as impact energy (toughness)

Bojana Aleksić,[1] Abubkr Hemer,[2] Radmila Jančić Heinemann,[2] Marija Dimitrijević,[1] Ljubica Milović[2]
[1]Innovation Center of the Faculty of Tehnology and Metallurgy, [2]University of Belgrade, Faculty of Tehnology and Metallurgy

10.15 – 10.30 Transmission singularities and infinite tunneling times in complex potentials

Nikola Opačak, Vitomir Milanović, Jelena Radovanović
School of Electrical Engineering, University of Belgrade, Bulevar kralja Aleksandra 73, 11120 Belgrade, Serbia

10.30 – 10.45 Negative refraction in quantum cascade structures based on cubic nitrides

Miloš Dubajić, Jelena Radovanović, Vitomir Milanović

School of Electrical Engineering, University of Belgrade, Bulevar kralja Aleksandra 73, 11120 Belgrade, Serbia

10.45 – 11.00 Helical edge states in silicene and germanene nanorings in perpendicular magnetic field: A numerical investigation
Dušan Jakovljević, Marko Grujić, Milan Tadić
School of Electrical Engineering, University of Belgrade, P.O. Box 35-54 11120 Belgrade

11.00 – 11.15 Break

11.15 – 12.45 7th Session – Nanostructured Materials I
Chairpersons: Dr. Zoran Jovanović and Mila N. Krstajić Pajić

11.15 – 11.30 The impact of changes of experimental conditions and organic solvent on nC_{60} particle size
Igor Medić,[1] Ivana Borišev,[1] Danica Jović,[1] Vladimir Srdić,[2] Aleksandar Đorđević[1]
[1]University of Novi Sad, Department of Chemistry, Biochemistry and Environmental Protection, Faculty of Science, Trg Dositeja Obradovića 3, 21000 Novi Sad, Serbia, [2]University of Novi Sad, Faculty of Technology, Bulevar cara Lazara 1, 21000 Novi Sad, Serbia

11.30 – 11.45 Detection of low-index {100} planes at Pt nanoparticles
Mila N. Krstajić Pajić,[1] Sanja I. Stevanović,[1] Vuk V. Radmilović,[2] Velimir R. Radmilović,[3,4] Snežana Lj. Gojković,[3] Vladislava M. Jovanović[1]
[1]Department of Electrochemistry, ICTM, University of Belgrade, [2]Innovation Center, Faculty of Technology and Metallurgy, University of Belgrade, [3]Faculty of Technology and Metallurgy, University of Belgrade, [4]Serbian Academy of Sciences and Arts

11.45 – 12.00 Innovative nanostructured ITO coatings for the display and biomedicine technique
Michael Zimnukhov,[1,3] Svetlana Likhomanova,[1,2] Natalia V. Kamanina,[1,3]
[1]Vavilov State Optical Institute, Kadetskaya lin. 5/2, 199053, St. Petersburg, Russia, [2]ITMO University, St. Petersburg, 197101, Russia, [3]Saint Petersburg Electrotechnical University "LETI", St. Petersburg, 197376, Russia

12.00 – 12.15 Overview of nanostructured LC-mesophase time parameters
Andrew Malinovskiy,[1,3] Svetlana Likhomanova, Natalia V. Kamanina
[1]Vavilov State Optical Institute, Kadetskaya Line V.O., dom 5, korpus 2, 199053, Saint-Petersburg, Russia, [2]ITMO University, St. Petersburg, 197101, Russia, [3]Saint Petersburg Electrotechnical University "LETI", St. Petersburg, 197376, Russia

12.15 – 12.30 Photorefractive properties thin films COANP-graphene: experimental and modeling results

Svetlana Vladimirovna Likhomanova,[1,2] Natalia V. Kamanina[1,3]
[1]Vavilov State Optical Institute, St.-Petersburg, Russia, [2]ITMO University, St. Petersburg, Russia, [3]Saint Petersburg Electrotechnical University "LETI", St. Petersburg, Russia

12.30 – 12.45 Electronic nature of the low-temperature anomalies of ideal and disordered graphene

Anna Belosludceva,[1] Nadezhda Bobenko,[2,3] Alexander Ponomarev,[2,3] Leonid Barkalov,[1] Alexander Latishev,[2] Eugenia Istomina[1]
[1]Tomsk State University of Control Systems and Radioelectronics, 634050 Tomsk, Russia, [2]Institute of Strength Physics and Materials Science of SB RAS, Tomsk 634021, Russia, [3]National Research Tomsk Polytechnic University, 634050 Tomsk, Russia

12.45 – 13.00 Development of nanobiocatalyst systems for application in biosynthesis of functionally active galactoside

Nevena Lukić, Aleksandra Jakovljević, Milica Carević, Katarina Banjanac, Dejan Bezbradica
Department of Biochemical Engineering and Biotechnology, Faculty of Technology and Metallurgy, University of Belgrade, Karnegijeva 4 Belgrade, Serbia

13.00 – 14.00 Lunch break

14.00 – 15.30 8th Session – Nanostructured Materials II

Chairpersons: Dr. Miodrag Lukić and Dr. Sonja Jovanović

14.00 – 14.15 Investigation of changes in positronium trapping in pores under the water influence in nanostructured MgO-Al_2O_3 ceramics

Halyna Klym,[1] Yuriy Kostiv,[1] Andriy Ivanusa,[2] Taras Tkachuk[1]
[1]Lviv Polytechnic National University, 12 Bandera str., Lviv, 79013, Ukraine, [2]Lviv State University of Life Safety, 35 Kleparivska str., Lviv, 79000, Ukraine

14.15 – 14.30 Ethylenediaminetetraacetic acid (EDTA) assisted hydro/solvothermal synthesis of up-converting rare earth fluorides

Ivana Z. Dinić,[1] Marko Nikolić,[2] Maria Eugenia Rabanal,[3] Olivera B. Milošević,[1] Lidija T. Mančić[1]
[1]Institute of Technical Sciences of Serbian Academy of Sciences and Arts, Belgrade, Serbia, [2]Photonics Center, Institute of Physics Belgrade, Belgrade, Serbia,

[3]Materials Science and Engineering Department and IAAB, Universidad Carlos III de Madrid, Leganes, Madrid, Spain

14.30 – 14.45 Zinc-copper ferrite nanoparticles prepared via solvothermal synthesis route

Sonja Jovanović,[1,3] Jelena Rmuš,[2] Marija Vukomanović,[3] Danica Bajuk-Bogdanović,[2] Bojana Nedić-Vasiljević,[2] Danilo Suvorov[3]
[1]Laboratory of Physics, Vinča Institute of Nuclear Sciences, University of Belgrade, Belgrade, Serbia, [2]Faculty of Physical Chemistry, University of Belgrade, Belgrade, Serbia, [3]Advanced Materials Department, Jožef Stefan Institute, Ljubljana, Slovenia

14.45 – 15.00 Application of soft X-ray absorption spectroscopy for estimation of spin and valence states of cations in $Sr_{1-x}Ce_xMn_{1-y}Co_yO_{3-\delta}$

Margarita Sergeevna Udintseva,[1] Vitaly Vladimirovich Mesilov,[2] Vadim Rostislavovich Galakhov,[2] Sergey Nilolaevich Shamin,[2] Tatyna Ivanovna Chupakhina,[3] Gennady Vasilyvich Bazuev[3]
[1]Ural State University of Railway Transport, 620134 Ekaterinburg, Russia, [2]M. N. Miheev Institute of Metal Physics, Ural Branch of the Russian Academy of Sciences, 620137 Ekaterinburg, Russia, [3]Institute of Solid State Chemistry, Ural Branch of the Russian Academy of Sciences, 620137 Ekaterinburg, Russia

15.00 – 15.15 Structure of electro-explosion resistant coatings consisting of immiscible components

Denis Anatolevich Romanov, Maksim Andreevich Stepikov, Egor Aleksandrovich Gaevoj, Valentina Olegovna Apanina
Siberian State University of Industry, Kirov str. 42, 654007 Novokuznetsk, Russia

15.15 – 15.30 Possibility of obtaining core/shell structure in system $NiFe_2O_4/ZnFe_2O_4$

Milana Orelj, Ivan Stijepović, Marija Milanović
Faculty of Technology Novi Sad, University of Novi Sad, Serbia

15.30 – 15.45 Break

15.45 – 17.15 9th Session – Nanostructured Materials III

Chairpersons: Dr. Nadica Abazović and Zorka Vasiljević

15.45 – 16.00 XPS analysis of N-doped TiO_2 nanotube array

Jelena Vujančević,[1] Anđelika Bjelajac,[2] Maja Popović,[3] Veljko Đokić,[4] Jovana Ćirković,[5] Rada Petrović,[4] Zlatko Rakočević,[3] Đorđe Janaćković,[4] Vladimir Pavlović[1]
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Belgrade, Karnegijeva 4, 11000 Belgrade, Serbia, [3]INS Vinča, Laboratory of Atomic Physics, University of Belgrade, Mike Alasa 12-14, 11001 Belgrade, Serbia, [4]Faculty of Technology and Metallurgy, University Of Belgrade, Karnegijeva 4, 11000 Belgrade, Serbia, [5]Institute for Multidisciplinary Research, University of Belgrade, Kneza Viseslava 1, 11000 Belgrade, Serbia

16.00 – 16.15 Fabrication, characterization and photoelectrochemical behavior of Fe_2TiO_5 screen printed thick films

Zorka Ž. Vasiljević,[1] Obrad S. Aleksić,[2] Miloljub D. Luković,[2] Milica Vujković,[3] Vladimir Pavlović,[1] Nebojša Labus,[2] Maria V. Nikolić[2]

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16.15 – 16.30 Synthesis and characterization of ZnO:Fe nanoparticles

Vladimir Rajić,[1] Smilja Marković,[2] Miodrag Mitrić,[3] Valentin Ivanovski,[3] Miloš Mojović,[1] Srečo Davor Škapin,[4] Stevan Stojadinović,[5] Stevan Lević,[6] Vladislav Rac,[6] Dragan Uskoković[2]

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16.30 – 16.45 Decomposition mechanism and kinetics of zinc–isophthalate complex with 2,2'-dipyridylamine as a precursor for obtaining nanosized zinc oxide

Jelena D. Zdravković,[1] Lidija D. Radovanović,[1] Bojana M. Simović,[2] Dejan D. Poleti,[3] Jelena R. Rogan,[3] Ivana Zeković,[4] Miroslav D. Dramićanin,[4] Katarina R. Mihajlovski,[3] Željko M. Radovanović[1]

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16.45 – 17.00 Soft X-ray absorption spectroscopy nano titanium dioxide impurities of cobalt

Margarita S. Udintseva[1], Vitaly V. Mesilov, Vadim R. Galakhov, Anatolii Yermakov[2], Mikhail Uimim[2]

[1]Ural State University of Railway Transport, Kolmogorova Street, 66, 620134 Ekaterinburg, Russia, [2]M. N. Miheev Institute of Metal Physics, Ural Branch of the Russian Academy of Sciences, 620137 Ekaterinburg, Russia

17.00 – 17.15 Organic-inorganic nanocomposites prepared from polyurethane and colloidal silica dispersions
Magdalena Serkis, Milena Špírkováa
Institute of Macromolecular Chemistry, Academy of Sciences of the Czech Republic, Heyrovský Sq. 2, 162 06 Prague 6, Czech Republic

17.15 -17.30 Levitation-jet synthesis of titanium nitride and In-O ferromagnetic nanoparticles
Iurii G. Morozov,[1] Renata.L. Galiullina,[2] Maxim.V. Kuznetcov[2]
[1]Institute of Structural Macrokinetics and Materials Science, Russian Academy of Sciences, 8 Academician Osipyan Street, Chernogolovka, Moscow Region, 142432 Russia, [2]All-Russian Research Institute on Problems of Civil Defense and Emergencies of Emergency Control Ministry of Russia (EMERCOM), 7 Davidkovskaya Street, Moscow, 121352 Russia

Friday, December 9, 2016

09.00 – 10.15 10th Session – New Synthesis and Processing Methods I
Chairpersons: Dr. Rastko Vasilić and Marijana Majić Renjo

09.00 – 09.15 Electrodeposition and characterization of Zn-Mn alloy deposited from choline-chloride-urea deep eutectic solvent
Stefan Đokić, Ivana Jevremović, Jelena Bajat
University of Belgrade, Faculty of Technology and Metallurgy, Karnegijeva 4, 11120 Belgrade, Serbia

09.15 – 09.30 Properties of Zn-Al alloys with Mg addition for hot dip galvanizing
Anna Skupińska, Henryk Kania, Piotr Liberski
Silesian University of Technology, Institute of Materials Science, 40-019 Katowice, Krasińskiego 8, Poland

09.30 – 09.45 Rheological properties of alumina-zirconia suspensions
Marijana Majić Renjo, Zrinka Šokčević, Lidija Ćurković
University of Zagreb, Faculty of Mechanical Engineering and Naval Architecture, Zagreb, Croatia

09.45 – 10.00 On the formation of composite powders based on complex compounds by the self-propagating high-temperature synthesis
Hanna Shcherba, Tatiana Talako, Andrew Letsko, Alexander Ilyuschenko

Powder Metallurgy Institute, 41, Platonov str., Minsk, Republic of Belarus

10.00 – 10.15 Application of principal component analysis in rehabilitation of post-stroke patients
Marija M. Petrović, Dejan B. Popović
[1]Faculty of Electrical Engineering, University of Belgrade, Bulevar kralja Aleksandra 73, 11000 Belgrade, Serbia, [2]Institute of Technical Sciences of SASA, Knez Mihailova 35, 11000 Belgrade

10.15 – 10.30 Break

10.30 – 11.45 11th Session – New Synthesis and Processing Methods II
Chairpersons: Dr. Smilja Marković and Sanja Šešlija

10.30 – 10.45 Synthesis and characterization of pectin esters obtained by reaction with dichlorides of glutaric and sebacic acid
Sanja Šešlija,[1] Vesna Panić,[2] Pavle Spasojević,[2] Ana Pantelić,[1] Ivanka Popović[3]
[1]Institute of Chemistry, Technology and Metallurgy, University of Belgrade, Belgrade, Serbia, [2]Innovation Center of the Faculty of Technology and Metallurgy, University of Belgrade, Belgrade, Serbia, [3]Faculty of Technology and Metallurgy,University of Belgrade, Belgrade, Serbia

10.45 – 11.00 The study of mechanical properties of polymers depending on the fillers
Nataly V. Khan[1], Olesya A. Tyumentseva[1], Tlek A. Ketegenov[2]
Institute of Combustion Problems, Kazakh National University, Kazakhstan

11.00 – 11.15 pH-sensitive membranes with crosslinked poly(acrylic acid) hydrogel for controlled delivery
Željko Janićijević,[1] Filip Radovanović[2]
[1]University of Belgrade, School of Electrical Engineering, Belgrade, Serbia, [2]Institute of Technical Sciences of SASA, Belgrade, Serbia

11.15 – 11.30 PEM fuel cell catalyst layers - pulsed laser deposition
Ivana Perović,[1] Dubravka Milovanović,[1] Carmen Ristoscu,[2] Bojan Radak,[1] Vladimir Nikolić[1]
[1]University of Belgrade, Vinca Institute of Nuclear Sciences, Belgrade, Serbia, [2]National Institute for Lasers, Plasma, and Radiation Physics (INFLPR), Magurele, Bucuresti, Romania

11.30 – 11.45 Analysis of electrical parameters of metal–semiconductor Au/AlPc-H/p-Si/Al organic diode

Ibrahim Missoum,[1] Mostefa Benhaliliba,[2] Abla Chaker,[3] Yusuf Selim Ocak,[4] Charazade-Elj Benouis[5]
[1]Energy Physics Laboratory, Department of Physics, Faculty of Exact Sciences, University of Brothers Mentouri Constantine 1, Aïn El bey Road, 25000 Constantine, Algeria, [2]Material Technology Dept. Physics Faculty, USTO-MB University, BP1505 Oran, Algeria, [3]Energy Physics Laboratory, Department of Physics, Faculty of Exact Sciences, University of Brothers Mentouri Constantine 1, Aïn El bey Road, 25000 Constantine, Algeria, [4]Dicle University, Education Faculty, Science Department, 21280 Diyarbakir, Turkey, [5]Material Technology Dept. Physics Faculty, USTO-MB University, BP1505 Oran, Algeria

11.45 – 13.00 Lunch break

13.00 – 14.30 12th Session – Materials for High-Technology Applications I

Chairpersons: Dr. Dragana Jugović and Jernej Bobnar

13.00 – 13.15 Modification of lithium surface with graphene derivates

Jernej Bobnar,[1] Matic Lozinšek,[2] Boštjan Genorio,[3] Robert Dominko[1]
[1]National Institute of Chemistry, Department of materials chemistry, Ljubljana, Slovenia, [2]Jožef Stefan Institute, Department of Inorganic Chemistry and Technology, ljubljana , Slovenia, [3]Faculty of chemistry and chemical technology, Department of Chemical Engineering and Technical Safety, Ljubljana, Slovenia

13.15 – 13.30 Cellulose based separator for lithium – sulphur batteries

Nejc Pavlin,[1] Silvo Hribernik,[2] Robert Dominko[1]
[1]National Institute of Chemistry, Ljubljana, [2]Faculty of Mechanical Engineering, University of Maribor

13.30 – 13.45 Influence of in situ addition of different combinations of d-metals on electrolytic hydrogen production in alkaline electrolyzer

Slađana Lj. Maslovara, Dragana D. Vasić Anićijević, Dragana L. Žugić, Milica P. Marčeta Kaninski, Vladimir M. Nikolić
Vinča Institute of Nuclear Sciences, University of Belgrade, Serbia

13.45 – 14.00 Electrical efficiency of anode- and electrolyte-supported SOFCs

Natalia Lysunenko,[1] Mykola Brychevskyi,[1] Polishko Ihor,[1] Valentine Mokiychuk[2]
[1]Frantsevich Institute for Problems of Materials Science of NASU, Krzhizhanivsky Str., 3, 03680, Kyiv, Ukraine, [2]National aviation university, Kosmonavta Komarova, 1, Kyiv, 03058, Ukraine

14.00 – 14.15 Influence of temperature and electrolyte concentration on the performance of flexible supercapacitors

Petar Laušević,[1,2] Vladimir Nikolić,[2] Milica Marčeta Kaninski,[2] Zoran Laušević,[2] Predrag Pejović[1]
[1]School of Electrical Enginering, University of Belgrade, Serbia, [2]Laboratory of physical chemistry, Vinca institute of nuclear sciences, University of Belgrade, Serbia

14.15 – 14.30 Composite solid electrolytes based on $LiNO_2$
Yulia G. Mateyshina[1-3], Larisa Brezhneva[1], Yulia Lyshko[2], Nikolai F. Uvarov[1-3]
[1]Institute of Solid State Chemistry and Mechanochemistry SB RAS, Russia, [2]Novosibirsk State Technical University, Russia, [3]Novosibirsk State University, Novosibirsk, Russia

14.30 – 14.45 Break

14.45 – 16.15 13th Session – Materials for High-Technology Applications II
Chairpersons: Dr. Smilja Marković and Aleksandar Miletić

14.45 – 15.00 Investigation of microstructure and phase characteristics of tribo-functional gas-thermal composite coatings based on NiAl
Olena Poliarus,[1] Piotr Bobrowski,[2] Maciej Szczerba[3]
[1]Institute for Problems of Materials Science, National Academy of Sciences of Ukraine, Kyiv, Ukraine, [2]Institute of Metallurgy and Materials Science Polish Academy of Sciences, Krakow, Poland

15.00 – 15.15 Industrially prepared TiSiN nanocomposite coatings
Aleksandar Miletić,[1] Peter Panjan,[2] Miha Čekada,[2] Lazar Kovačević,[1] Pal Terek,[1] Dragan Kukuruzović,[1] Branko Škorić[1]
[1]University of Novi Sad, Faculty of technical sciences, Trg Dositeja Obradovića 6, 21000, Novi Sad, Serbia, [2]Jožef Stefan Institute, Jamova 39, 1000, Ljubljana, Slovenia

15.15 – 15.30 Interactions of Al-Si-Cu alloy casting with duplex PVD coatings intended for application on high pressure die casting tools
Pal Terek,[1] Lazar Kovačević,[1] Aleksandar Miletić,[1] Dragan Kukuruzović,[1] Branko Škorić,[1] Aljaž Drnovšek,[2] Peter Panjan[2]
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15.30 – 15.45 Using inverse opal structure to enhance the charge collection in the dye-sensitized solar cell
Mohammad Hossein Nateq, Riccardo Ceccato

Department of Industrial Engineering, University of Trento, Via Sommarive 9, I-38123, Trento, Italy

15.45 – 16.00 Effect of surface roughness on scratch adhesion of nitride PVD coatings with different layer designs

Dragan Kukuruzović,[1] Pal Terek,[1] Aleksandar Miletić,[1] Lazar Kovačević,[1] Branko Škorić,[1] Peter Panjan[2]
[1]University of Novi Sad, Faculty of technical sciences, Trg Dositeja Obradovića 6, 21000, Novi Sad, Serbia, [2]Jožef Stefan Institute, Jamova 39, 1000, Ljubljana, Slovenia

16.00 – 16.15 Industrial application of PVD hard coatings for improvement of high pressure die casting tools

Lazar Kovačević,[1] Pal Terek,[1] Aleksandar Miletić,[1] Dragan Kukuruzović,[1] Branko Škorić,[1] Peter Panjan[2]
[1]Faculty of Technical Sciences, University of Novi Sad, Trg D. Obradovića 6, Novi Sad, Serbia, [2]Jožef Stefan Institute, Jamova 39, Ljubljana, Slovenia

16.15 – 16.30 Break

16.30 – 17.45 14th Session – Materials for High-Technology Applications III

Chairpersons: Dr. Zoran Stojanović and Daniel Pawlak

16.30 – 16.45 Influence of cobalt doping on optical properties of ultrafine SnO_2 nanocrystals.

Tijana Radovanović, Marko Radović, Zorana Dohčević-Mitrović, Novica Paunović
Condensed matter physics and material science, Institute of physics, Belgrade

16.45 – 17.00 From hydrophobic, via superhydrophobic to icephobic surfaces

Daniel Pawlak, Maciej Psarski, Grzegorz Celichowski
Department of Materials Technology and Chemistry, University of Lodz, Poland

17.00 – 17.15 Heat-resistant coating of the composite powder FeAlCr/Al_2O_3

T. Talako, A.I. Letsko, Nikolay Parnitsky, M.S. Yakovleva
Powder Metallurgy Institute, 41, Platonov str., 220005, Minsk, Belarus, Institute for Problems of Materials Science of Ukraine, 3, Krzhyzhanovsky str., 03680, Kiev, Ukraine.

17.15 – 17.30 Comparative analysis of cavitation erosion resistance of ceramic sample

Marko Pavlović, Marina Dojčinović, Sanja Martinović, Milica Vlahović, Tatjana Volkov Husović

University of Belgrade, Faculty of Technology and Metallurgy Belgrade, Carnegie 4, Belgrade, Serbia

17.30 – 17.45 Preheat effects on LiF: Mg, Ti at low dose

Mokhtar Halimi,[1] D. Kadri,[1] A. Mokeddem,[1] I. Missoum,[2]
[1]*Department of Materials Technology, Faculty of Physics, University of Sciences and Technology of Oran (USTO-MB), Algeria,* [2]*Energy Physics Laboratory, Department of Physics, Faculty of Exact Sciences, University of Brothers Mentouri Constantine, Aïn El bey Road, Constantine 25000, Algeria*

17.45 – 18.00 Pittcon 2016 experience in Atlanta – firsthand conference impressions from ACS delegate

Zoran Stojanović
Institute of Technical Sciences of SASA, Knez Mihajlova 35/IV, 11001 Belgrade, Serbia

18.00 Closing Ceremony

9-4

Decomposition mechanism and kinetics of zinc–isophthalate complex with 2,2'-dipyridylamine as a precursor for obtaining nanosized zinc oxide

Jelena D. Zdravković[1], Lidija D. Radovanović[1], Bojana M. Simović[2], Dejan D. Poleti[3], Jelena R. Rogan[3], Ivana Zeković[4], Miroslav D. Dramićanin[4], Katarina R. Mihajlovski[3], Željko M. Radovanović[1]

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Studies related to the synthesis of nanosized ZnO as the antibacterial agent have become an interdisciplinary area gathering chemists, physicists, biologists, and medics. The broad scope of materials based on ZnO resulted in the development of various techniques for its preparation. Considering the dependence of particle shape and size onto physical and chemical properties of ZnO, the synthesis procedure is of major importance. In this work, an unconventional methodology of synthesis is proposed for obtaining nanosized ZnO. Polymeric zinc complex containing 2,2'-dipyridylamine (dipya) and dianion of 1,3-benzenedicarboxylic acid (ipht), [Zn(dipya)(ipht)]n, was used as precursor. Besides the crystal structure of [Zn(dipya)(ipht)]n which was already published [1], the luminescent properties are presented in this work. Also, the amazing antibacterial activity of this precursor prompted us to investigate the relationship between the crystal structure and thermal properties, especially if we bear in mind the lack of similar studies in the literature. Therefore, the mechanism and kinetics of its degradation was investigated under non-isothermal conditions in nitrogen and air atmospheres.

Degradation enthalpies, thermodynamic activation parameters, pre-exponential factor, A, and the apparent activation energy, Ea, were determined for each step using Kissinger's and Ozawa's equations. The complexity of degradation steps has been analyzed using isoconversional methods. TG/DCS data were collected at four different heating rates: 10, 15, 20 and 25 ^{o}C min^{-1}, while the formation of nanosized ZnO was confirmed using XRPD and FESEM techniques. The influence of precursor on the crystallite size and morphology of the resulting ZnO along with its antibacterial activity was examined. The obtained results will be discussed and compared.

[1] L. Radovanović, J. Rogan, D. Poleti, M. Milutinović, M.V. Rodić, Polyhedron 112 (2016) 18.