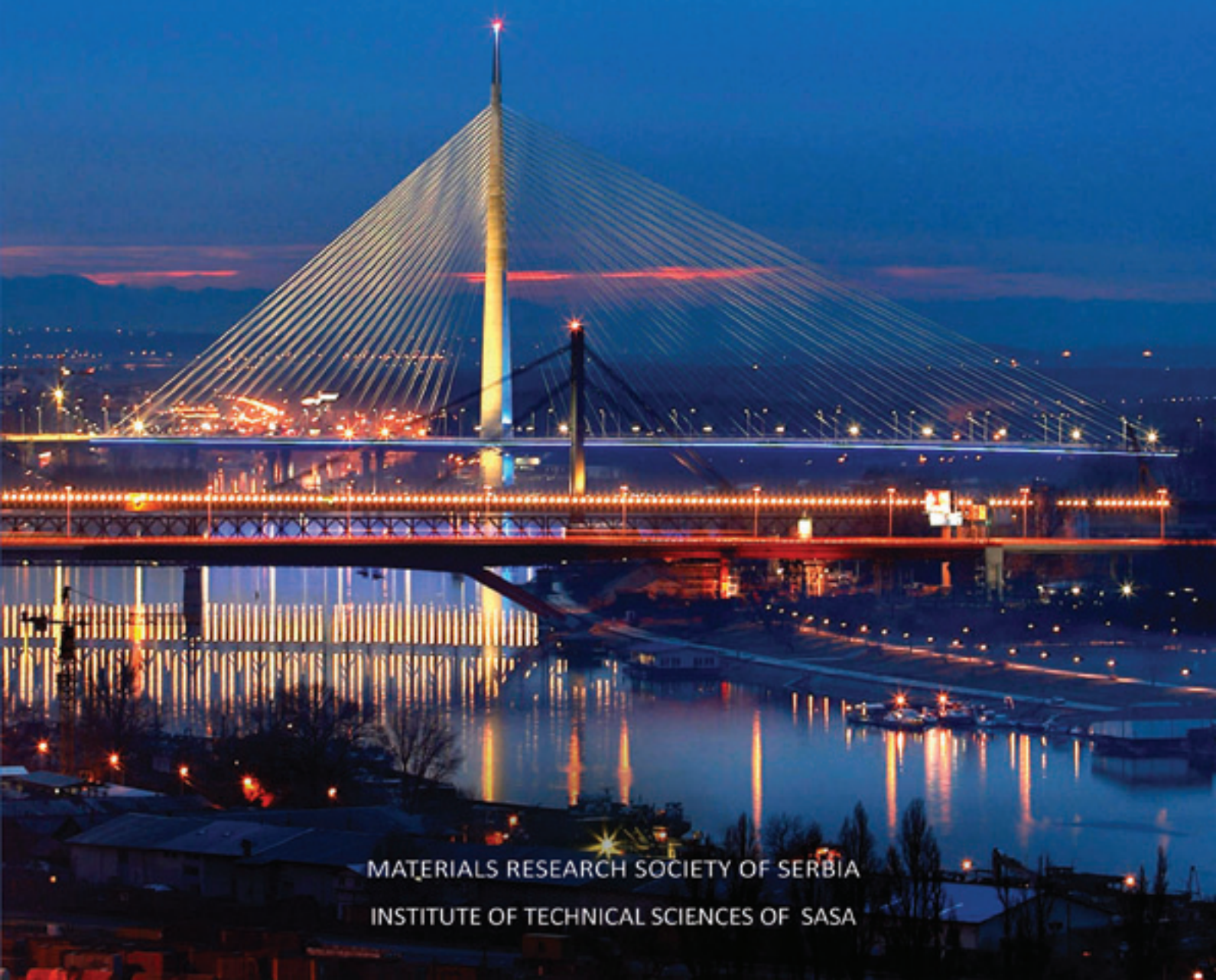
TWELFTH YOUNG RESEARCHERS' CONFERENCE
MATERIALS SCIENCE AND ENGINEERING

December 11-13, 2013, Belgrade, Serbia
Serbian Academy of Sciences and Arts, Knez Mihailova 36

PROGRAM AND THE BOOK OF ABSTRACTS



MATERIALS RESEARCH SOCIETY OF SERBIA
INSTITUTE OF TECHNICAL SCIENCES OF SASA

Twelfth Young Researchers' Conference
Materials Science and Engineering

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Program and the Book of Abstracts

Materials Research Society of Serbia
Institute of Technical Sciences of SASA

December 2013, Belgrade, Serbia

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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

Nanostructured materials
New synthesis and processing methods
Materials for high-technology applications
Biomaterials

Scientific and Organizing Committee

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.

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Sponsors

Programme

Twelfth Young Researchers Conference
Materials Science and Engineering

Wednesday, December 11, 2013

08.30 Registration

09.00 – 10.00 Opening Ceremony of the Twelfth Young Researchers Conference – Materials Science and Engineering
Dr. Smilja Marković, President of the Programming and Organizing Committee
Prof. Dr. Dragan Uskoković, President of the Materials Research Society of Serbia
Academician Zoran Djurić, Director of the Institute of Technical Sciences of SASA
11th YRC 2012 Awards

10.00 – 11.45 1st Session –Biomaterials I
Chairpersons: Dr. Magdalena Stevanović and Nenad Filipović

10.00 – 10.15 Cytotoxicity of Ag/alginate nanocomposites: *in vitro* and *in vivo* studies
Jovana Zvicer[1], Lenart Girandon[2], Urška Potočar[2], Mirjam Fröhlich[2,5] Ivan Jančić[3], Biljana Bufan[3], Marina Milenković[3], Jasmina Stojkovska[4], Vesna Mišković-Stanković[1], Bojana Obradović[1]
[1]Faculty of Technology and Metallurgy, University of Belgrade, Belgrade, Serbia, [2]Educell d.o.o. Ljubljana, Slovenia, [3]Department of Microbiology and Immunology, Faculty of Pharmacy, University of Belgrade, Belgrade, Serbia, [4]KreativTeh LLC, Belgrade, Serbia, [5]Department of Biochemistry, Molecular and Structural Biology, Jožef Stefan Institute, Ljubljana, Slovenia

10.15 – 10.30 Mathematical modeling of silver release from nanocomposite Ag/alginate microbeads
Danijela Kostić, Ivana Madžovska, Srdjan Vidović, Bojana Obradović
Faculty of Technology and Metallurgy, University of Belgrade, Belgrade, Serbia

10.30 – 10.45 Effect of hydrogel composition on controlled release and antimicrobial activity of zinc(II) ions from zinc/poly(2-hydroxyethyl methacrylate/itaconic acid) hydrogels
Jelena D. Rusmirović, Jovanka M. Filipović, Simonida Lj. Tomić
Faculty of Technology and Metallurgy, University of Belgrade, Belgrade, Serbia

10.45 – 11.00 Cellulose functionalization using atmospheric pressure dielectric barrier discharge (DBD) plasma

Ana Kramar[1], Mirjana Kostić[1], Bratislav Obradović[2], Milorad Kuraica[2]
[1]Faculty of Technology and Metallurgy, Department of Textile Engineering, University of Belgrade, Serbia, [2]Faculty of Physics, University of Belgrade, Serbia

11.00 – 11.15 Fullerenol nanoparticle in cytoprotection of antitumor drug-treated cells

Jasmina Katanić[1], Karmen Stankov[1], Nebojša Pavlović[1], Aleksandar Djordjević[2], Vesna Kojić[1], Gordana Bogdanović[1]
[1]Medical faculty of Novi Sad, University of Novi Sad, Hajduk Veljkova 3, 21000 Novi Sad, [2]Faculty of science, University of Novi Sad, Trg Dositeja Obradovića 3, 21000 Novi Sad

11.15 – 11.30 Cytotoxicity of single-walled carbon nanotubes to human lung carcinoma cells: the influence of N-acetylcysteine

Nikola Jojić[1], Vesna Kojić[2], Karmen Stankov[3], Gordana Bogdanović[2]
[1]European University-Faculty of Pharmacy, Trg Mladenaca 5, 21000 Novi Sad, [2]Department of Experimental Oncology, Oncology Institute of Vojvodina, Sremska Kamenica, [3]Medical faculty of Novi Sad, University of Novi Sad, Hajduk Veljkova 3, 21000 Novi Sad

11.30 – 11.45 Preparation and characterization of selenium nanoparticles incorporated within poly(ε-caprolactone)

Nenad Filipović[1], Magdalena Stevanović[1], Vladimir Pavlović[1,2], Dragan Uskoković[1]
[1]Institute of Technical Sciences of SASA, Knez Mihailova 35/IV, Belgrade 11000, Serbia, [2]Faculty of Agriculture, University of Belgrade, Nemanjina 6, Belgrade 11080, Serbia

11.45 – 12.15 Break

12.15 – 14.00 2nd Session –Biomaterials II

Chairpersons: Prof. Dr. Bojana Obradović and Nenad Petrović

12.15 – 12.30 Biomaterials and their application in preprosthetic surgical procedure

Zorica Ajduković[1], Nadica Djordjević[2], Nenad Petrović[1], Nenad Ignjatović[3], Dragana Kenić Marinković[1], Dragan Uskoković[3]
[1]University of Niš, Faculty of Medicine, Clinic of Dentistry, Department of Prosthodontics, Niš, Serbia, [2]University of Priština temporarily seated in Kosovska Mitrovica, Clinic of Dentistry, Department of Prosthodontics, Kosovska Mitrovica, Serbia, [3]Institute of Technical Sciences of SASA, Belgrade, Serbia

12.30 – 12.45 Effects of post-polymerization treatments on the mechanical properties of a denture base resin

Dušan Petković[1], Milena Kostić[2], Miodrag Manić[1], Nebojša Krunić[2,3]
[1]Faculty of Mechanical Engineering, University of Niš, Aleksandra Medvedeva 14 Niš, Serbia, [2]Clinic of Dentistry, Department of Prosthodontics, Bul. dr Zorana Djindjića 52, Niš, *Serbia, [3]Faculty of Medicine, University of Niš, Bul. dr Zorana Djindjića 81*, Niš, *Serbia*

12.45 – 13.00 A comparative study of dissolution behavior of bioactive glass ceramics in SBF-K9 and r-SBF

Muhammad Usman Hashmi[1], Saqlain Abbas Shah[2]
[1]*Department of Applied Sciences, Superior University Lahore 54000, Pakistan*
[2]*Physics Department, F. C. College University, Lahore 54000, Pakistan*

13.00 – 13.15 Pectin and poly(ethylene glycol) based films: mechanical and structural properties

Sanja Šešlija[1], Aleksandra Nešić[2], Roberto Avolio[3], Maria Errico[3], Mario Malinconico[3], Sava Veličković[4]
[1]*Innovation Centre of the Faculty of Technology and Metallurgy, University of Belgrade, Belgrade, Serbia,* [2]*Vinča Institute for Nuclear Sciences, University of Belgrade, Belgrade, Serbia,* [3]*Institute on Polymer Chemistry and Technology, Pozzuoli (Na), Italy,* [4]*University of Belgrade, Faculty of Technology and Metallurgy, Belgrade, Serbia*

13.15 – 13.30 Effect of starch gels preparation on the supercritical impregnation of Thymol

Stoja Milovanović, Jasna Ivanović, Irena Zizović
University of Belgrade, Faculty of Technology and Metallurgy, Karnegijeva 4, 11000 Belgrade, Serbia

13.30. – 13.45 Partial characterization of levan from *Brachybacterium sp.* CH-KOV3

Aleksandra Djurić[1], Branka Kekez[1], Jovana Stefanović-Kojić [1], Dragica Jakovljević[2], Gordana Gojgić-Cvijović[2], Ljubiša Ignjatović[3],Vladimir P. Beškoski[1,2], Miroslav M. Vrvić[1,2]
[1]*Faculty of Chemistry, University of Belgrade, Serbia,* [2]*Centre for Chemistry-Institute for Chemistry, Technology and Metallurgy, University of Belgrade,* [3]*Faculty of Physical Chemistry, University of Belgrade, Serbia*

13.45 – 14.00 Microbial polysaccharides as a prospective base for new materials

Branka Kekez[1], Marija Lješević[1], Aleksandra Djurić[1], Jovana Stefanović Kojić[2], Dragica Jakovljević[2], Gordana Gojgić-Cvijović[2] , Vladimir P. Beškoski[1,2], M.M. Vrvić
[1]*Faculty of Chemistry, University of Belgrade, Serbia,* [2]*Centre for Chemistry-Institute for Chemistry, Technology and Metallurgy, University of Belgrade, Serbia*

14.00 – 15.15 Lunch break with refreshments

15.15 – 17.15 3rd Session – Nanomaterials I: Synthesis and Characterization

Chairpersons: Dr. Smilja Marković, Prof. Dr. Nebojša Mitrović and Jelena Zagorac

15.15 – 15.30 Synthesis and characterization of cesium aluminosilicate phases from LTA zeolites as a precursor

Mia Omerašević[1], Maria Čebela[1], Andrija Savić[2], Vesna Maksimović[1], Nikola Vuković[4] , Slavko Mentus[3], Ana Radosavljević-Mihajlović[1]

[1]Laboratory for Material Science, Institute of Nuclear Sciences ″Vinča″, University of Belgrade, Belgrade, Serbia, [2]Laboratory of Chemical Dynamics and Permanent Education, Institute of Nuclear Sciences Vinča″, University of Belgrade, Belgrade, Serbia, [3]Faculty of Physical Chemistry, University of Belgrade, Belgrade, Serbia, [4]Faculty of Mining and Geology, University of Belgrade, Djušina 7, Belgrade, Serbia

15.30 – 15.45 Investigation of the yttrium doped $CaMnO_3$ nanopowders

Jelena Zagorac[1], Aleksandra Zarubica[2], Ana Radosavljević-Mihajlović[1], Dejan Zagorac[3], Branko Matović[1]

[1]Institute of Nuclear Sciences Vinča, Materials Science Laboratory, Belgrade University, Belgrade, Serbia, [2]Department of Chemistry, University of Niš, Niš, Serbia, 3Max Planck Institute for Solid State Research, Stuttgart, Germany

15.45 – 16.00 Synthesis and characterization of $BiFeO_3$ nanopowder

Maria Čebela[1], Radmila Hercigonja[2], Marija Prekajski[1], Mia Omerašević[1] and Branko Matović[1]

[1]Laboratory for Material Science, Institute of Nuclear Sciences ″Vinča″, University of Belgrade, Belgrade, Serbia, [2]Faculty of Physical Chemistry, University of Belgrade, Studentski trg 12-16, 11158 Belgrade 118, P.O. Box 47, Serbia

16.00 – 16.15 Synthesis of fine-dispersed chromium carbide powder using carbon nanofibers

Kseniya D. Dyukova, Ju.L. Krutskii, A.G. Bannov

Novosibirsk State Technical University, Pr. K. Marx 20, Novosibirsk 630092, Russia

16.15 – 16.30 Oxidation dynamics of the graphite during the graphite oxide synthesis

Alexander G. Bannov, Anastasia A. Timofeeva

Department of Chemistry and Chemical Technology, Novosibirsk State Technical University, Pr. K. Marx 20, Novosibirsk, 630092, Russia

16.30 – 16.45 The influence of mechanicall activation on the structure of ZnO

Adriana Peleš[1], Suzana Filipović[1], Vera P. Pavlović[2], Miodrag Mitrić[3], Nina Obradović[1], Vladimir B. Pavlović[1]

[1]Institute of Technical Sciences of SASA, Knez Mihailova 35/IV 11000 Belgrade, Serbia, [2]Faculty of Mechanical Engineering, University of Belgrade, Belgrade, Serbia, [3]Institute of Nuclear Sciences Vinca, Laboratory of Solid State Physics, 11001 Belgrade, Serbia

16.45 – 17.00 Synthesis and characterization of nanocomposite hyderogels based on poly(methacrylic acid) and SiO_2

Pavle Spasojević[1], Vesna Panić[1], Tijana Radoman[1], Enis Džunuzović[2], Sava Veličković[2]

[1]Innovation Centre of Faculty of Technology and Metallurgy, University of Belgrade, Belgrade, Serbia, [2]Faculty of Technology and Metallurgy, University of Belgrade, Belgrade, Serbia

17.00 – 17.15 High energy co-milling - method of polymer-based composite fillers synthesis
Teodora Sikora, Krystyna Wieczorek-Ciurowa
Cracow University of Technology, Faculty of Chemical Engineering and Technology, 24 Warszawska Str., 31-155 Cracow, Poland

17.15 – 17.30 Break

17.30 – 18.45 4th Session – Nanomaterials II: Catalysts
Chairpersons: Prof. Dr. Nebojša Mitrović, Erik Ortel and Ana Stanković

17.30 – 17.45 Photocatalytic and sonocatalytic degradation procedures of methylene blue dye using a ZnO nanostructured powders
Ana Stanković, Smilja Marković, Dragan Uskoković
Institute of Technical Sciences of SASA, Centre for Fine Particles Processing and Nanotechnologies, Knez Mihailovia 35/IV, Belgrade, Serbia

17.45 – 18.00 Design strategies for hydrogenation catalysts using colloidal and template-based synthesis routes
Erik Ortel, D. Bernsmeier, B. Paul, R. Kraehnert
Technische Universität Berlin, Berlin, Germany

18.00 – 18.15 Experimental and theoretical studies on photocatalytic degradation of metoprolol in the presence of electron acceptors
Sanja J. Armaković[1], Stevan Armaković[2], Jovan P. Šetrajčić[2], Biljana F. Abramović[1]
[1]*University of Novi Sad, Department of Chemistry, Biochemistry and Environmental Protection, Faculty of Sciences, Trg D. Obradovića 3, 21000 Novi Sad, Serbia,*
[2]*University of Novi Sad, Department of Physics, Faculty of Sciences, Trg D. Obradovića 4, 21000 Novi Sad, Serbia*

18.15 – 18.30 The influence of poly-4-vinylpyridine-co-divinylbenzene-Co^{2+} catalyst on the reaction pathways of the Bray-Liebhafsky reaction
Ana Stanojević[1], Jelena Maksimović[1], Željko Čupić[2], Ljiljana Kolar-Anić[1,2], Slobodan Anić[2]
[1]*Faculty of Physical Chemistry, University of Belgrade, Belgrade, Serbia*
[2]*Institute of Chemistry, Technology and Metallurgy, University of Belgrade, Department of Catalysis and Chemical Engineering, Belgrade, Serbia*

18.30 – 18.45 Influence of Fe and ZrO_2 presence in mechanochemically synthesized perovskite ceramics on its dielectric properties
Piotr Dulian [1], W. Bąk [2], Cz. Kajtoch [2], K. Wieczorek-Ciurowa[1]
[1]*Faculty of Chemical Engineering and Technology, Cracow University of Technology, 24, Warszawska Str., 31-155 Cracow, Poland,* [2]*Institute of Physics, Pedagogical University, 2, Podchorążych Str., 30-084 Cracow, Poland*

Thursday, December 12, 2013

09.00 – 10.30 5th Session – Theoretical Modelling of Materials I

Chairpersons: Dr. Boban Stojanović and Dr. Dejan Zagorac

09.00 – 09.15 Computational studies on advanced materials from bulk crystals to nanoscale structures

Dejan Zagorac[1,3], T. Milek[1], D. Zahn[1], J.C. Schön[2], M. Jansen[2], J. Zagorac[3], B. Matović[3]

[1]Friedrich-Alexander-Universität Erlangen-Nürnberg, Erlangen, Germany
[2]Max Planck Institute for Solid State Research, Stuttgart, Germany
[3]Institute of Nuclear Sciences Vinča, Materials Science Laboratory, Belgrade University, Belgrade, Serbia

09.15 – 09.30 Computational methods for muscle modeling at the molecular level

Djordje Nedić[1], Marina Svičević[1], Boban Stojanović[1], Srboljub Mijailović[2]

[1]Faculty of Science, University of Kragujevac, Radoja Domanovića 12, 34000 Kragujevac, Serbia, [2]Northeastern University, Boston, USA

09.30 – 09.45 Verification of thermo-mechanical coupling implemented in software PAK Multiphysics on the example of radiofrequency ablation

Milan Blagojević, Miroslav Živković

University of Kragujevac, Faculty of Engineering, Sestre Janjić 6, Kragujevac, Serbia

09.45 – 10.00 Verification of electro-mechanical coupling implemented in software PAK Multiphysics on the example of piezoelectric transducers

Milan Blagojević[1], Miroslav Živković[1]

University of Kragujevac, Faculty of Engineering, Sestre Janjić 6, Kragujevac, Serbia

10.00 – 10.15 Integrity of the pipelines transporting oil and gas

Alfred Hasanaj

Department of Mechanical Engineering, Polytechnic University of Tirana, Albania

10.15 – 10.30 Determining the stress and strain distribution on complex mechanical structures using the strain gauges measurements

Mirjana Prvulović[1,3], Mileta Ristivojević[2] , Zlatan Milutinović[1]

[1]Institute Gosa, Milana Rakica 35, 11000 Belgrade, Serbia, [2]University of Belgrade, The Faculty of Mechanical Engineering, Kraljice Marije 16, 11120 Belgrade, Serbia, [3]Termoinzenjering, Ulica Oslobodjenja br. 39, 26000 Pancevo, Serbia

10.30 - 11.00 Break

11.00 – 12.45 6th Session – Theoretical Modelling of Materials II

Chairpersons: Dr. Željka Nikitović and Siniša Vučenović

11.00 – 11.15 Spin arrangements in quasi one-dimensional systems
Marko Milivojević, Nataša Lazić and Milan Damnjanović
NanoLab, Faculty of Physics, University of Belgrade, Studentski trg 12, 11000 Belgrade, Serbia

11.15 – 11.30 Advanced computational methodologies for modeling realistic polycrystalline magnetic films and devices
Marko V. Lubarda
Faculty of Polytechnics, University of Donja Gorica, 81000 Podgorica, Montenegro

11.30 – 11.45 Optimisation of *a-GaN/AlGaN* Bragg confined structures for frequency up-conversion relevant for GaAs-based solar cells
Slobodan Čičić, Jelena Radovanović, Vitomir Milanović
School of Electrical Engineering, University of Belgrade, Bulevar kralja Aleksandra 73, 11200 Belgrade, Serbia

11.45 – 12.00 Optical and aromaticity properties of sumanene modified with boron and nitrogen atoms; a DFT study
Stevan Armaković[1], Sanja J. Armaković[2], Igor J. Šetrajčić[1], Jovan P. Šetrajčić[1]
[1]University of Novi Sad, Faculty of Sciences, Department of Physics, Trg D. Obradovića 4, 21000 Novi Sad, Serbia, [2]University of Novi Sad, Faculty of Sciences, Department of Chemistry, Biochemistry and Environmental Protection, Trg D. Obradovića 3, 21000 Novi Sad, Serbia

12.00 – 12.15 Modeling buckybowls with semi-empirical levels of theory
Stevan Armaković[1], Sanja J. Armaković[2], Taina Grujić[1], Jovan P. Šetrajčić[1]
[1]University of Novi Sad, Faculty of Sciences, Department of Physics, Trg D. Obradovića 4, 21000 Novi Sad, Serbia, [2]University of Novi Sad, Faculty of Sciences, Department of Chemistry, Biochemistry and Environmental Protection, Trg D. Obradovića 3, 21000 Novi Sad, Serbia

12.15 – 12.30 Finite element solution of one-dimensional Stefan problem
Marina Svičević, Miloš Ivanović
Faculty of Science, University of Kragujevac, Radoja Domanovića 12, 34000 Kragujevac, Serbia

12.30 – 12.45 Ellipsometric data analysis and calculation of ellipsometric parameters of complex materials
Danka Stojanović[1,2], Jelena Radovanović[2], Vitomir Milanović[2], Zlatko Rakočević[1]
[1]Vinča Institute of Nuclear Sciences, Laboratory of Atomic Physics, University of Belgrade, Mike Alasa 12-14, Belgrade, Serbia, [2]School of electrical engineering, University of Belgrade, Bulevar kralja Aleksandra 73, Belgrade, Serbia

12.45 – 14.30 Lunch break with refreshments

14.30 – 16.00 7th Session – Metallurgy and Corrosion of Materials

Chairpersons: Dr. Irena Nikolić and Ionuţ Constantin

14.30 – 14.45 Strength and durability of bauxite based geopolymers
Jasmina Krivokapić[1], I. Janković-Častvan[2], Vuk V. Radmilović[2], Irena Nikolić[1]
[1]University of Montenegro, Faculty of Metallurgy and Technology, Džordža Vašingtona bb, 81000 Podgorica Montenegro, [2]University of Belgrade, Faculty of Technology and Metallurgy, Karnegijeva 4, 11120 Belgrade, Serbia

14.45 – 15.00 Anticorrosive Zn-Ni-P coatings electrodeposited on steel parts from sulfate baths
Ionuţ Constantin[1], Petru Moldovan[2]
[1]National R&D Institute for Nonferrous and Rare Metals – IMNR, 102 Biruinţei Blvd., Pantelimon, Ilfov County, C.P. 077145, [2]Polytechnic University of Bucharest, 313 Splaiul Independenţei, district 6, Bucharest, Romania, C.P. 060032

15.00 – 15.15 Investigation of Al-5083 alloy obtained by mechanical alloying
Vasile Soare, Marian Burada, Dumitru Mitrică, Ionuţ Constantin, Daniela Violeta Dumitrescu
National R&D Institute for Nonferrous and Rare Metals – IMNR, 102 Biruinţei Blvd., Pantelimon, Ilfov County, Romania, C.P. 077145

15.15 – 15.30 Experimental and theoretically investigation of the Ag-Ga-Sn phase diagram
Ljiljana Nedeljković[1] and Milena Premović[1]
[1]University in Priština, Faculty of Technical Science, Knjaza Miloša 7, 38220 Kosovska Mitrovica, Serbia

15.30 – 15.45 Al-Pb composite formation by low-frequency oscillations of its melts
Aleksey Dolmatov, Igor Ignat'ev, Edward Pastukhov
Institute of Metallurgy UB RAS, Yekaterinburg, Russia

15.45 – 16.00 Use of quartz crystal microbalance (QCM) measurements to investigate novel top-of-the-line corrosion (TLC) mitigation method
Ivana Jevremović[1], Feranando Farelas[2], Marc Singer[2], Srdjan Nešić[2], Vesna Mišković-Stanković[1]
[1]Faculty of Technology and Metallurgy, University of Belgrade, Belgrade, Serbia; [2]Institute for Corrosion and Multiphase Technology, Ohio University, Athens, OH, USA

16.00 – 16.15 Break

16.15 – 19.00 8th Session – Polymer Science

Chairpersons: Prof. Dr. Gordana Ćirić-Marjanović, Dr. Branka Hadžić and Rafał Poręba

16.15 – 16.30 The influence of the polybutadiene isomer to the structure of the triblock-copolymer SBM
Aleksandar P. Stajčić, Dragutin M. Nedeljković, Aleksandar S. Grujić, Lana S. Putić, Jasna T. Stajić-Trošić
University of Belgrade, Institute of Chemistry, Technology and Metallurgy, Njegoševa 12, 11000 Belgrade, Serbia

16.30 – 16.45 The preparation of elastomeric poly(lactide) nanocomposite thin films
Aleksandra Miletić[1], Branka Pilić[1], Ivan Ristić[1], Suzana Cakić[2], Nemanja Martić[1], Djordjije Tripković[1]
[1]University of Novi Sad, Faculty of Technology, Novi Sad, Serbia,
[2]University of Niš, Faculty of Technology, Leskovac, Serbia

16.45 – 17.00 Curing of epoxy resins modified with thermoplastic polycarbonate-based polyurethane elastomers
Vesna Teofilović[1], Jelena Pavličević[1], Mirjana Jovičić[1], Oskar Bera[1], Milena Špírková[2], Radmila Radičević[1]
[1]University of Novi Sad, Faculty of Technology, Novi Sad, Serbia, [2]Institute of Macromolecular Chemistry AS CR v.v.i., Prague, Czech Republic

17.00 – 17.15 Influence of pH values on synthesis of PMAA-graft-starch copolymers
Vladimir Nikolić[1], Sava Veličković[2], Aleksandar Popović[3]
[1]Innovation Center, Faculty of Chemistry, University of Belgrade, Studentski trg 12-16, 11000 Belgrade, Serbia, [2]Faculty of Technology and Metallurgy, University of Belgrade, Karnegijeva 4, 11000 Belgrade, Serbia, [3]Faculty of Chemistry, University of Belgrade, Studentski trg 12-16, 11000 Belgrade, Serbia

17.15 – 17.30 Preparation and characterization of waterborne polyurethane dispersions and films
Rafał Poręba, Magdalena Serkis and Milena Špírková
Institute of Macromolecular Chemistry AS CR, v.v.i., Heyrovskeho nam. 2, 162 06 Prague 6, Czech Republic

17.30 – 17.45 Synthesis and application of novel copolymer of methacrylic acid and 2-acrylamido-2-methylpropane sulfonic acid
Aleksandra Nešić[1], Sava Veličković[2], Dušan Antonović[2], Antonije Onjia[1]
[1]Vinča Institute of Nuclear Sciences, University of Belgrade, Belgrade
[2]Faculty of Technology and Metallurgy, University of Belgrade, Belgrade

17.45 – 18.00 Break

18.00 – 18.15 Optical properties of CdTe/ZnTe self-assembled quantum dots
Martina Gilić[1], N. Romčević[1], M. Romčević[1], J. Trajić[1], D. Stojanović[1], R. Kostić[1], W.D. Dobrowolski[2], G. Karczewski[2] and R. Galazka[2]
[1]Institute of Physics, University of Belgrade, 11080 Belgrade, Serbia
[2]Institute of Physiscs, Polish Academy of Science, 02-668 Warsaw, Poland

18.15 – 18.30 Optical properties of $Cd_{1-x}Mn_xS$ nanoparticles
Milica Petrović[1], M. Romčević[1], N. Romčević[1], W.D. Dobrowolski[2], M. Čomor[3]
[1]Institute of Physics, University of Belgrade, 11080, Serbia, [2]Institute of Physics PAS, Warsaw, 02-668, Poland, [3]Institute Vinča, University of Belgrade, 11000, Serbia

18.30 – 18.45 Raman scattering study of $K_xCo_{2-y}Se_2$
Marko Opačić[1], N. Lazarević[1], M. Radonjić[2], M. Šćepanović[1], Hechang Lei[3], D. Tanasković[2], C. Petrović[3], Z.V. Popović[1]
[1]Center for Solid State Physics and New Materials, Institute of Physics Belgrade, University of Belgrade, Pregrevica 118, 11080 Belgrade, Serbia, [2]Scientific Computing Laboratory, Institute of Physics Belgrade, University of Belgrade, Pregrevica 118, 11080 Belgrade, Serbia, [3]Condensed Matter Physics and Materials Science Department, Brookhaven National Laboratory, Upton, New York 11973-5000, USA

18.45 – 19.00 Surface states of the topological crystalline insulator $Pb_{0.4}Sn_{0.6}Te$
Shiva Safaei, P. Kacman, R. Buczko
Institute of Physics PAS, al. Lotników 32/46, 02-668 Warsaw, Poland

Friday, December 13, 2013

09.00 – 11.00 9th Session – Electrochemistry and Magnetic Materials

Chairpersons: Dr. Dragana Jugović and Miloš Milović

09.00 – 09.15 Electrochemical intercalation of lithium in $Li_4T_{i5}O_{12}$ /C composite with different percentage of carbon
Aleksandra Lilić
Faculty of Physical Chemistry, Belgrade University, Studentski trg 12-16, 11158 Belgrade, Serbia

09.15 – 09.30 Sol-gel synthesis of Li_2FeSiO_4/C
Miloš Milović[1], Dragana Jugović[1], Miodrag Mitrić[2], Bojan Jokić[3], Robert Dominko[4], Dragan Uskoković[1]
[1]Institute of Technical Sciences of SASA, Belgrade, Serbia, [2]Vinča Institute of Nuclear Sciences, University of Belgrade, Belgrade, Serbia, [3]Faculty of Technology and Metallurgy, University of Belgrade, Belgrade, Serbia, [4]Laboratory for Materials Electrochemistry, National Institute of Chemistry, Ljubljana, Slovenia

09.30 – 09.45 Nafion membrane humidity monitoring and fault detection in PEMFC
Mila N. Krstajić[1], Vladimir Yufit[2], Nigel P. Brandon[2]
[1]Institute of Chemistry, Technology and Metallurgy, Department of Electrochemistry, University of Belgrade, Njegoseva 12, 11000 Belgrade, Serbia, [2]Faculty of Engineering, Department of Earth Science and Engineering, Imperial College London, South Kensington Campus, London SW7 2AZ, United Kingdom

09.45 – 10.00 Formation of Silver Nanoparticles in Poly(vinyl alcohol) Solution by Electrochemical Synthesis
Rade Surudžić, Željka Jovanović, Vesna Mišković-Stanković
Faculty of Technology and Metallurgy, University of Belgrade, Karnegijeva 4, Belgrade

10.00 – 10.15 Freeze-drying method for $LiFePO_4$/C composite processing
Maja Kuzmanović[1], Dragana Jugović[1], Miodrag Mitrić[2], Bojan Jokić[3], Nikola Cvjetićanin[4], and Dragan Uskoković[1]
[1]Institute of Technical Sciences of SASA, Belgrade, Serbia, [2]The Vinča Institute of Nuclear Science, University of Belgrade, Belgrade, Serbia, [3]Faculty of Technology and Metallurgy, University of Belgrade, Belgrade, Serbia, [4]Faculty of Physical Chemistry, University of Belgrade, Belgrade, Serbia

10.15 – 10.30 Spin glass like behaviour of magnetite nanoparticle system obtained by thermal decomposition of acetylacetonate precursor
Violeta Nikolić, Vojislav Spasojević, Vladan Kusigerski, Marija Perović, Ana Mraković, Marko Bosković, Jovan Blanuša
The Vinča Institute, Condensed Matter Physics Laboratory, University of Belgrade, P.O. Box 522, 11001 Belgrade, Serbia

10.30 – 10.45 Nanostructured materials with magnetic properties in stable colloidal form
Claudia Nadejde[1], Maria Andries[1], Emil Puscasu[1], Gabriel Oanca[1], Laura Ursu[2]
[1]"Alexandru Ioan Cuza" University, Physics Faculty, Iasi, Romania
[2]"Petru Poni" Macromolecular Chemistry Institute, Iasi, Romania

10.45 – 11.00 Magnetic and magnetotransport behavior of $Ge_{1-x-y}Pb_xMn_yTe$ nanocomposite crystals
Arkadiusz Podgórni[1], L. Kilański[1], W. Dobrowolski[1], V. Domukhovski[1], A. Reszka[1], B.J. Kowalski[1], B. Brodowska[1], V.E. Slynko[2], E.I. Slynko[2]
[1]Institute of Physics, Polish Academy of Sciences, Warsaw, Poland
[2]Institute of Materials Science Problems, UAS, Chernovtsy, Ukraine

11.00 - 11.15 Break

11.15 – 13.20 10th Session – Sintering of Materials

Chairpersons: Dr. Djordje Veljović and Miodrag Lukić

11.15 – 11.30 DSC-TG-MS study of hydroxyapatite nanopowders
Miodrag J. Lukić[1], Ljiljana Veselinović[1], Srečo Davor Škapin[2], Marjeta Maček-Kržmanc[2], Smilja Marković[1], Dragan Uskoković[1]
[1]Institute of Technical Sciences of SASA, Belgrade, Serbia, [2]Jožef Stefan Institute, Ljubljana, Slovenia

11.30 – 11.45 Hydroxylapatite synthesis and low temperature sintering methods
Miljana Mirković, Vesna Maksimović, Branko Matović and Anja Došen
Vinča Institute of Nuclear Sciences, University of Belgrade, Serbia

11.45 – 12.00 Structural, morphological and electrical properties of sintered Fe_2O_3/TiO_2 nanopowder mixtures
Zorka Z. Djurić[1], Obrad S. Aleksić[2], Maria V. Nikolić[2]
[1]Institute of Technical Sciences of SASA, Knez Mihailova 35, Belgrade, Serbia
[2]Institute for Multidisciplinary Research, University of Belgrade, Kneza Viseslava 1, 11000 Belgrade, Serbia

12.00 – 12.15 Comparation of mechanical behaviour of SiC sintered specimen to analysis of surface defects

Nataša Z. Tomić, Marija M. Dimitrijević, Bojan I. Medjo, Marko P. Rakin, Radmila M. Jančić – Heinemann, Radoslav R. Aleksić
University of Belgrade, Faculty of Technology and Metallurgy, Karnegijeva 4, 11120 Belgrade, Serbia

12.15 – 12.30 The influence of the sol-gel method of powder synthesis to the properties of cordierite ceramics

Vladimir Topalović, Djordje Veljović, Snežana Grujić, Djordje Janaćković, Rada Petrović
Faculty of Technology and Metallurgy, University of Belgrade, Karnegijeva 4, 11120 Belgrade, Serbia

12.30 – 13.00 Testing concepts in nano mechanics

Krish Narain
Agilent Technologies UK Ltd, Stevenage, United Kingdom

13.00 - 14.30 Lunch break with refreshments

14.30 – 16.15 11th Session – Environmental Science

Chairmen: Prof. Dr. Bojana Obradović and Dr. Smilja Marković

14.30 – 14.45 Novel membrane adsorbers incorporating cross-linked poly(glycidyl methacrylate-*co*-2-acrylamido-2-methylpropane sulfonic acid)

Tanja Tomković[1], Filip Radovanović[1], Aleksandra Nastasović[1], Dana Vasiljević-Radović[1], Antonije Onjia[2]
[1]University of Belgrade, Institute for Chemistry, Technology and Metallurgy, Njegoševa 12, Belgrade, [2]University of Belgrade, Vinča Institute of Nuclear Sciences, P.O. Box 522, Belgrade

14.45 – 15.00 Molybdenum sorption by porous copolymer

Bojana M. Ekmeščić[1], Danijela D. Maksin[2], Jelena P. Marković[2], Z.M. Vuković[3], Antonije E. Onjia[2], Aleksandra B. Nastasović[1]
[1]University of Belgrade, Institute of Chemistry Technology and Metallurgy, Department of Chemistry, Njegoševa 12, Belgrade, [2]University of Belgrade, Vinča Institute of Nuclear Sciences, P.O. Box 522, Belgrade, [3]University of Belgrade, Institute of Chemistry Technology and Metallurgy, Department of Catalysis and Chemical Engineering, Njegoševa 12, Belgrade

15.00 – 15.15 Pectin as biosorbent for the removal of copper ions from aqueous salt solutions

Sanja Šešlija[1], Goran Zebić[2], Sava Veličković[3]
[1]Innovation Centre of the Faculty of Technology and Metallurgy, University of Belgrade, Belgrade, Serbia, [2]Institute of Chemistry, Technology and Metallurgy, Department of Ecology and Technoeconomics, Belgrade, Serbia,[3]University of Belgrade, Faculty of Technology and Metallurgy, Belgrade, Serbia

15.15 – 15.30 Research of application possibilities of different sorption materials for Cu (II) removal from aqueous solutions
Marija Petrović, Jelena Milojković, Marija Mihajlović, Tatjana Šoštarić, Zorica Lopičić, Jelena Petrović, Mirjana Stojanović
Institute for Technology of Nuclear and Other Mineral Raw Materials ITNMS, Franchet d'Esperey St, 11 000 Belgrade, Serbia

15.30 – 15.45 Biosorption efficiency of Cu (II) ions from aqueous solution by corn cob
Marija Petrović, Tatjana Šoštarić, Jelena Milojković, Marija Mihajlović, Jelena Petrović, Mirjana Stojanović
Institute for Technology of Nuclear and Other Mineral Raw Materials ITNMS, Franchet d'Esperey St, 11 000 Belgrade, Serbia

15.45 – 16.00 Asymmetric hydrogel membranes for heavy metal adsorption
Aleksandar Stajčić[1], Filip Radovanović[1], Aleksandra Nastasović[1], Jasna Stajić-Trošić[1], Jelena Marković[2], Antonije Onjia[2]
[1]University of Belgrade, Institute of Chemistry, Technology and Metallurgy, Njegoševa 12, 11000 Belgrade, Serbia, [2]University of Belgrade, Vinča Institute of Nuclear Sciences, P.O. Box 522, 11000 Belgrade, Serbia

16.00 – 16.15 Removal of model heavy metal ions (Ni^{2+}) by hybrid hydrogels based on poly(methacrylic acid) and casein
Vesna Panić[1], Pavle Spasojević[1], Mihajlo Jović[2], Sava Veličković[3]
[1]Innovation Centre of Faculty of Technology and Metallurgy, University of Belgrade, Belgrade, Serbia, [2]Vinča Institute of Nuclear Sciences, University of Belgrade, Belgrade, Serbia, [3]Faculty of Technology and Metallurgy, University of Belgrade, Belgrade, Serbia

16.15 - 16.30 Break

16.30 – 18.00 12th Session – Various Problems in Materials Science

Chairpersons: Dr. Edin Suljovrujić and Mihael Bučko

16.30 – 16.45 Laser assembling of thin bioceramic and biocomposite films on titanium utilizing Pulsed laser deposition (PLC) and Matrix-assisted pulsed laser evaporation (MAPLE) techniques
Sanja Eraković[1], Ana Janković[1], Carmen Ristoscu[2], Liviu Duta[2], Natalia Serban[2], Anita Visan[2], George E. Stan[3], Catalin Luculescu[2], Djordje Janacković[1], Ion N. Mihailescu[2], Vesna Mišković-Stanković[1]
[1]Faculty of Technology and Metallurgy, University of Belgrade, Belgrade, Serbia, [2]National Institute for Lasers, Plasma and Radiation Physics, Magurele, Ilfov, Romania, [3]National Institute of Materials Physics, Bucharest – Magurele, Romania

16.45 – 17.00 Magnetic and optical properties of the nickel thin film deposited by GLAD technique
Jelena Potočnik, Miloš Nenadović, Zlatko Rakočević
Institute of Nuclear Science Vinča, Laboratory of Atomic Physics, University of Belgrade, Mike Alasa 12-14, 11001 Belgrade Serbia

17.00 – 17.15 The cataphoretic deposition of epoxy coating on Zn–Mn alloy substrate
Mihael Bučko[1], Vesna Mišković-Stanković[2], J. B. Bajat[2]
[1]Military Academy, University of Defence, Pavla Jurišića Šturma Street 33, Belgrade, Serbia [2]Faculty of Technology and Metallurgy, University of Belgrade, P.O.Box 3503, YU-11120 Belgrade, Serbia

17.15 – 17.30 Core-shell fibers for compsite materials with self-healing ability
Ivana Radović, Vesna Radojević, Petar S. Uskoković, Dušica B. Stojanović, Aleksandar Kojović and Radoslav Aleksić
University of Belgrade, Faculty of Technology and Metallurgy, Belgrade, Serbia

17.30 – 17.45 Effect of diamond paste finishing on AFM surface texture parameters of dental nanofilled and nanohybrid composites polished by two different procedures
Tijana Lainović[1], Larisa Blažić[1,2], Marko Vilotić[3], Dragan Kukuruzović[3], Damir Kakaš[3]
[1]Faculty of Medicine, School of Dentistry, University of Novi Sad, Novi Sad, Serbia, [2]Clinic of Dentistry of Vojvodina, Novi Sad, Serbia, [3]Faculty of Technical Sciences, University of Novi Sad, Novi Sad, Serbia

17.45 – 18.00 Dependence of high density polyethylene XPS spectrum on electron flood gun parameters
Danilo Kisić, Maja Popović, Zlatko Rakočević
University of Belgrade, "Vinča" Institute of Nuclear Sciences, Laboratory of Atomic Physics, Mike Petrovića Alasa 12-14, Belgrade, Serbia

18.00 Closing Ceremony

XI/1

Novel membrane adsorbers incorporating cross-linked poly(glycidyl methacrylate-*co*-2-acrylamido-2-methylpropane sulfonic acid)

Tanja Tomković[1], Filip Radovanović[1], Aleksandra Nastasović[1], Dana Vasiljević-Radović[1], Antonije Onjia[2]

[1]University of Belgrade, Institute for Chemistry, Technology and Metallurgy, Njegoševa 12, Belgrade, [2]University of Belgrade, Vinča Institute of Nuclear Sciences, P.O. Box 522, Belgrade, Serbia

Membrane adsorption has started to replace fixed bed chromatography for separation and purification of small quantities of valuable species in biotechnology and related areas. Membrane functionalization is usually required to introduce affinity groups for these applications. In this work novel membranes adsorbers were prepared by combining liquid phase inversion with photopolymerization of the solution comprising polyethersulfone, glycidyl methacrylate, sodium salt of 2-acrylamido-2-methylpropane sulfonic acid and a cross-linker. Membranes were characterized using SEM, AFM, FTIR, titration and water permeability measurements. Dynamic adsorption of Toluidine blue as a model dye was used to demonstrate suitability of these novel membranes for membrane adsorption.

XI/2

Molybdenum sorption by porous copolymer

Bojana M. Ekmeščić[1], Danijela D. Maksin[2], Jelena P. Marković[2], Z. M. Vuković[3], Antonije E. Onjia[2], Aleksandra B. Nastasović[1]

[1]University of Belgrade, Institute of Chemistry Technology and Metallurgy, Department of Chemistry, Njegoševa 12, Belgrade, [2]University of Belgrade, Vinča Institute of Nuclear Sciences, P.O. Box 522, Belgrade, [3]University of Belgrade, Institute of Chemistry Technology and Metallurgy, Department of Catalysis and Chemical Engineering, Njegoševa 12, Belgrade

Although being essential for biological functions, molybdenum high concentrations (>5 ppm) in wastewater and groundwater cause an environmental problem, so its removal becomes greatly significant. In this study, Mo(VI) sorption ability of amino-functionalized macroporous copolymer (PGME-deta) from aqueous solutions was investigated. Batch Mo(VI) sorption was investigated by varying pH, initial concentration and temperature. The Mo(VI) ions concentration was monitored by inductively coupled plasma atomic emission spectroscopy (ICP-OES). Sorption kinetics data were fitted to seven chemical-reaction and particle-diffusion models. Thermodynamic parameters revealed spontaneous and endothermic nature of Mo(VI) sorption by PGME-deta. Best fit of equilibrium data was obtained for Langmuir isotherm.