

Sixteenth Annual Conference

YUCOMAT 2014

Hunguest Hotel Sun Resort Herceg Novi, Montenegro, September 1–5, 2014

PROGRAMME & THE BOOK OF ABSTRACTS

Organised by

MATERIALS RESEARCH SOCIETY OF SERBIA

endorsed by

FEDERATION OF EUROPEAN MATERIALS SOCIETIES (FEMS)

MATERIALS RESEARCH SOCIETY (MRS)



SIXTEENTH ANNUAL CONFERENCE

YUCOMAT 2014

Hunguest Hotel Sun Resort Herceg Novi, Montenegro,
September 1-5, 2014
<http://www.mrs-serbia.org.rs>

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Acknowledgments: This conference is held in honour of Prof. Dragan Uskoković's 70th birthday.



**Materials
Research
Society**

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**SIXTEENTH ANNUAL CONFERENCE
YUCOMAT 2014
Herceg Novi, September 1-5, 2014**

WELCOME SPEECH BY THE PRESIDENT OF MRS-SERBIA

My Esteemed Colleagues,



Welcome to the 16th YUCOMAT! Here we are, once again, in the beautiful coastal town of Herceg-Novti, to celebrate everything new that materials science has to offer. As I repeat year after year, a scenery as inspiring for the soul and rejuvenating for the body as this needs only a materials science conference to become officially a Paradise. Telling you about the fulfillment that lifetime in science brings to one would, of course, be preaching to the converted, but this is what the mission of YUCOMAT has been from the very first time it was held, in 1995, in a different venue in this same Montenegrin town and in very different conditions, with war raging on the other side of the mountains towering over this coast: to inspire the new generations to discover

in materials science enjoyment that is larger than life, to humble their restless spirits and continue to walk in the footsteps of us, their academic forebears, who have gone through prosperous and harsh times alike in search of the way to do this science that is so dear to our hearts with excellence.

Please allow me to start off by mentioning a few dry numbers that illustrate the status of this year's conference. The number of participants is not significantly different from that in the previous years. Out of more than 210 submitted presentations, 69 will be made orally and the rest as posters. 27 oral presentations will be invited lectures given by the world-renowned experts in the field. The conference participants this year come from 35 different countries of the world. Works presented by scientists affiliated with Serbian scientific institutions logically comprise the majority of presentations: ~ 25 %. A great deal of presentations is given by our Russian colleagues: ~ 20 %. A plenty of guests are joining us from Slovakia, Slovenia, Poland, Austria, Czech Republic and other European Union countries, to the participants from which our doors are, of course, always open.

Securing sponsors and other support for YUCOMAT has turned into a strenuous effort as the result of the economic turmoil that hit the country hard in the previous years and various other factors. Science in Serbia has been pushed to the margins for a very long time now and the healing of this negative trend does not seem to be coming any time soon. The state funding has been flat for decades now at the level of 0.3 % of GDP (i.e., 15 – 20 euros per capita per annum), which is nowhere near 3 – 5 % of GDP that typifies the developed countries of the world. What is more, an average scientist working in a Serbian institution is also disconnected from various nongovernmental, private or charitable funding sources, let alone from crowdsourcing or other innovative ways of funding research that are available to his/her colleagues in the West. At the MRS Conference held this past spring in San Francisco, the central award, given incidentally to one of the participants of this year's YUCOMAT, bore the name of a late materials scientist who had established a philanthropic foundation in his mid-seventies and since then donated hundreds of millions of dollars for the advancement of science that benefits humanity. In spite of his personal welfare, a prominent businessman already in his eighties, he would be travelling exclusively in second-class train cars, believing that "contributing to advancing science is more important than making a marginal improvement in personal comfort" (*MRS Bulletin*, Vol. 39, March 2014, pp. 285). Although there are many prominent people in Serbia who have become exceptionally wealthy since the country transitioned to free market economy, nil incentives are found amongst them to share the way of thinking that typified this late philanthropist, let alone donate only a small portion of their fortune for the benefit of Serbian science.

In spite of the miserably low funding of science in Serbia, the recent statistical studies demonstrate that Serbia as a country ranks 44th in terms of the total number of publications from the field of nanoscience. The ability to arrive at valuable experimental or theoretical findings with little resources is the key to inventiveness and this trait can certainly be ascribed to a decent percentage of elite Serbian

scientists. But a far bigger problem lurks here: namely, despite a decent number of publications on nanoscience, not a single patent or a marketable product in this field exist in Serbia, illustrating a catastrophic trend of complete disconnectedness of scientific productivity from the applicative domain. And this minuscule application potential of scientific findings on the current socioeconomic grounds does not only justify the wonky political argument in favor of the continued low funding of science, but it also distances the average citizen from the communal needs for science and, in turn, from the needs of the scientific community. It is clear now that the magic triangle, whose edges are represented by the numbers and the quality of publications, patents and products, respectively, has to be balanced lest a society experience a major dysfunction in its progress. When it comes to developing countries, creating this stable triad and maintaining it must be an imperative like no other.

Here, at YUCOMAT, we also continue to reflect the global expansion of the interest of the materials science community to contribute to the biomedical field. It has been a while since the human body has become the major target of investment and much is expected from materials scientists when it comes to improving the quality of healthcare. Many medical treatments have been in use, unchanged, for decades, yet the current research in the biomaterials field offers great prospect for improving or completely reinventing these traditional therapeutic methods. At the same time, however, we should not cease to keep in mind the risks born by every multidisciplinary research. The most critical one is, of course, the dilution of the quality of individual fields joined around it. Specifically, by necessitating the fluency in both materials science and life science, there is a risk that the materials science excellence might degrade over time. And remember, our role here, aside from having a good time, making friends and potential future collaborators is to strengthen each other's science. Therefore, if time for questions after each talk is insufficient, do not hesitate to approach your fellow colleagues and ask them about a thing or two that you have found interesting or problematic during their talks. At the end of the day, there is no room for ego in the genuine way of doing science. Science, as a matter of fact, is an ideal route to liberation from it. Maintaining this pure and, I am free to say, romantic way of doing science is ever more a challenge in the modern academic world wherein egos are often inflated beyond proportion and wherein a sense of individual prestige and personal financial benefits increasingly play a central role in day-by-day decisions made by scientists, corrupting their dedication to the profession. Despite all of this, it has been the mission of us, the organizers of YUCOMAT, to maintain materials science in this pure state in which the benefits of the individual do never eclipse those of the community.

Finally, I am flattered by the decision of the Members of the Executive Board to dedicate this year's conference to myself for the occasion of my 70th birthday. Although I have managed and overseen every single organizational aspect of this conference since its inception almost twenty years ago, an invaluable credit must go to other members of the materials science community of Serbia, particularly those who have been with us from the first YUCOMAT as well as to members of the International Advisory Committee, the Presidential Board and the Conference Organizing Committee. An immense credit goes to the members of my research team too, which have provided us with precious technical assistance throughout all these years. Last but not least, there is Ms. Aleksandra Stojičić, known to most of you as Sasha, who has been nothing short of impeccable in executing administrative tasks.

I would also like to use this opportunity to remind you that our next YUCOMAT will be the 20-year anniversary conference for which we expect a superb lineup of speakers and other participants. This is an advanced call to plan on joining us at this very same place in 2015.

Wishing you a pleasant stay in Herceg-Novi and many rewarding moments at this year's YUCOMAT,

Cordially Yours,

Dragan Uskoković,

President of MRS-Serbia

MRS-Serbia

President: Dragan Uskoković

Vice-presidents: Slobodan Milonjić, Velimir Radmilović, Dejan Raković

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HISTORY:

Materials science and engineering incorporate acquiring of knowledge on synthesis and processing of materials, their composition and structure, properties and behaviour, functions and potentialities as well as application of that knowledge to various final products. Economic prosperity, life quality, and healthy environment are tightly connected with the improvements in the existing and the development of new materials and processing technologies. These improvements and development can contribute greatly to the national priorities: energy saving, environment and health protection, information and communication, infrastructure, transportation, etc.

The First Conference on materials science and engineering, including physics, physical chemistry, condensed matter chemistry, and technology in general, was held in September 1995, in Herceg Novi. An initiative to establish Yugoslav Materials Research Society was born at the conference and, similar to other MR societies in the world, the programme was made and objectives determined. The Yugoslav Materials Research Society (Yu-MRS), a non-government and non-profit scientific association, was founded in 1997 to promote multidisciplinary goal-oriented research in materials science and engineering. Main task and objective of the Society is to encourage creativity in materials research and engineering to reach a harmonic coordination between achievements in this field in our country and

analogous activities in the world with an aim to include our country into the global international projects. Until 2003, Conferences were held every second year and then they grew into Annual Conferences that were traditionally held in Herceg Novi in September of every year. Following the political separation between Serbia and Montenegro, in 2007 Yu-MRS formed two new MRS: MRS-Serbia (official successor of Yu-MRS) and MRS-Montenegro (in founding). In 2008 MRS-Serbia became a member of FEMS (Federation of European Materials Societies).

GENERAL INFORMATION

DATE AND VENUE: The conference will be held on September 1-5, 2014, at the Hunguest Hotel Sun Resort, in Herceg Novi, Montenegro. Participants will also be accommodated there. The conference will begin on Monday, September 1st, at 09.00 and end on Friday, September 5th, 2014, at 12.30.

REGISTRATION: Registration, registration fee payment, conference materials distribution, etc. will take place at the conference desk (Conference Secretariat) open on Sunday, August 31, Monday, September 1, and Tuesday, September 2, from 8.00 to 19.00, on Wednesday and Thursday 8.00-13.00 and 19.00-20.00, and on Friday from 8.00 to 12.00. At registration, the participants are requested to submit a proof of their advance registration fee payment and their registration form.

INSTRUCTION FOR AUTHORS: The conference will feature plenary sessions, oral sessions, poster sessions, and an Exhibition of synthesis and characterization equipment.

Time of papers' presentations to be given in ORAL SESSIONS is limited. Time available for delivery is 30 min for plenary and 15 min for other papers including discussion (5-10 min). Video-beam is available. PowerPoint presentations, recorded on CD or memo-stick, should be given at registration.

In POSTER SESSIONS, the authors are requested to display their papers minimum one hour before the session and to be present beside their posters during the session. Poster sessions venue will be open from Tuesday to Thursday, from 18.00-22.00.

CONFERENCE AWARDS: Materials Research Society of Serbia will award the authors (preferable young members under 35) of the best oral and poster presentation at the conference, and also the authors of highly rated PhD theses defended between two conferences. Awarded researchers are granted free registration at the next YUCOMAT Conference.

ADDITIONAL ACTIVITIES: An Exhibition of synthesis and characterization equipment will be held during the Conference. Traditional Cocktail Party on Monday evening and excursions on Wednesday afternoon to Dubrovnik (Croatia) and Thursday afternoon (boat trip around Boka Kotorska Bay) will be organized again.

Programme

GENERAL CONFERENCE PROGRAMME

Sunday, August 31, 2014

08⁰⁰-19⁰⁰ **Registration**

Monday, September 1, 2014

08⁰⁰-09⁰⁰ **Registration**

09⁰⁰-09³⁰ **OPENING CEREMONY**

- Introduction and Welcome

09³⁰-13⁰⁰ **First Plenary Session**

13¹⁵ **Photo Session**

15⁰⁰-18³⁰ **Symposium A, Conference Hall**

15⁰⁰-18¹⁵ **Symposium B, Small Hall**

19³⁰-21⁰⁰ **Cocktail Party**

SYMPOSIUM A: Advanced Methods in Synthesis
and Processing of Materials

SYMPOSIUM B: Advanced Materials for High-
Technology Application

SYMPOSIUM C: Nanostructured Materials

SYMPOSIUM D: Eco-materials and Eco-
technologies

SYMPOSIUM E: Biomaterials

Tuesday, September 2, 2014

09⁰⁰-12⁰⁰ **Second Plenary Session**

15⁰⁰-18⁴⁵ **Symposium C, Conference Hall**

15⁰⁰-16⁴⁵ **Symposium E, Small Hall**

20⁰⁰-22⁰⁰ **Poster Session I (Symposium A)**

Wednesday, September 3, 2014

09⁰⁰-12⁰⁰ **Third Plenary Session**

14⁰⁰-19⁰⁰ **Excursion to Dubrovnik, Croatia**

20⁰⁰-22⁰⁰ **Poster Session II (Symposium B)**

Thursday, September 4, 2014

09⁰⁰-12⁰⁰ **Fourth Plenary Session**

14⁰⁰-19⁰⁰ **Boat-trip around Boka Kotorska Bay**

20⁰⁰-22⁰⁰ **Poster Session III (Symposiums C, D and E)**

Friday, September 5, 2014

09⁰⁰-12⁰⁰ **Fifth Plenary Session**

12⁰⁰-12³⁰ **Awards and Closing of the Conference**

FIRST PLENARY SESSION

Monday, September 1, 2014

Session I: 09³⁰-13⁰⁰

Chairmen: Robert Sinclair and Velimir Radmilović

09³⁰-10⁰⁰ **TISSUE REGENERATION BY HUMAN STEM CELLS ON BIOLOGICAL SCAFFOLDS**

Gordana Vunjak-Novakovic

*Laboratory for Stem Cells and Tissue Engineering, Columbia University,
New York, NY, USA*

10⁰⁰-10³⁰ **CHARACTERIZING NANOBIO CONJUGATES**

Richard W. Siegel

*Rensselaer Nanotechnology Center and Materials Science and Engineering
Department, Rensselaer Polytechnic Institute, Troy, New York, USA*

10³⁰-11⁰⁰ **AN UP-DATE ON NANOPARTICLE RESEARCH FOR POSSIBLE MEDICAL APPLICATIONS**

Robert Sinclair, Paul J. Kempen, Ai Leen Koh, Richard Chin, Steven J. Madsen

*Department of Materials Science and Engineering, Stanford University, Stanford,
California, USA*

Break: 11⁰⁰-11³⁰

Chairpersons: Gordana Vunjak-Novakovic and Richard W. Siegel

11³⁰-12⁰⁰ **GROWTH AND PHYSICAL PROPERTIES OF CH₃NH₃PbI₃ PEROVSKITE**

László Forró

*Laboratory of Physics of Complex Matter, Ecole Polytechnique Fédérale de
Lausanne, Switzerland*

12⁰⁰-12³⁰ **THE ROLE OF GRAIN BOUNDARIES IN ENHANCING OXYGEN EXCHANGE**

Fritz B. Prinz

*Department of Mechanical Engineering, Stanford University, Stanford, CA, USA;
Department of Materials Science and Engineering, Stanford University, Stanford,
CA, USA*

- 12³⁰-13⁰⁰ **FORMATION OF MONODISPERSE NANOPARTICLES IN SOLIDS**
C. Ophus¹, D.H. Moreno², A. Gautam¹, W. Bras², U. Dahmen¹, Velimir R. Radmilović³
¹National Center for Electron Microscopy, Lawrence Berkeley National Lab, University of California, Berkeley, CA, USA, ²Netherlands Organization for Scientific Research (NWO), DUBBLE@ESRF, BP220, Grenoble Cedex, France, ³University of Belgrade, Faculty of Technology and Metallurgy, Nanotechnology and Functional Materials Lab, Belgrade, Serbia

Break: 13⁰⁰-15⁰⁰

SYMPOSIUM A: ADVANCED METHODS IN SYNTHESIS AND PROCESSING OF MATERIALS

Conference Hall

Session I: 15⁰⁰-18³⁰

Chairmen: Slobodan Milonjić and Vuk Uskoković

- 15⁰⁰-15¹⁵ **SYNTHESIS AND PROPERTIES OF BULK TRANSPARENT COMPOSITE OF BARIUM HEXAFERRITE PLATELETS DISPERSED IN A PMMA MATRIX**
Miha Drofenik^{1,2}, Gregor Ferk¹, Peter Krajnc¹, Anton Hamler³, Darja Lisjak²
¹Faculty of Chemistry and Chemical Engineering, University of Maribor, Slovenia, ²Department for Materials Synthesis, Jožef Stefan Institute, Ljubljana, Slovenia, ³Faculty of Electrical Engineering and Computer Science, University of Maribor, Slovenia
- 15¹⁵-15³⁰ **ON THE APPLICABILITY OF MAXWELL RELATIONS IN SURFACE THERMODYNAMICS AND ELECTROCHEMISTRY**
Emmanuel M. Gutman
Ben-Gurion University of the Negev, Beer-Sheva, Israel
- 15³⁰-15⁴⁵ **Li₂FeSiO₄ CATHODE MATERIAL: THE STRUCTURE AND ELECTROCHEMICAL PERFORMANCES**
Dragana Jugović¹, M. Milović¹, M. Mitrić², V. N. Ivanovski², M. Avdeev³, B. Jokić⁴, R. Dominko⁵, D. Uskoković¹
¹Institute of Technical Sciences of SASA, Belgrade, Serbia, ²Vinča Institute of Nuclear Sciences, University of Belgrade, Belgrade, Serbia, ³Bragg Institute, Australian Nuclear Science and Technology Organisation, Locked Bag 2001, Kirrawee DC, NSW, Australia, ⁴Faculty of Technology and Metallurgy, University of Belgrade, Belgrade, Serbia, ⁵Laboratory for Materials Electrochemistry, National Institute of Chemistry, Ljubljana, Slovenia

- 15⁴⁵-16⁰⁰ **RHEED STUDY OF THE EARLY STAGES OF OXIDE FILM FORMATION AND QUANTIFICATION OF THE GROWTH KINETICS**
Anatole N. Khodan¹, M.V. Sorokin¹, D.-G. Crete²
¹National Research Center "Kurchatov Institute", Moscow, Russian Federation,
²Unite Mixte de Physique C.N.R.S./THALES, Palaiseau, France
- 16⁰⁰-16¹⁵ **EFFICIENT SOLUTION COMBUSTION SYNTHESIS OF CERIA-BASED CATALYSTS FOR HYDROGEN PRODUCTION**
Georgeta Postole, Thanh-Son Nguyen, Patrick Gélin, Laurent Piccolo
Institut de Recherches sur la Catalyse et l'Environnement de Lyon (IRCELYON),
CNRS & Université Lyon 1, Villeurbanne Cedex 9, France
- 16¹⁵-16³⁰ **AN ALCOHOL INFLUENCE ON MORPHOLOGY OF ZnO STRUCTURES PRECIPITATED FROM AQUEOUS-ALCOHOLIC SOLUTIONS**
Nataliya S. Nikolaeva, I.A. Blokhina
Siberian Federal University, Krasnoyarsk, Russia
- 16³⁰-16⁴⁵ **KINETIC ANALYSIS OF THE TiB₂ CARBOTHERMAL SYNTHESIS**
Irina A. Blokhina, V.V. Ivanov, N.N. Nikolaeva
Siberian Federal University, Krasnoyarsk, Russia
- 16⁴⁵-17⁰⁰ **NUMERICAL ANALYSIS OF RAPID SOLIDIFICATION PROCESS OF NiTi BINARY ALLOY**
Primoz Ternik¹, Matej Zadavec², Rebeka Rudolf², Milan Svetec³
¹Ternik Primož-Private Researcher, Bresternica, Slovenia, ²Faculty of Mechanical Engineering, Maribor, Slovenia, ³Pomurska akademsko znanstvena unija, Murska Sobota, Slovenia
- Break: 17⁰⁰-17³⁰**
- 17³⁰-17⁴⁵ **Al₂O₃/TiO₂ AND Al₂O₃/TiO₂/WO₃ MIXED OXIDE COATINGS: OPTIMIZATION OF PROCESSING PARAMETERS REGARDING PHOTOCATALYTICAL PROPERTIES**
N. Tadić¹, N. Radić², B. Grbić², Rastko Vasilic¹, S. Stojadinović¹
¹University of Belgrade, Faculty of Physics, Belgrade, Serbia, ²University of Belgrade, Institute of Chemistry, Technology, and Metallurgy, Department of Catalysis and Chemical Engineering, Belgrade, Serbia
- 17⁴⁵-18⁰⁰ **APPLYING RADIATION PROCESSING FOR OBTAINING HIGH-RESISTIVITY SILICON WITH IMPROVED CHARACTERISTICS**
Svetlana P. Kobeleva¹, I.M. Anfimov¹, N.A. Sobolev²
¹National Technological University "MISIS", Moscow, Russia, ²Universidade de Aveiro, Portugal

18⁰⁰-18¹⁵ **CAST NANO-STRUCTURED POLYMETALLIC HIGH ENTROPY ALLOYS
AND COATINGS OF THEM BY CENTRIFUGAL SHS CASTING**

Vladimir Sanin, Denis Ikornikov, Dmitry Andreev, Vladimir Yukhvid
*Institute of Structural Macrokineitics and Materials Science RAS, Chernogolovka,
Moscow Region, Russia*

18¹⁵-18³⁰ **INFLUENCE OF ALKALI ION ON THE PROPERTIES OF ALKALI
ACTVATED SLAG**

Irena Nikolić¹, I. Janković-Častvan², V.V. Radmilović², Lj. Karanović³, S. Mentus⁴,
V.R. Radmilović²
¹*University of Montenegro, Faculty of Metallurgy and Technology, Podgorica,
Montenegro,* ²*University of Belgrade, Faculty of Technology and Metallurgy,
Belgrade, Serbia,* ³*University of Belgrade, Faculty of Mining and Geology,
Laboratory of Crystallography, Belgrade, Serbia,* ⁴*University of Belgrade, Faculty
of Physical Chemistry, Belgrade, Serbia*

**SYMPOSIUM B: ADVANCED MATERIALS FOR HIGH-TECHNOLOGY
APPLICATIONS**

Small Hall

Session I: 15⁰⁰-18¹⁵

Chairpersons: Milena Špírková and Bostjan Jančar

15⁰⁰-15¹⁵ **INTEGROWN THERMOELECTRIC LAYERED COBALTATES**

Bostjan Jančar¹, Damjan Vengust¹, Goran Dražić^{1,2} Andreja Sestan¹, Danilo
Suvorov¹
¹*Jozef Stefan Institute, Ljubljana, Slovenia,* ²*National Institute of Chemistry,
Ljubljana, Slovenia*

- 15¹⁵-15³⁰ **NOVEL THERMOELECTRIC SKUTTERUDITES IN THE SYSTEM Ni-Sn-Sb**
Werner Paschinger¹, G. Rogl², A. Grytsiv^{2,3}, P.F. Rogl^{1,2}, E. Bauer^{2,3}, H. Michor³, Ch. Eisenmenger-Sitter³, E. Royanian³, P.R. Heinrich³, M. Zehetbauer⁴, J. Horky⁴, S. Puchegger⁵, M. Reinecker⁶, G. Giester⁷, P. Broz⁸, A. Bismarck^{1,2}
¹*Institute of Physical Chemistry, University of Vienna, Vienna, Austria,* ²*Christian Doppler Laboratory for Thermoelectricity, TU-Wien, Vienna, Austria,* ³*Institute for Solid State Physics, TU-Wien, Vienna, Austria,* ⁴*Research Group Physics of Nanostructured Materials, University of Vienna, Vienna, Austria,* ⁵*Faculty Center for Nanostructure Research, University of Vienna, Vienna, Austria,* ⁶*Research Group Physics of Nanostructured Materials, University of Vienna, Vienna, Austria,* ⁷*Institute of Mineralogy and Crystallography, University of Vienna, Vienna, Austria,* ⁸*Faculty of Science, Department of Chemistry, Masaryk University, Brno, Czech Republic*
- 15³⁰-15⁴⁵ **Yb-Pt-B AND RELATED SYSTEMS WITH Sc AND Y: PHASE EQUILIBRIA AND CRYSTAL STRUCTURE OF COMPOUNDS. A CONTRIBUTION TO THE STRUCTURAL CHEMISTRY OF THE BINARY PLATINUM BORIDES**
Oksana Sologub^{1,2}, P. Rogl², E. Bauer¹, L. Salamakha¹, B. Stöger³, G. Giester⁴, L. Bogun⁵
¹*Institute of Solid State Physics, Vienna University of Technology, Wien, Austria,* ²*Institute of Physical Chemistry, University of Vienna, Wien, Austria,* ³*Institute of Chemical Technologies and Analytics, Vienna University of Technology, Wien, Austria,* ⁴*Institute of Mineralogy and Crystallography, University of Vienna, Wien, Austria,* ⁵*Lviv Polytechnic National University, Lviv, Ukraine*
- 15⁴⁵-16⁰⁰ **ALL ALIPHATIC POLYCARBONATE-BASED POLYURETHANE ELASTOMERS CONTAINING DEGRADABLE UNITS**
Milena Špírková, Lud'ka Machová and Rafał Poreba
Institute of Macromolecular Chemistry AS CR, v.v.i., Prague, Czech Republic
- 16⁰⁰-16¹⁵ **SUPERPARAMAGNETIC γ -Fe₂O₃ NANOPARTICLES OBTAINED BY ONE-STAGE HYDROTHERMAL SYNTHESIS**
Mikhail G. Osmolowsky, O.M. Osmolowskaya, M.A. Kozlova, A.D. Furasova, I.V. Murin
Saint-Petersburg State University, Chemistry Department, St. Petersburg, Russia
- 16¹⁵-16³⁰ **SYNTHESIS AND CHARACTERISATION OF La_{2-x}Sr_xCoO₄ WITH PEROVSKITE-LIKE STRUCTURE**
Natalia P. Bobrysheva¹, A.A. Selutin¹, N.V. Dalakova²
¹*Saint-Petersburg State University Chemistry Department, St. Petersburg, Russia,* ²*Verkin Institute for Low Temperature Physics and Engineering of National Academy of Sciences of Ukraine, Kharkov, Ukraine*

- 16³⁰-16⁴⁵ **A SEMI EMPIRICAL ANALYSIS OF MICROCRACKING IN AN AMORPHOUS POLYMER**
Mohamed Chabaat
Built & Environmental Research Lab., Civil Engineering Faculty, University of Sciences and Technology Houari Boumediene, B.P. 32 El-Alia, Bab-Ezzouar Algiers, Algeria
- 16⁴⁵-17⁰⁰ **SOLIDIFICATION OF MELT SPUN HEUSLER ALLOYS**
Pavel Diko¹, V. Kavečanský¹, S. Piovarči¹, T. Ryba², R. Varga²
¹Institute of Experimental Physics, Slovak Academy of Sciences, Košice, ²Institute of Physics, UPJS Kosice, Košice, Slovak Republic
- Break: 17⁰⁰-17³⁰**
- 17³⁰-17⁴⁵ **THE SYSTEM Ce-Zn-Si at <33.3 at.% Ce: PHASE EQUILIBRIA, CRYSTAL STRUCTURES, AND PHYSICAL PROPERTIES**
Fainan Failamani¹, A. Grytsiv¹, Z. Malik¹, P. Broz², G. Giester³, P. Rogl¹, E. Bauer⁴, W. Kautek¹
¹Institute of Physical Chemistry, University of Vienna, Vienna, Austria, ²Masaryk University, Faculty of Science, Department of Chemistry, Brno, Czech Republic, ³Institute of Mineralogy and Crystallography, University of Vienna, Vienna, Austria, ⁴Institute of Solid State Physics, Vienna University of Technology, Vienna, Austria
- 17⁴⁵-18⁰⁰ **REVERSIBLE RANDOM SEQUENTIAL ADSORPTION OF POLYDISPERSE MIXTURES ON A TRIANGULAR LATTICE**
Dijana Dujak¹, I. Lončarević², Lj. Budinski-Petković², A. Karač³, S. B. Vrhovac⁴
¹Faculty of Metallurgy and Materials, Zenica, Bosnia and Herzegovina, ²Faculty of Technical Sciences, Novi Sad, Serbia, ³Faculty of Mechanical Engineering, Zenica, Bosnia and Herzegovina, ⁴Institute of Physics Belgrade, Zemun, Serbia
- 18⁰⁰-18¹⁵ **EXPERIENCE PRODUCTION OF MICROSPHERES FROM COAL SLAG AND THEIR APPLICATION FOR SORPTION OF URANIUM**
Tlek Ketegenov¹, A. Kononow², T. Oserov¹, O. Tyumenceva¹
¹National Engineering Academy of Republic Kazakhstan, ²Institute of High Technology by the National Atomic Company "Kazatomprom", Kazakhstan

SECOND PLENARY SESSION

Tuesday, September 2, 2014

Session II: 09⁰⁰-12³⁰

Chairmen: Robert Hull and Wolfgang Jäger

09⁰⁰-09³⁰ **WATER AT INTERFACES: WETTING, STRUCTURE AND REACTIONS**
Miquel Salmeron
Lawrence Berkeley National Laboratory, University of California Berkeley, USA

09³⁰-10⁰⁰ **TOWARDS THREE-DIMENSIONAL ELECTROSTATIC POTENTIAL AND MAGNETIC FIELD CHARACTERIZATION USING ELECTRON HOLOGRAPHY**
Rafal E. Dunin-Borkowski¹, Vadim Migunov¹, Jan Caron¹, András Kovács¹ and Giulio Pozzi²
¹*Ernst Ruska-Centre for Microscopy and Spectroscopy with Electrons and Peter Grünberg Institute, Forschungszentrum Jülich, Jülich, Germany,* ²*Department of Physics and Astronomy, University of Bologna, Bologna, Italy*

10⁰⁰-10³⁰ **ELECTRON ENERGY LOSS SPECTRUM-IMAGING OF LOCALISED SURFACE PLASMON RESONANCES OF METAL NANOPARTICLES IN TWO AND THREE DIMENSIONS**
Paul A. Midgley, O. Nicoletti, S.M. Collins, F. de la Pena, T. Ostasevicius, D. Rossouw, E. Ringe, R.K. Leary, D. Holland, C. Ducati
Department of Materials Science and Metallurgy, University of Cambridge, Cambridge, United Kingdom

Break: 10³⁰-11⁰⁰

Chairmen: Paul A. Midgley and Rafal E. Dunin-Borkowski

11⁰⁰-11³⁰ **INVERSE SIMULATION OF DISLOCATION NETWORK GENERATION IN EPITAXIAL FILMS**
Robert Hull, Dustin Andersen and Hamed Parvaneh
Department of Materials Science and Engineering, Rensselaer Polytechnic Institute, Troy, NY, USA

11³⁰-12⁰⁰ **ELECTRON VORTEX BEAMS – A NOVEL PROBE FOR NANOANALYTICS**
Peter Schattschneider
Institute of Solid State Physics and Service Centre for Electron Microscopy, Vienna University of Technology, Vienna, Austria

12⁰⁰-12³⁰ **INTERFACE AND DEFECT PHENOMENA IN HIGH-EFFICIENCY SOLAR CELLS**

Wolfgang Jäger

Institute for Materials Science, Christian-Albrechts-University of Kiel, Kiel, Germany

Break: 12³⁰-15⁰⁰

SYMPOSIUM C: NANOSTRUCTURED MATERIALS

Conference Hall

Session I: 15⁰⁰-18⁴⁵

Chairpersons: Natalia V. Kamanina and Satoshi Ohara

15⁰⁰-15¹⁵ **NANO- AND BIOSTRUCTURIZATION PROCESS TO OPTIMIZE THE OPTICAL MATERIALS FEATURES**

Natalia V. Kamanina^{1,2}

¹Lab for Photophysics of Media with Nanoobjects, Vavilov State Optical Institute, St.- Petersburg, 199053, Russia, ²Saint-Petersburg Electrotechnical University ("LETI"), St. Petersburg

15¹⁵-15³⁰ **MECHANOCHEMICAL SYNTHESIS OF NANOCARBON AND METAL OXIDE NANOPARTICLES USING SUPER-HIGH-ENERGY BALL MILLING**

Satoshi Ohara, Zhenquan Tan, Kazuhiro Yamamoto, Nan Qiu, Takeshi Hashishin

Joining and Welding Research Institute, Osaka University, Ibaraki, Osaka, Japan

15³⁰-15⁴⁵ **STRUCTURE AND PROPERTIES OF COPPER MATRIX COMPOSITES WITH GRAPHENE ADDITIONS**

Jan Dutkiewicz¹, Bogusz Kania¹, Piotr Dłużewski², Wojciech Maziarz¹

¹Institute of Metallurgy and Materials Science of the Polish Academy of Sciences Kraków, Poland, ²Institute of Physics of the Polish Academy of Sciences, Warsaw, Poland

15⁴⁵-16⁰⁰ **MYSTERIOUS STRUCTURES IN SDS-CONTAINING DISPERSIONS OF HEMATITE**

Edward Mączka, Marek Kosmulski

Lublin University of Technology, Lublin, Poland

16⁰⁰-16¹⁵ **TEMPLATE SYNTHESIS OF Mo₂C NANOWIRES AND SINGLE-PHASE δ₃ - MoN SUPERCONDUCTING NANOWIRES**
Aleš Mrzel, A. Kovič, Z. Jagličič, A. Jesih, J. Buh, D. Mihailović
Jožef Stefan Institute, Ljubljana, Slovenia

16¹⁵-16³⁰ **NOVEL MIXED PHASE SnO₂ NANORODS FOR ENHANCING GAS-SENSING PERFORMANCE TOWARDS ISOPROPANOL GAS**
Igor Djerđi, Marko Nuskol, Jasminka Popović
Division of Materials Physics, Ruđer Bošković Institute, Zagreb, Croatia

16³⁰-16⁴⁵ **PHOTOCATALYTIC ACTIVITY OF ZnO-PEO COMPOSITES**
Smilja Marković, V. Rajić, A. Stanković, D. Uskoković
Institute of Technical Sciences of SASA, Belgrade, Serbia

16⁴⁵-17⁰⁰ **SYNTHESIS AND PROPERTIES OF MULTIFUNCTIONAL POLYMER COMPOSITES AND ORDERED ARRAYS OF NANOSTRUCTURES WITH PHOTOCHROMIC 3D METAL COMPLEXES**
Nataliya A. Sanina
Institute of Problems of Chemical Physics RAS, Chernogolovka, Russian Federation

Break: 17⁰⁰-17³⁰

17³⁰-17⁴⁵ **SYNTHESIS AND APPLICATIONS OF CARBON NANOWALL FILMS**
Victor A. Krivchenko, K.V. Mironovich, P.V. Voronin, S.A. Evlashin
D.V. Skobel'syn Institute of Nuclear Physics of M.V. Lomonosov Moscow State University, Moscow, Russia

17⁴⁵-18⁰⁰ **ORDERED ARRAYS OF SINGLE PHOTON EMITTERS BASED ON GaN NANOWIRES HOSTING InGaN NANO-DISKS**
E. Chernysheva¹, Snežana Lazić¹, Ž. Gačević², S. Albert², A. Bengochea-Encabo², M. Müller³, F. Bertram³, J. Christen³, H. van der Meulen¹, J. M. Calleja¹, E. Calleja²
¹*Departamento de Física de Materiales, Universidad Autónoma de Madrid, Madrid, Spain*, ²*ISOM and Departamento de Ingeniería Electrónica, ETSI Telecomunicación, Universidad Politécnica de Madrid, Madrid, Spain*, ³*Institute of Experimental Physics, Otto-von-Guericke-University Magdeburg, Magdeburg, Germany*

18⁰⁰-18¹⁵ **OLEIC-ACID-COATED COBALT FERRITE NANOPARTICLES**
Sonja Jovanović¹, M. Spreitzer¹, M. Tramšek², Z. Trontelj³, D. Suvorov¹
¹*Advanced Materials Department, Jožef Stefan Institute, Ljubljana, Slovenia*, ²*Department of Inorganic Chemistry and Technology, Jožef Stefan Institute, Ljubljana, Slovenia*, ³*Institute of Mathematics, Physics and Mechanics, Ljubljana, Slovenia*

18¹⁵-18³⁰ **THE EFFECT OF ULTRAFINE PARTICLES FORMED DURING AGING AND ULTRAFINE GRAIN STRUCTURE AFTER HIGH PRESSURE TORSION IN THE HARDENING OF THE Mg-Y-Gd-Zr ALLOY**

Elena A. Lukyanova^{1,2}, L.L. Rokhlin¹, S.V. Dobatkin^{1,2}, T.V. Dobatkina¹

¹*A.A.Baikov Institute of Metallurgy and Materials Science, Russian Academy of Sciences, Moscow, Russia*, ²*National Science and Technology University "MISIS", Laboratory of Hybrid Nanostructured Materials, Moscow, Russia*

18³⁰-18⁴⁵ **ENHANCEMENT OF COERCIVITY FOR Nd-Fe-B SINTERED MAGNETS**

Young Do Kim

Department of Materials Science and Engineering, Hanyang University, Seoul, Korea

SYMPOSIUM E: BIOMATERIALS

Small Hall

Session I: 15⁰⁰-16³⁰

Chairmen: Dejan Raković and Nenad Ignjatović

15⁰⁰-15¹⁵ **POLY (DL-LACTIDE-CO-GLYCOLIDE) NANOSPHERES WITH ENCAPSULATED SELENIUM NANOPARTICLES AS A SYSTEM WITH THERAPEUTIC FUNCTIONALITY**

Magdalena Stevanović¹, Jana Nunić², Jonghoon Choi³, Miloš Filipović⁴, Dragan Uskoković¹, Theodore Tsotakos⁵, Eirini Fragogeorgi⁵, Dimitris Psimadas⁵, Lazaros Palamaris⁵, George Loudos⁵

¹*Institute of Technical Sciences of SASA, Belgrade, Serbia*, ²*Department of Genetic Toxicology and Cancer Biology, National Institute of Biology, Ljubljana, Slovenia*, ³*Center for Biomaterials, Biomedical Research Institute, Korea Institute of Science and Technology, Seoul, Republic of Korea*, ⁴*Department of Chemistry and Pharmacy, University of Erlangen-Nuremberg, Erlangen, Germany*, ⁵*Department of Biomedical Technology Engineering, Technological Educational Institute of Athens, Greece*

15¹⁵-15³⁰ **EGGSHELL MEMBRANE BIOMATERIAL AS A PLATFORM FOR SYNTHESIS OF SEMICONDUCTOR NANOCRYSTALS**

Matej Baláž, Peter Baláž

Institute of Geotechnics, Slovak Academy of Sciences, Košice, Slovakia

- 15³⁰-15⁴⁵ **THE SUCCESS RATE OF HYDROXYAPATITE NANOPARTICLES COATED WITH BIORESORBABLE POLYMERS IN A BIOLOGICAL ENVIRONMENT**
Nenad Ignjatović¹, Zorica Ajduković², Sanja Vranješ-Djurić³, Dragan Uskoković¹
¹Centre for Fine Particles Processing and Nanotechnologies, Institute of Technical Sciences of SASA, Belgrade, Serbia, ²Clinic of Stomatology, Department of Prosthodontics, Faculty of Medicine, University of Niš, Niš, Serbia, ³Laboratory for radioisotopes, Vinča Institute of Nuclear Sciences, University of Belgrade, Belgrade, Serbia
- 15⁴⁵-16⁰⁰ **EVALUATION OF Ag/ALGINATE COLLOID SOLUTIONS REGARDING CYTOTOXICITY: *IN VITRO* AND *IN VIVO* STUDIES**
Jovana Zvicer¹, Lenart Girandon², Urška Potočar², Mirjam Fröhlich^{2,5}, Ivan Jančič³, Biljana Bufan³, Marina Milenković³, Jasmina Stojkowska⁴, Vesna Mišković-Stanković¹, Bojana Obradović¹
¹Faculty of Technology and Metallurgy, University of Belgrade, Serbia, ²Educell LLC, Ljubljana, Slovenia, ³Department of Microbiology and Immunology, Faculty of Pharmacy, University of Belgrade, Serbia, ⁴KreativTeh LLC, Belgrade, Serbia, ⁵Department of Biochemistry, Molecular and Structural Biology, Jožef Stefan Institute, Ljubljana, Slovenia
- 16⁰⁰-16¹⁵ **THE ROLE OF THE MORPHOLOGY AND STRUCTURAL CHARACTERISTICS ON THE SOLUBILITY OF VANADIUM PENTOXIDE- PLGA COMPOSITES**
Nemanja Aničić, Marija Vukomanović, Danilo Suvorov
Institute Jožef Štefan, Ljubljana, Slovenia
- 16¹⁵-16³⁰ **PEGYLATED MAGNETIC NANOPARTICLES FOR BIOMEDICAL APPLICATIONS**
Romulus Tetean¹, Cristian Iacovita², Rares Stiufluic², Sever Mican¹, Constantin Mihai Lucaciu²
¹Babes-Bolyai University, Faculty of Physics, Cluj-Napoca, Romania, ²Iuliu Hatieganu University of Medicine and Pharmacy, Cluj-Napoca, Romania
- 16³⁰-16⁴⁵ **ULTIMATE SOLUTIONS DEVELOPMENT IN ABERRATION CORRECTED ELECTRON MICROSCOPY APPLIED TO THE FIELD OF ADVANCED MATERIALS SCIENCE**
Dominique Delille
FEI Company, France

THIRD PLENARY SESSION

Wednesday, September 3, 2014

Session III: 09⁰⁰-12⁰⁰

Chairmen: László Forró and Werner Mader

09⁰⁰-09³⁰ THE SURFACE OF STRONTIUM TITANATE

Laurence D. Marks

*Department of Materials Science and Engineering, Northwestern University,
Evanston, IL, USA*

09³⁰-10⁰⁰ UNDERSTANDING THE ATOMIC STRUCTURE OF LI-ION SPINEL BATTERY CATHODES WITH ABERRATION-CORRECTED HAADF STEM

C. Amos, J. Song, J. Goodenough, Paulo J. Ferreira

*Materials Science and Engineering Program, The University of Texas at Austin,
Austin, TX, USA*

10⁰⁰-10³⁰ LAYERED OXIDE STRUCTURES AS TRANSPARENT ELECTRONICS

Werner Mader, Simon Eichhorn

Institute for Inorganic Chemistry, University of Bonn, Bonn, Germany

Break: 10³⁰-11⁰⁰

Chairmen: Laurence D. Marks and Paulo J. Ferreira

11⁰⁰-11³⁰ MULTI-SCALE STUDY OF INTERCONNECT STRUCTURES FOR ADVANCED PACKAGING OF INTEGRATED CIRCUITS - CHALLENGES TO MICROSCOPY AND SAMPLE PREPARATION

Ehrenfried Zschech^{1,2}, Sven Niese^{1,3}, Markus Löffler², Martin Gall¹, Reiner Dietsch³

¹*Fraunhofer Institute for Ceramic Technologies and Systems, Dresden, Germany,*

²*Technical University Dresden, Dresden Center for Nanoanalysis, Dresden,*

Germany, ³AXO GmbH, Dresden, Germany

11³⁰-12⁰⁰ THERMO-SENSITIVE HYDROGEL AS CELL CARRIER FOR NUCLEUS PULPOSUS REGENERATION

Feng-Huei Lin

Institute of Biomedical Engineering, National Taiwan University, Taipei, Taiwan

FOURTH PLENARY SESSION

Thursday, September 4, 2014

Session IV: 09⁰⁰-12⁰⁰

Chairmen: Max Avdeev and Andrei Kanaev

09⁰⁰-09³⁰ HARMONIZATION OF MECHANICAL AND THERMAL PROCESSES FOR FUNCTIONAL OXIDE NANOPARTICLES VIA A SOLID STATE ROUTE

Mamoru Senna

Faculty of Science and Technology, Keio University, Yokohama, Japan

09³⁰-10⁰⁰ RECENT ADVANCES IN PROCESSING OF MATERIALS BY ELECTRIC ASSISTED MECHANICAL MILLING: THE METHOD, DEVICE DESCRIPTION AND APPLICATIONS

Andrzej Čalka

University of Wollongong, Faculty of Engineering and Information Sciences, Wollongong, NSW, Australia

10⁰⁰-10³⁰ STABILITY OF NANOMATERIALS AT HIGH MECHANICAL ACTIONS

Rostislav A. Andrievski

Institute of Problems of Chemical Physics, Russian Academy of Sciences, Chernogolovka, Moscow Region, Russia

Break: 10³⁰-11⁰⁰

Chairmen: Mamoru Senna and Rostislav A. Andrievski

11⁰⁰-11³⁰ CRYSTAL STRUCTURAL DATA MINING FOR NEW INSERTION HOSTS AND SOLID ELECTROLYTES

Max Avdeev, Matthew Sale

Bragg Institute, Australian Nuclear Science and Technology Organisation, Lucas Heights, Australia

11³⁰-12⁰⁰ NANOPARTICULATE SOL-GEL BASED MATERIALS FOR PHOTOCATALYSIS AND PHOTONICS

M. Amamra¹, M. Ben Amar¹, M. Traore¹, K. Chhor¹, L. Museur², Andrei Kanaev¹

¹*Laboratoire des Sciences des Procédés et des Matériaux, CNRS, Université Paris 13, Sorbonne Paris Cité, Villetaneuse, France,* ²*Laboratoire de Physique des Lasers CNRS, Université Paris 13, Sorbonne Paris Cité, Villetaneuse, France*

FIFTH PLENARY SESSION

Friday, September 5, 2014

Session V: 09⁰⁰-12⁰⁰

Chairmen: Tom Diekwisch and Vuk Uskoković

09⁰⁰-09³⁰ **SOFT MICROSCOPY FOR CHARACTERIZATION OF THE FUNCTIONAL MICROSTRUCTURE OF ADVANCED SOFT MATERIALS AND MATERIALS REQUIRING SOFT MICROSCOPY**

Eva Olsson

Department of Applied Physics, Chalmers University of Technology, Gothenburg, Sweden

09³⁰-10⁰⁰ **PROCESSING AND APPLICATIONS OF MULTIFUNCTIONAL NANOSTRUCTURED POLYMERIC BIOMATERIALS**

José M. Kenny

Instituto de Ciencia y Tecnología de Polímeros, ICTP-CSIC, Juan de la Cierva, Madrid, Spain; Materials Engineering Center, Udr INSTM, University of Perugia, Terni, Italy

10⁰⁰-10³⁰ **APPLICATIONS OF ENVIRONMENTAL (SCANNING) TRANSMISSION ELECTRON MICROSCOPY TO STUDY OXIDATION AND HYDROGENATION PHENOMENA IN NANOMATERIALS**

Ai Leen Koh

Stanford Nanocharacterization Laboratory, Stanford University, Stanford, California, USA

Break: 10³⁰-11⁰⁰

Chairpersons: Ai Leen Koh and José M. Kenny

11⁰⁰-11³⁰ **MATERIALS DESIGN FOR PERIODONTAL REGENERATION**

Tom Diekwisch

UIC Department of Oral Biology, Chicago, USA

11³⁰-12⁰⁰ ***SIMILIA SIMILIBUS CURANTUR*: BONE-MIMICKING COMPOSITES AS THE NEW GENERATION OF BONE REPLACEMENT MATERIALS**

Vuk Uskoković

Advanced Materials and Nanobiotechnology Laboratory, Department of Bioengineering, University of Illinois, Chicago, IL, USA

12⁰⁰-12³⁰ **CLOSING CEREMONY**

POSTER SESSION I

Tuesday, September 2, 2014, 20⁰⁰-22⁰⁰

SYMPOSIUM A: ADVANCED METHODS IN SYNTHESIS AND PROCESSING OF MATERIALS

P.S.A.1. **THE INFLUENCE OF STRAIN RATE BETWEEN 10^{-3} - 10^3 S⁻¹ OF AUTOMOTIVE STEELS SHEETS**

Maria Mihaliková, M. Német

Department of Materials Science, Faculty of Metallurgy, Technical University of Košice, Slovak Republic

P.S.A.2. **THE FORMATION OF REFRACTORY CARBIDES IN THE TERNARY HETEROGENEOUS Me-C-F SYSTEMS**

Victor V. Lozanov¹, S.V. Sysoev², N.I. Baklanova¹

¹*Institute of Solid State Chemistry and Mechanochemistry SB RAS, Novosibirsk, Russia* ²*Nikolaev Institute of Inorganic Chemistry SB RAS, Novosibirsk, Russia*

P.S.A.3. **STRUCTURE AND THERMAL PROPERTIES OF PYRIDOXAL THIOSEMICARBAZONE AND PYRIDOXAL ISOTHIOSEMICARBAZONE BASED COPPER(II) COMPLEXES**

Marko V. Rodić¹, Berta Barta Holló¹, Ljiljana S. Vojinović-Ješić¹, Sonja A. Ivković², Vukadin M. Leovac¹, Katalin Mészáros Szécsényi¹

¹*Faculty of Sciences, University of Novi Sad, Novi Sad, Serbia*, ²*Faculty of Environmental Protection, University EDUCONS, Sremska Kamenica, Serbia*

P.S.A.4. **SYNTHESIS AND STRUCTURE OF THE FIRST ZINC(II) COMPOUND CONTAINING PYRIDOXALAMINOGUANIDINE**

Mirjana M. Radanović, Ljiljana S. Vojinović-Ješić, Vukadin M. Leovac

Faculty of Sciences, Novi Sad, Serbia

P.S.A.5. **LANTHANIDE (III) POLYOXOMETALATES: SYNTHESIS, STRUCTURE AND PROPERTIES**

Doina Humelnicu¹, Mihail Liviu Craus², Nicoleta Cornei¹, Ionel Humelnicu¹

¹*Faculty of Chemistry, "Al. I. Cuza" University, Iasi, Romania*, ²*Frank Laboratory for Neutron Physics (FLNP), Dubna, Russia*

P.S.A.6. **BARIUM CERATE PREPARED BY OXALATE COPRECIPITATION**

Renata Verbová, V. Kavečanský, S. Piovarči, V. Antal, P. Diko

Institute of Experimental Physics, Slovak Academy of Sciences, Kosice, Slovak Republic

- P.S.A.7. **INFLUENCE OF DIFERENT POISSON'S COEFFICIENTS OF ADHERENTS ON STRESS DISTRIBUTION IN THE CASE OF STEP COMPOSITE JOINT**
Abdurrahman O. Houssein
Al jabel Algharbi university, Dean of Faculty of engineering - Jadoo, Libya
- P.S.A.8. **SYNTHESIS OF LiFePO_4 BY MECHANICAL STRESSING AND THERMAL ANNEALING**
Miloš Milović¹, D. Jugović¹, M. Mitrić², N. Cvjetičanin³, A. Mraković², M. Senna⁴, D. Uskoković¹
¹*Institute of Technical Sciences of SASA, Belgrade, Serbia,* ²*Vinča Institute of Nuclear Sciences, University of Belgrade, Belgrade, Serbia,* ³*Faculty of Physical Chemistry, University of Belgrade, Belgrade, Serbia,* ⁴*Faculty of Science and Technology, Keio University, Kohoku-ku, Yokohama, Japan*
- P.S.A.9. **TALLOIL DIETHYLENETRIAMINE IMIDAZOLINE AS A CORROSION INHIBITOR FOR MILD STEEL IN CHLORIDE SOLUTION SATURATED WITH CARBON DIOXIDE**
Ivana Jevremović¹, Marc Singer², Srđan Nešić², Vesna Mišković-Stanković¹
¹*Faculty of Technology and Metallurgy, Belgrade, Serbia,* ²*Institute for Corrosion and Multiphase Technology, Ohio University, Athens, USA*
- P.S.A.10. **THE HYDROTHERMAL SYNTHESIS OF 1D BIOMEDICAL HYDROXYAPATITE NANOSTRUCTURES**
Zoran Stojanović¹, Ljiljana Veselinović¹, Nenad Ignjatović¹, Miroslav Miljković², Dragan Uskoković¹
¹*Institute of Technical Sciences of SASA, Belgrade, Serbia,* ²*Laboratory for Electronic Microscopy, Faculty of Medicine, University of Nis, Niš, Serbia*
- P.S.A.11. **MECHANOCHEMICAL SYNTHESIS OF $\text{ZnO}:\text{SnO}_2$ MATERIAL AS A POTENTIAL PHOTOCATALYSTS**
Ana Stanković, S. Marković, D. Uskoković
Institute of Technical Sciences of SASA, Belgrade, Serbia
- P.S.A.12. **GEL COMBUSTION SYNTHESIS OF $\text{NaTi}_2(\text{PO}_4)_3/\text{C}$ COMPOSITE, SUITABLE TO BE ANODE OF AQUEOUS SODIUM-ION BATTERY**
Milica Vujković¹, M. Mitrić², S. Mentus^{1,3}
¹*University of Belgrade, Faculty of Physical Chemistry, Belgrade, Serbia,* ²*The Vinča Institute for Nuclear Sciences, Laboratory for Theoretical and Condensed Matter Physics, Vinča, Belgrade, Serbia,* ³*Serbian Academy of Science and Arts, Belgrade, Serbia*
- P.S.A.13. **HYDROXYAPATITE SINTERING IN THE PRESENCE OF LiFePO_4**
Miodrag J. Lukić, M. Kuzmanović, Lj. Veselinović, S. Marković, D. Uskoković
Institute of Technical Sciences of SASA, Belgrade, Serbia

- P.S.A.14. **SYNTHESIS OF LiFePO₄/C COMPOSITES FROM CELLULOSE GEL**
Maja Kuzmanović¹, D. Jugović¹, M. Mitrić², B. Jokić³, N. Cvjetičanin⁴, D. Uskoković¹
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*
- P.S.A.15. **STRUCTURAL INVESTIGATION OF CaCu₃B₄O₁₂ (B = Ti, Ru)**
Ljiljana Veselinović¹, S. Marković¹, M. Lukić¹, L. Mančić¹, S.D. Škapin², M. Mitrić³, D. Uskoković¹
¹*Institute of Technical Sciences of SASA, Belgrade, Serbia,* ²*Jožef Stefan Institute, Ljubljana, Slovenia,* ³*Institute of Nuclear Sciences Vinča, University of Belgrade, Belgrade, Serbia*
- P.S.A.16. **PLATINUM NANOPARTICLES PREPARED BY WATER IN OIL MICROEMULSION METHOD**
Mila N. Krstajić¹, Sanja I. Stevanović¹, Dušan V. Tripković¹, Jelena R. Rogan², Nedeljko V. Krstajić², Snežana Lj. Gojković², Vladislava M. Jovanović¹
¹*Department of Electrochemistry, ICTM, University of Belgrade, Serbia* ²*Faculty of Technology and Metallurgy, University of Belgrade, Serbia*
- P.S.A.17. **SINTERING OF CORDIERITE IN THE PRESENCE OF MoO₃ AND CRYSTALLIZATION ANALYSIS**
N. Djordjević¹, N. Obradović², Darko Kosanović², M. Mitrić³, V. Pavlović²
¹*Institute for Technology of Nuclear and Other Raw Mineral Materials, Belgrade, Serbia,* ²*Institute of Technical Sciences of SASA, Belgrade, Serbia,* ³*Institute of Nuclear Sciences Vinča, University of Belgrade, Belgrade, Serbia*
- P.S.A.18. **DETECTION OF CUP ANEMOMETER FRICTION TORQUE CHANGE IN CASE OF SELF LUBRICATED SLEEVE BEARING AND BALL BEARING**
Miodrag Zlatanović, Ivan Popović
School of Electrical Engineering, University of Belgrade, Serbia
- P.S.A.19. **MAGNETIC PROPERTIES OF MnZn FERRITE FOR MICROELECTRONIC APPLICATION**
Nebojša Mitrović¹, Slobodan Djukić¹, Aleksandra Kalezić -Glišović¹, Sanja Aleksić², Maja Kićanović¹, Obrad Aleksić³
¹*Joint Laboratory for Advanced Materials of SASA, Section for Amorphous Systems, Faculty of Technical Sciences Čačak, University of Kragujevac, Serbia,* ²*Faculty of Electronic Engineering, University of Niš, Serbia,* ³*Institute for Multidisciplinary Research, University of Belgrade, Serbia*

- P.S.A.20. **FACILE CHEMICAL SYNTHESIS AND CHARACTERIZATION OF POLYESTER/MAGNESIUM OXIDE NANOPARTICLES FOR BIOMEDICAL APPLICATION**
Nenad Filipović¹, Magdalena Stevanović¹, Jelena Djurdjević¹, Jadranka Milikić², Ljiljana Veselinović¹, Vladimir Pavlović^{1,3}, Dragan Uskoković¹
¹*Institute of Technical Sciences of SASA, Belgrade, Serbia*, ²*Faculty of Physical Chemistry, University of Belgrade, Belgrade, Serbia*, ³*Faculty of Agriculture, University of Belgrade, Belgrade, Serbia*
- P.S.A.21. **RADIATION-INDUCED SYNTHESIS AND PROPERTIES OF POLY(OLIGO(PROPYLENE GLYCOL) METHACRYLATE) HYDROGELS**
Edin Suljovrujić, D. Miličević, M. Mičić
Vinča Institute of Nuclear Sciences, University of Belgrade, Belgrade, Serbia
- P.S.A.22. **THE BREATH ANALYSIS AS A NON-INVASIVE DIAGNOSTICAL METHOD FOR DIABETES TYPE 2**
Mirjana Perišić¹, Marija Todorović¹, Željka Nikitović¹, Aleksandra Jotić², Sandra Aleksić³
¹*Institute of Physics, University of Belgrade, Belgrade, Serbia*, ²*Institute of Endocrinology, Faculty of Medicine, University of Belgrade, Belgrade, Serbia*, ³*Rutgers University New Jersey Medical School, USA*
- P.S.A.23. **NANOMECHANICAL AND STRUCTURAL CHARACTERIZATION OF POLY (ETHYLENE OXIDE)/KERATIN BLEND FILMS REINFORCED WITH FUNCTIONALIZED GRAPHENE**
Mirjana Grković¹, D. Stojanović², A. Kojović², I. Balać³, T. Kreže⁴, S. Strnad⁴, R. Aleksić², P.S. Uskoković²
¹*Innovation centre, Faculty of Technology and Metallurgy, University of Belgrade, Belgrade, Serbia*, ²*Faculty of Technology and Metallurgy, University of Belgrade, Belgrade, Serbia*, ³*The Faculty of Mechanical Engineering, University of Belgrade, Belgrade, Serbia*, ⁴*Faculty of Mechanical Engineering, University of Maribor, Slovenia*
- P.S.A.24. **SYNTHESIS OF ZrGeO₄ AND HfGeO₄ BY DIFFERENT ROUTES**
Aleksei Utkin, V. Prokip, N. Baklanova
Institute of Solid State Chemistry and Mechanochemistry SB RAS, Novosibirsk, Russia
- P.S.A.25. **PREPARATION AND CHARACTERIZATION OF THE NANOSTRUCTURED LAYERED TRANSITION METAL CHALCOGENIDES THROUGH THEIR COLLOIDAL DISPERSIONS**
Vladimir E. Fedorov, Sofya B. Artemkina, Mariia N. Kozlova, Yu.V. Mironov
Nikolaev Institute of Inorganic Chemistry, Siberian Branch of the Russian Academy of Sciences, Novosibirsk, Russian Federation

P.S.A.26. **THE INFLUENCE OF SILICA NANOPARTICLES MODIFICATION ON THE PROPERTIES OF COMPOSITES FOR ENVIRONMENTALLY-FRIENDLY TIRES**

Nada Lazić¹, Tamara Erceg¹, Milenko Plavšić², Jelena Pavličević¹, Jaroslava Budinski-Simendić¹, Nevena Vukić¹, Radmila Radičević¹, Borislav Simendić³
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P.S.A.27. **DEPOSITION OF ZINC OXIDE NANORODS ON CONDUCTIVE CARBON FIBERS**

Olga Rac, Helena Teterycz
Wrocław University of Technology, Faculty of Microsystem Electronics and Photonics, Wrocław, Poland

P.S.A.28. **IMPROVEMENT OF H₂S SENSING PROPERTIES OF ZNO-THICK FILM GAS SENSORS DOPED WITH GOLD NANOPARTICLES**

Patrycja Suchorska-Woźniak, Helena Teterycz
Wrocław University of Technology, Faculty of Microsystem Electronics and Photonics, Wrocław, Poland

P.S.A.29. **INFLUENCE OF RE SUBSTITUTIONS ON MICROSTRUCTURE AND SUPERCONDUCTING PROPERTIES OF YBCO BULK SUPERCONDUCTORS**

Daniela Volochova¹, S. Piovarci¹, V. Antal¹, K. Jurek², J. Kovac¹, P. Diko¹
¹Institute of Experimental Physics SAS, Kosice, Slovak Republic, ²Institute of Physics ASCR, Praha, Czech Republic

P.S.A.30. **ANOMALOUS COMPRESSIBILITY OF CERIUM AND DOCOSANE UNDER SHOCK-WAVE ACTION**

Vasily A. Sosikov, A.N. Zubareva, A. V. Utkin
Institute of Problems of Chemical Physics RAS, Chernogolovka, Russia

POSTER SESSION II

Wednesday, September 3, 2014, 20⁰⁰-22⁰⁰

**SYMPOSIUM B: ADVANCED MATERIALS FOR HIGH-TECHNOLOGY
APPLICATIONS**

- P.S.B.1. **GAS CHROMATOGRAPHY-MASS SPECTROMETRY FOR IDENTIFICATION OF THE PYROLYSIS PRODUCTS OF CELLULOSE-BASED POLYMERS**
Branimir Jovančičević¹, Vesna Antić², Mališa Antić², Nadia Al Sandouk-Lincke³, Jan Schwarzbauer³
¹*Faculty of Chemistry, Belgrade, Serbia;* ²*Faculty of Agriculture, Zemun, Serbia;* ³*Institute of Geology and Geochemistry of Petroleum and Coal, RWTH Aachen University, Aachen, Germany*
- P.S.B.2. **YBCO BULK SINGLE GRAIN SUPERCONDUCTORS PREPARED BY INFILTRATION GROWTH METHOD**
Liudmila Vojtkova, Daniela Volochová, Viktor Kavečanský, Vitaliy Antal, Samuel Piovarči, Pavel Diko
Institute of Experimental Physics Slovak Academy of Sciences in Kosice, Slovak Republic
- P.S.B.3. **EVALUATION OF SURFACE ROUGHNESS OF SLIP CAST COMPOSITE Al₂O₃-ZrO₂ CERAMICS IN SOLID PARTICLE EROSION**
Krešimir Grilec, Marijana Majić Renjo, Lidija Čurković, Matija Sakoman, Gorana Baršić
University of Zagreb, Faculty of Mechanical Engineering and Naval Architecture, Zagreb, Croatia
- P.S.B.4. **INFLUENCE OF HIGH PRESSURE OXYGENATION ON THE STRUCTURE AND MAGNETIC PROPERTIES OF LA-CA-SR-MN-O PEROVSKITE CERAMIC MATERIALS**
Katarina Zmorayova¹, V. Antal¹, S. Piovarci¹, V. Kavečanský¹, J. Kovac¹, M. Kanuchova², P. Diko¹
¹*Institute of Experimental Physics SAS, Kosice, Slovakia*
²*The Technical University of Kosice, Kosice, Slovakia*

- P.S.B.5. **NON-ISOTHERMAL CRYSTALLIZATION KINETICS OF PARTIALLY CRYSTALLINE Fe(38)Ni(36)B(18)Si(8) METALLIC GLASS**
Suada Sulejmanović¹, Matej Lozančić¹, Amra Salčinović Fetić¹, Bega Karadža¹, Ljerka Slokar², Suada Bikić³
¹Faculty of Science, University of Sarajevo, Bosnia and Herzegovina, ²Faculty of Metallurgy, University of Zagreb, Croatia, ³Faculty of Metallurgy and Materials, University of Zenica, Bosnia and Herzegovina
- P.S.B.6. **HIGH-TEMPERATURE PHASE TRANSFORMATIONS OF Nb-18.7Si IN-SITU COMPOSITES ALLOYED WITH YTTRIUM AND SCANDIUM**
Liudmila Udоеva, R. Gulyaeva, V.Chumarev
Institute of Metallurgy, Ural Branch of Russian Academy of Sciences, Yekaterinburg, Russia
- P.S.B.7. **VEGARD'S LAW AND PROPERTIES OF AMORPHOUS COPPER**
Ramir Ristić¹, K. Zadro², D. Pajić², J.R. Cooper³, J. Ivkov⁴, E. Babić²
¹Department of Physics, Osijek, Croatia, ²Department of Physics, Faculty of Science, Zagreb, Croatia, ³Dept. of Physics, Cavendish Laboratory, Cambridge, UK, ⁴Institute of Physics, Zagreb, Croatia
- P.S.B.8. **PHASE STATE OF ELEMENTS IN MULTICOMPONENT COMPOSITE BASED ON THE Nb-Si ALLOY**
Vladimir Chumarev, N.Selmenskih, L.Udоеva, L. Leont'ev
Institute of Metallurgy, Ural Branch of Russian Academy of Sciences, Yekaterinburg, Russia
- P.S.B.9. **SYNTHESIS, STRUCTURAL ANALYSIS, MAGNETIC AND ELECTRIC PROPERTIES OF La_{0.9}Sr_{0.1}Cr_{1-x}Co_xO₃ PEROVSKITES**
C. Mita¹, M.-L. Craus^{2,3}, N. Cornei², Doina Humelnicu¹, G. Nemtoi¹ and V. Dobrea²
¹"Al.I.Cuza" University, Faculty of Chemistry, Iasi, Romania, ²National Institute of Research and Development for Technical Physics, Iasi, Romania, ³Joint Institute of Nuclear Research, Dubna, Russia
- P.S.B.10. **QUANTUM OPTICAL LITHOGRAPHY FROM 1 nm WRITING RESOLUTION**
Sorin Ion Jinga¹, E. Pavel²
¹Faculty of Applied Chemistry and Materials Science, "Politehnica" University of Bucharest, Bucharest, Romania; ²Storex Technologies, Bucharest, Romania

P.S.B.11. **RELATION BETWEEN MICROSTRUCTURE AND IMPACT STRENGTH OF MODERN FINE-GRAINED AND QT STEELS USED IN DESIGN OF NEW INDUSTRIAL TRAILERS**

František Nový^{1,2}, Libor Trško², Robert Ulewicz³, Pawel Szataniak⁴

¹Research Centre of the University of Žilina, Žilina, Slovak Republic, ²University of Žilina, Faculty of Mechanical Engineering, Department of Materials Engineering, Žilina, Slovak Republic, ³Czestochowa University of Technology, Faculty of Management, Institute of Engineering Production, Czestochowa, Poland, ⁴WIELTON S.A., Wielun, Poland

P.S.B.12. **THE AUTOWAVE CRITERIA OF PLASTICITY AND FRACTURE BY CREEP**

Dina V. Orlova^{1,2}, V.I. Danilov¹, L.B. Zuev¹

*Institute of Strength Physics and Materials Science, SB RAS, Tomsk, Russia
National Research Tomsk Polytechnic University, Tomsk, Russia*

P.S.B.13. **PROPERTIES OF HIGH PRESSURE OXYGENATED YBCO BULK SUPERCONDUCTORS**

Samuel Piovarči, Vitaliy Antal, Daniela Volochova, Pavel Diko

Institute of Experimental Physics SAS, Košice, Slovak Republic

P.S.B.14. **EXAMINATION AND COMPARISON OF PHYSICO-CHEMICAL CHARACTERISTICS OF POLYMERIC AND GYPSUM FLUIDS DESIGNED FOR RINSING OF OIL WELLS**

Matilda M. Lazić¹, Dragan Vrebalov²

¹Technical College of Applied Sciences in Zrenjanin, Zrenjanin, Serbia, ²NIS Gazpromnjeft, Novi Sad, Serbia

P.S.B.15. **OPTICAL PROPERTIES OF PERTURBED MOLECULAR NANOFILMS**

Ana J. Šetrajčić-Tomić¹, Dragana Rodić², Svetlana S. Pelemiš³, Igor J. Šetrajčić², Siniša M. Vučenović⁴, Jovan P. Šetrajčić²

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P.S.B.16. **CHARACTERIZATION OF DEGRADABLE POLYCARBONATE-BASED POLYURETHANE ELASTOMERS**

Rafał Poreba, Libor Kobera, Jiří Hodan, Jana Kredatusová and Milena Špírková

Institute of Macromolecular Chemistry AS CR, v.v.i., Prague, Czech Republic

- P.S.B.17. **ON THE PHYSICAL PROPERTIES OF R_2AgGe_6 ($R=La,Ce,Pr,Nd,Sm,Gd$)**
Leonid Salamakha¹, E. Bauer¹, H. Michor¹, O. Sologub^{1,2}
¹*Institute of Solid State Physics, Vienna University of Technology, Vienna, Austria,*
²*Institute of Physical Chemistry, University of Vienna, Vienna, Austria*
- P.S.B.18. **CRYSTAL STRUCTURE AND PHYSICAL PROPERTIES OF $YbPt_5B_2$**
Leonid Salamakha¹, E. Bauer¹, H. Michor¹, P. Heinrich¹, O. Sologub^{1,2}, P. Rogl²
¹*Institute of Solid State Physics, Vienna University of Technology, Vienna, Austria,*
²*Institute of Physical Chemistry, University of Vienna, Vienna, Austria*
- P.S.B.19. **OXYGEN PERMEATION STUDY OF THE NEW CERAMIC MEMBRANE MATERIAL BASED ON BSCF**
Mikhail Popov, I. Starkov, S. Bychkov, A. Nemudry
Institute of Solid State Chemistry and Mechanochemistry, SB RAS, Novosibirsk, Russia
- P.S.B.20. **ELECTROCHEMICAL OXYGEN REDUCTION AT PLATINUM CATALYST ON TIN OXIDE BASED SUPPORT IN ALKALINE SOLUTION**
Ljiljana M. Gajić-Krstajić¹, N.R. Elezović², B.M. Babić³, J. Kovač⁴, V.R. Radmilović⁵, N.V. Krstajić⁵
¹*Institute of Technical Sciences of SASA, Belgrade, Serbia,* ²*Institute for Multidisciplinary Research, University of Belgrade, Belgrade, Serbia,* ³*Vinča Institute of Nuclear Sciences, University of Belgrade, Serbia,* ⁴*Jozef Stefan Institute, Ljubljana, Slovenia,* ⁵*Faculty of Technology and Metallurgy, University of Belgrade, Belgrade, Serbia*
- P.S.B.21. **TEMPERATURE DEPENDENCE OF GRAPHENE TRANSPORT PROPERTIES**
S. Jaćimovski¹, Dejan Raković², V. Sajfert³
¹*Academy of Criminalistic and Police Studies, Belgrade, Serbia,* ²*University of Belgrade, Faculty of Electrical Engineering, Serbia,* ³*University of Novi Sad, Technical Faculty „Mihajlo Pupin“ Zrenjanin, Serbia*
- P.S.B.22. **RELAXATION PHENOMENA IN SSG Fe_3O_4 NANOPARTICLE SYSTEM**
Violeta Nikolić, V. Spasojević, V. Kusigerski, M. Perović, A. Mraković, M. Bošković, J. Blanuša
The Vinča Institute, Condensed Matter Physics Laboratory, University of Belgrade, Belgrade, Serbia

- P.S.B.23. **RAMAN SPECTROSCOPY AND ELECTRON MICROSCOPY OF POLYMER BASED NANOCOMPOSITES WITH CARBON NANOTUBES AND GRAPHENE**
Vuk V. Radmilović¹, Carlo Carraro², Petar Uskoković³, Radoslav Aleksić³, Velimir R. Radmilović³
¹*Innovation center, Faculty of Technology and Metallurgy, University of Belgrade,, Belgrade, Serbia,* ²*Department of Chemical and Biomolecular Engineering, University of California at Berkeley, Berkeley, CA, USA,* ³*Faculty of Technology and Metallurgy, University of Belgrade, Belgrade, Serbia*
- P.S.B.24. **PROPERTIES AND STRUCTURAL CHANGES OF THERMALLY AND MECHANICALLY ACTIVATED KAOLIN CLAY**
Aleksandra Mitrović¹, Miodrag Zdujčić², Ljiljana Miličić¹, Dragica Jevtić³
¹*Institute for Testing of Materials, Belgrade, Serbia,* ²*Institute of Technical Sciences of SASA, Belgrade, Serbia,* ³*Faculty of Civil Engineering, University of Belgrade, Belgrade, Serbia*
- P.S.B.25. **X-RAY EMISSION AND MOSSBAUER SPECTRA AND ELECTRONIC STRUCTURE OF ScFe₂Si₂ AND HfFe₂S₂ COMPOUNDS**
Ivan Shcherba^{1,3}, D. Uskokovich², M. Sacharevych³, B.M. Jatcyk⁴
¹*Institute of Technology, the Pedagogical University of Cracow, Cracow, Poland,* ²*Institute of Technical sciences of SASA, Belgrade, Serbia,* ³*Ivan Franko National University of Lviv, Ukraine,* ⁴*University of Forestry and Wood Technology, Lviv, Ukraine*
- P.S.B.26. **THERMOSETTING POLYMER COMPOSITE WITH SELF-HEALING ABILITY**
Ivana Radović, Omar Yerro, Vesna Radojević, Petar S. Uskoković, Dušica B. Stojanović, Miloš Petrović and Radoslav Aleksić
University of Belgrade, Faculty of Technology and Metallurgy, Belgrade, Serbia
- P.S.B.27. **SYNTHESIS, CHARACTERIZATION AND ANTIMICROBIAL ACTIVITY OF POLY(GMA-co-EGDMA) POLYMER DECORATED WITH SILVER NANOPARTICLES**
Ivana D. Vukoje¹, Enis S. Džunuzović², Vesna V. Vodnik¹, Suzana Dimitrijević², S. Phillip Ahrenkiel³, Jovan M. Nedeljković¹
¹*Institute of Nuclear Sciences Vinča, University of Belgrade, Belgrade, Serbia,* ²*Faculty of Technology and Metallurgy, University of Belgrade, Belgrade, Serbia,* ³*South Dakota School of Mines and Technology, Rapid City, SD, USA*

- P.S.B.28. **INVESTIGATION OF PHYSICAL AND MECHANICAL PROPERTIES OF EPOXY RESIN FILLED WITH NANOSIZED POWDER**
Tatyana Brusentseva, Artem Philippov
Institute of Theoretical and Applied Mechanics, Novosibirsk, Russia
- P.S.B.29. **ANALYSIS AND CHARACTERIZATION OF COAL MINE CONVEYOR IDLERS CONTAMINATION PARTICLES**
Radivoje Mitrović¹, Žarko Mišković¹, Vesna Maksimović², Dragan Jovanović³,
Gradimir Ivanović¹, Zoran Stamenić¹, Milan Tasić⁴
¹University of Belgrade – Faculty of Mechanical Engineering, Belgrade, Serbia;
²Vinča Institute of Nuclear Sciences, Belgrade, Serbia; ³Termoelektrane i Kopovi
Kostolac d.o.o. Company, Kostolac, Serbia; ⁴Tehnikum Taurunum College of
Applied Science, Belgrade, Serbia
- P.S.B.30. **LOCAL ATOMIC STRUCTURE OF DOPED ZINC-FERRITE NANOPOWDERS PREPARED BY CO-PRECIPIATION**
Marija Milanović, Ivan Stijepović, Ljubica M. Nikolić, Vladimir V. Srdić
*University of Novi Sad, Faculty of Technology, Department of Materials
Engineering, Novi Sad, Serbia*
- P.S.B.31. **FREE-VOLUME STRUCTURAL EVOLUTION IN CRYSTALLIZED Ge-Ga-Se GLASSES**
Halyna Klym¹, A. Ingram², O. Shpotyuk³
¹Lviv Polytechnic National University, Lviv, Ukraine, ²Opole University of
Technology, Opole, Poland, ³Scientific Research Company “Carat”, Lviv, Ukraine
- P.S.B.32. **NOVEL HYDROGEL PORE-FILLED COMPOSITE MEMBRANES FOR HEAVY METAL ADSORPTION**
Aleksandar Stajčić¹, J. Stajić-Trošić¹, S. Putić², P.S. Uskoković², F. Radovanović¹, R.
Aleksić²
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Belgrade, Serbia

POSTER SESSION III

Thursday, September 4, 2014, 20⁰⁰-22⁰⁰

SYMPOSIUM C: NANOSTRUCTURED MATERIALS

P.S.C.1. **EROSION RESISTANCE OF SOL-GEL TiO₂-ZrO₂ FILM ON STAINLESS STEEL**

Krešimir Grilec, Lidija Ćurković, Marijana Majić Renjo, Suzana Jakovljević, Vera Rede

University of Zagreb, Faculty of Mechanical Engineering and Naval Architecture, Zagreb, Croatia

P.S.C.2. **CRYSTALLIZATION OF CERIUM PHOSPHATE GELS UNDER HYDROTHERMAL AND THERMAL TREATMENT**

Taisya O. Shekunova¹, A.E. Baranchikov², V.K. Ivanov²

¹*Moscow State University, Faculty of Materials Science, Moscow, Russia*

²*Kurnakov Institute of General and Inorganic Chemistry, Moscow, Russia*

P.S.C.3. **CELL PERFORMANCES OF LENGTH-TUNABLE SILICON NANOWIRE/POLYMER HYBRID SOLAR CELLS**

Keisuke Sato^{1,2}, Mrinal Dutta², Naoki Fukata²

¹*Department of Electrical and Electronic Engineering, Tokyo Denki University,*

Adachi-ku, Tokyo, Japan, ²*World Premier International Research Center for Materials Nanoarchitectonics, National Institute for Materials Science, Tsukuba, Ibaraki, Japan*

P.S.C.4. **DEGRADATION OF THIN 4,4'-bis(2,2'DIPHENYL VINYL)-1,1'-BIPHENYL FILMS BY UV LIGHT**

Aleksandar Ž. Tomović¹, V.P. Jovanović¹, I. Djurišić¹, V.Z. Cerovski¹, B.

Nastasijević², S. Veličković², K. Radulović³, R. Žikić¹, V.I. Srdanov⁴

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Nuclear Sciences, University of Belgrade, Belgrade, Serbia, ³*Institute of Chemistry,*

Technology and Metallurgy, University of Belgrade, Belgrade, Serbia, ⁴*V&G*

Research, Santa Barbara, CA, USA

P.S.C.5. **VARIATION OF ENERGY DENSITY STATES IN QUANTUM DOTS ARRAYS DUE TO INTERPARTICLE ELECTRONIC COUPLING**

Manca Logar¹, Shicheng Xu¹, Shinjita Acharya¹, Fritz B. Prinz^{1,2}

¹*Department of Mechanical Engineering, Stanford University, CA, USA,*

²*Department of Material Science and Engineering, Stanford University, CA, USA*

- P.S.C.6. **ULTRASONIC DEAGGLOMERATION OF TUNGSTEN DISULFIDE NANOPARTICLES (WS₂) IN DIFFERENT SOLVENTS FOR ENHANCING NANOMECHANICAL PROPERTIES IN POLY (VINYL BUTYRAL) (PVB) NANOCOMPOSITES**
Danica Simić¹, Dušica B. Stojanović², Aleksandar Kojović², Ljubica Totovski¹, Zijah Burzić¹, Petar S. Uskoković², Radoslav Aleksić²
¹*Military-Technical Institute, Belgrade, Serbia,* ²*University of Belgrade, Faculty of Technology and Metallurgy, Belgrade, Serbia*
- P.S.C.7. **IMPACT TESTING OF HYBRID THERMOPLASTIC ARAMID FABRICS WITH DIFFERENT KINDS OF REINFORCEMENT**
Vera Obradović, D. Stojanović, M. Petrović, I. Živković, V. Radojević, P. Uskoković, R. Aleksić
University of Belgrade, Faculty of Technology and Metallurgy, Belgrade, Serbia
- P.S.C.8. **STIMULI RESPONSIVE HYBRID NANOMATERIALS WITH A COMBINED MAGNETO-PHOTOTHERMAL EFFECT FOR NANOMEDICAL APPLICATIONS**
Sašo Šturm, Nina Kostevšek, Kristina Žužek Rožman, Spomenka Kobe
Department for Nanostructured Materials, Jožef Stefan Institute, Ljubljana, Slovenia
- P.S.C.9. **KINETICS OF HYDROCHLOROTHIAZIDE PHOTOCATALYTIC DEGRADATION**
Sanja Armaković, Biljana Abramović
University of Novi Sad, Department of Chemistry, Biochemistry and Environmental Protection, Faculty of Sciences, Novi Sad, Serbia
- P.S.C.10. **PROPERTIES OF SUMANENE UNDER INFLUENCE OF ELECTRIC FIELD**
Stevan Armaković¹, Sanja J. Armaković², Ana J. Šetrajčić-Tomić³, Jovan P. Šetrajčić¹
¹*Department of Physics, Faculty of Sciences, University of Novi Sad, Novi Sad, Serbia,* ²*Department of Chemistry, Biochemistry and Environmental Protection, Faculty of Sciences, University of Novi Sad, Novi Sad, Serbia,* ³*Institute of Pharmacology, Toxicology and Clinic Pharmacology, Medical Faculty, University of Novi Sad, Novi Sad, Serbia*
- P.S.C.11. **IN-SITU SURFACE FUNCTIONALIZATION OF SILICA NANOPARTICLES FOR DENTAL APPLICATIONS**
Ivan Stijepović¹, Daniel Čeh¹, Marija Milanović¹, Tijana Lainović², Larisa Blažić², Vladimir V. Srdić¹
¹*University of Novi Sad, Faculty of Technology, Department of Materials Engineering, Novi Sad, Serbia,* ²*University of Novi Sad, Faculty of Medicine, Department of Dentistry, Novi Sad, Serbia*

- P.S.C.12. **EFFECT OF PORES GEOMETRY OF ALUMINA CERAMICS MECHANICAL BEHAVIOR SUBJECTED TO THERMAL SHOCK**
Nataša Z. Tomić, Marija Dimitrijević, Bojan Međo, Radmila Jančić – Heinemann, Marko Rakin, Radoslav Aleksić
Faculty of Technology and Metallurgy, University of Belgrade, Belgrade, Serbia
- P.S.C.13. **CdS QUANTUM DOTS SENSITIZATION OF TiO₂ NANOTUBES USING MERCAPTO SILANE AS A BINDING REAGENT**
Andjelika Bjelajac¹, Veljko Djokić², Rada Petrović², Jelena Radević², Jovana Ćirković³, Jovan M. Nedeljković⁴, Djordje Janačković²
¹*Innovation Center of Faculty of Technology and Metallurgy, University of Belgrade, Belgrade, Serbia,* ²*Faculty of Technology and Metallurgy, University of Belgrade, Belgrade, Serbia,* ³*Institute for Multidisciplinary Research, University of Belgrade, Belgrade, Serbia,* ⁴*Vinca Institute of Nuclear Sciences, Belgrade, Serbia*

SYMPOSIUM D: ECO-MATERIALS AND ECO-TECHNOLOGIES

P.S.D.1. INVESTIGATION OF COAGULATION ACTIVITY OF FAVA BEAN EXTRACTS

Dragana Kukić, Marina Šćiban, Jelena Prodanović
University of Novi Sad, Faculty of Technology, Novi Sad, Serbia

P.S.D.2. CONDITIONS OF ADSORPTION OF HEAVY METAL IONS FROM WATER BY SUGAR BEET SHREDS

Marina Šćiban, Dragana Kukić, Jelena Prodanović, Mirjana Antov, Darjana Ivetić
Faculty of Technology, Novi Sad, Serbia

P.S.D.3. COAGULATION EFFICIENCY OF NATURAL COAGULANTS OBTAINED FROM COMMON BEAN UNDER DIFFERENT CONDITIONS

Jelena M. Prodanović, Marina B. Šćiban, Mirjana G. Antov, Dragana V. Kukić, Vesna M. Vasić
Faculty of Technology, University of Novi Sad, Novi Sad, Republic of Serbia

P.S.D.4. TENSILE AND IMPACT PROPERTIES OF HYBRID WOOD COMPOSITES

Srdjan Perišić, V. Radojević, M. Petrović, M. Zrilić, D. Trifunović, D. Stojanović, R. Aleksić
Faculty of Technology and Metallurgy, University of Belgrade, Belgrade, Serbia

SYMPOSIUM E: BIOMATERIALS

P.S.E.1. EVALUATION OF CALCIUM PHOSPHATE COATING

ELECTRODEPOSITED ON AZ31 ALLOY SURFACE BY LARGE AMPLITUDE SINUSOIDAL VOLTAMMETRY (LASV)

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P.S.E.2. CERAMICS IN THE MAGNESIUM PHOSPHATE – CALCIUM PHOSPHATE SYSTEM

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P.S.E.3. PLLA-STARCH COMPOSITES WITH CALCIUM PHOSPHATES FOR MEDICINE

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P.S.E.4. THE PHASE CHANGE UNDER THE GAMMA-IRRADIATION IN ZIRCONIA CERAMICS

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P.S.E.5. EXPERIMENTAL ANALYSIS OF PMMA BLOCK SURFACE DURING AXIAL LOADING ON INSERTED STRAIGHT AND ANGLED DENTAL IMPLANTS USING DIGITAL IMAGE CORRELATION METHOD

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- P.S.E.6. **SYNTHESIS, CHARACTERIZATION AND ANTIMICROBIAL ACTIVITY OF Co(III) AND Pd(II) COMPLEXES WITH 2-(DIPHENYLPHOSPHINO)BENZALDEHYDE GIRARD T HYDRAZONE CHLORIDE**
Milica R. Milenković¹, B.R. Čobeljić¹, K. Adaila¹, M.T. Milenković², K.K. Andjelković¹
¹*Faculty of Chemistry, University of Belgrade, Belgrade, Serbia,* ²*Department of Microbiology and Immunology, Faculty of Pharmacy, University of Belgrade, Serbia*
- P.S.E.7 **CORROSION RESISTANCE OF AZ31 MAGNESIUM ALLOY COATED BY BIOCOMPATIBLE CALCIUM PHOSPHATE**
Branislav Hadzima¹, Filip Pastorek¹, Miroslav Omasta²
¹*Research Centre of the University of Žilina, Žilina, Slovak Republic,* ²*University of Žilina, Faculty of Mechanical Engineering, Department of Materials Engineering, Žilina, Slovak Republic*
- P.S.E.8. **SURFACE PROPERTIES IMPROVEMENT OF AZ31 MAGNESIUM ALLOY BY SHOT PEENING AND DCPD COATING**
Filip Pastorek, Branislav Hadzima
Research Centre of the University of Žilina, Žilina, Slovak Republic
- P.S.E.9. **FATIGUE CRACK INITIATION MECHANISMS OF AZ91 MAGNESIUM CAST ALLOY DURING FATIGUE TESTING**
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- P.S.E.10. **INTERACTION OF NANOPARTICLES AND BIOLOGICAL FLUIDS**
Zorica Ajduković¹, Nenad Ignjatović², Nenad Petrović¹, Jelena Rajković³, Dragana Kenić Marinković¹, Stevo Najman⁴, Dragan Mihailović⁵, Dragan Uskoković²
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P.S.E.11. **SIMULTANEOUS INFLUENCE OF DOPED Sr²⁺ IONS AND GRAIN SIZE DECREASING ON THE MECHANICAL PROPERTIES, IN VITRO DIFFERENTIATION OF MESENCHYMAL STEM CELLS AND IN VIVO BEHAVIOR OF HAP BASED BIOCERAMICS**

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P.S.B.21

TEMPERATURE DEPENDENCE OF GRAPHENE TRANSPORT PROPERTIES

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The exceptional transport properties of graphene, coupled with its high thermal, mechanical and chemical stabilities, provide wide opportunities for practical application. Temperature dependencies of graphene electrical and thermal characteristics will be hereby analyzed in the wide range of 50–400 K, by solving semiclassical Boltzmann equations in the approximations of relaxation time. Basic relaxation mechanisms in graphene monolayer will be accounted, with corresponding relaxation times introduced phenomenologically. For calculation of graphene electrical conductivity, different mechanisms of scattering of charge carriers and their partial and overall contributions will be accounted. In the case of graphene thermal conductivity, the exact contribution of all phonon branches will be accounted. The theoretical results will be compared with the experimentally observed.

P.S.B.22

RELAXATION PHENOMENA IN SSG Fe₃O₄ NANOPARTICLE SYSTEM

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Fe₃O₄ nanoparticles were synthesized by thermal decomposition of organic precursor (acac complex) and the structural characterization was done by TEM measurements. In order to understand magnetic behavior of the examined Fe₃O₄ system magnetic characterization was done by SQUID measurements in AC and DC regime. Sample exhibits memory effects and aging phenomena, all pointing to the existence of super spin glass state at low temperatures. Appropriate interpretation of the measured effects can be provided within the framework of droplet and hierarchical models. Investigation of relaxation phenomena comprised measurements of zero field cooled and thermoremanent magnetization time decay. Time dependence of the related relaxation rates showed unusual trend of slowing down with increasing temperature. The origin of observed behavior still remains an open question.

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