

Fourteenth Annual Conference

YUCOMAT 2012

Hunguest Hotel Sun Resort Herceg Novi, Montenegro, September 3-7, 2012

<http://www.mrs-serbia.org.rs>

PROGRAMME & THE BOOK OF ABSTRACTS

Organised by

MATERIALS RESEARCH SOCIETY OF SERBIA

under the auspices of

FEDERATION OF EUROPEAN MATERIALS SOCIETIES (FEMS)

MATERIALS RESEARCH SOCIETY (MRS)



FOURTEENTH ANNUAL CONFERENCE

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WELCOME SPEECH BY THE PRESIDENT OF MRS-SERBIA

My Esteemed Colleagues,



Welcome to the 14th YUCOMAT! My heart is full of hopes that this year's conference will provide yet another enjoyable experience to all of you. I look forward to its abounding with this perfect cocktail made up of a little bit of intellectual stimulation, a little bit of constructive networking, all spiced up with having a laugh with newly made friends and colleagues and, finally, taking pleasure in the beautiful climate and nature offered by this Bay and its surroundings.

Every year I stand here and remind you of the immense path that we have crossed from the moment we conceived these meetings in the early 1990s, while the war raged across this whole region of the Balkans, until this very day when it thrives once again in peace and is moving towards the horizons of greater prosperity. At the first two conferences, in 1995 and 1997, only the greatest enthusiasts, adventurers and, I have to admit, friends, were the foreign attendees. This year, on the other hand, 80 % of participants come from abroad and only 20 % are domestic scientists, yielding the highest ratio of foreign-to-domestic participants that we have ever had. As you may guess, this is far from an ideal proportion, but it undoubtedly reflects the economic crisis that has hit hard both the global and the regional economies. I am highlighting this discrepancy because one of the biggest advantages of this conference certainly comes from its providing an opportunity for the fruitful encounters of opposites, be it a place where young scientists could network with their older and more experienced counterparts, for the potential benefit of both, or where domestic researchers meet with the foreign ones so as not only to exchange opinions on the matters of interest, but also to initiate potentially rewarding collaborations. Research in global science policy has taught us that this communication between the developed and underdeveloped countries is of vital importance for the promotion of healthy progress of the planet as a whole. In such collaborations, there is, of course, room for mutual interest that need not be either neocolonialist exploitation of the underprivileged or donation of resources that will find all but fertile grounds for the thriving of the local societies. In any case, we should keep in mind that the free dissemination of knowledge is of vital importance in ensuring that the pathways to progress – both global and local - remain open ahead of us.

Now, there is no doubt that to reach the levels of progress that typify developed countries, an increased pervasiveness of science in our society is needed. What I mean by pervasiveness in this context is that the outcomes of the locally conducted scientific research need not only be reported in international scientific journals with all the pomp that follows the publication process, but they should be utilized for the purpose of the technological advancement of our societies. For, remember, although materials science is a fundamental science, it also contains a very strong pragmatic component, which craves to be practically applied, lest it lose its purpose. However, with rather moderate funding for scientific research and almost completely torn links with local industries, materials science and, I am free to say, science in general in this region of the world can be said to exist in a bubble of a kind, as we quite rarely, if ever, see our findings be utilized for the sake of high-tech or biomedical progress at the local scale. The consequences of this state of affairs are rather disparaging: the recent statistical studies have counted thousands and thousands of Serbian PhDs who live and work in foreign research institutions, having been a part of a massive brain drain, allegedly more devastating than that in any other country of the world

when normalized to the overall number of graduates from the Serbian universities in the past two decades. Obviously, provided with little or no opportunities for the working conditions and social recognition enjoyed by many of their foreign counterparts, fresh graduates more often than not opt to search for a career abroad. Many countries, including, most notably, Korea (which is officially represented at this very meeting), have developed federal programs to stimulate researchers educated abroad to return and continue their scientific career in the country of their origins. Although such programs do not exist in Serbia, the meetings organized by our Materials Research Society, including primarily YUCOMAT, yield a good image of the materials science in Serbia to the foreign visitors and thus reverse the stereotypical seeing of the quality of scientific research in Serbia as inferior compared to the rest of the world.

As for sheer numbers, this year's YUCOMAT does not differ much from the previous ones, with 4 plenary sessions, 19 invited lectures, 3 oral presentation sessions, 122 posters and about 200 presentations overall that are bound to be presented by the participants from around 30 different countries, all packed during the five days of the conference. Just like during the previous years, a similarly diverse program of extracurricular events is offered to the attendees of the conference, both in this very venue and in terms of visits of the nearby touristic attractions. Make sure to attend the welcome cocktail this evening and be here for the poster sessions that will take place during the evening hours from Tuesday to Thursday. The excursion to Dubrovnik is appointed for Wednesday afternoon, while a cruise around the Bay will take place on Thursday afternoon. Coffee breaks are always a good opportunity for networking, for meeting new people, for discussing presentations or catching up on news from the scientific world with your fellow colleagues. In a few minutes from now, we will recognize the winners of the best PhD and Master of Science theses defended between this YUCOMAT and the previous one. During the Closing Ceremony on Friday we will announce the best oral and poster presenters.

As for the scientific content of the conference, we have given full priority to research topics that are currently considered as being on the frontier of the field. Nanomaterials, biomedical materials, high resolution and *in situ* imaging techniques, and advanced methods for synthesis and processing present only some of those exciting topics that will be given the central stage and most attention during this meeting. Last but not least, I am acknowledging the Organizing Committee, the International Advisory Board, the junior researchers from my group and Sasha, the conference secretary, for their efforts in assisting in the organization of this meeting. Note that this year's conference is dedicated to the Vice-President of our Materials Research Society, Dr. Slobodan Milonjić, who has greatly contributed to our mission and aims and has turned seventy this year. Once again, on behalf of all of them, I am expressing utmost gratefulness for having a chance to host you here and I hope that this conference will turn out to be a very pleasant experience for all of you. We wish to continue our trend of success and sustain in our mission, which, as I mentioned, is to connect the scientific body of a small and developing country with those of developed ones for the benefit of the entire planet. Having the YUCOMAT happen year after year reminds me that we are making small, but beautiful steps to better the world by our sciences and this is the reward for not only us, the organizers, but all the more for you, the attendees of this wonderful meeting.

I wish you a most splendid time at this year's YUCOMAT!

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

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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 3-7, 2012, at the Hunguest Hotel Sun Resort, in Herceg Novi, Montenegro. Participants will also be accommodated there. The conference will begin on Monday, September 3rd, at 09.00 and end on Friday, September 7th, 2012, at 12.45.

REGISTRATION: Registration, registration fee payment, conference materials distribution, etc, will take place at the conference desk (Conference Secretariat) open on Sunday, September 2, Monday, September 3, and Tuesday, September 4, 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, Korea-Serbia Scientific Cooperation Workshop on Biomaterials 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 and MSc theses defended between two conferences. Awarded researchers are granted free registration at the next YUCOMAT Conference.

ADDITIONAL ACTIVITIES: Korea-Serbia Scientific Cooperation Workshop on Biomaterials will be held on September 1-5th. 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, September 2, 2012

08⁰⁰-19⁰⁰ **Registration**

Monday, September 3, 2012

08⁰⁰-09⁰⁰ **Registration**

09⁰⁰-9³⁰ **OPENING CEREMONY**
- Introduction and Welcome

9³⁰-13⁰⁰ **First Plenary Session**

13¹⁵ **Photo Session**

15⁰⁰-18⁴⁵ **Symposium C**

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 4, 2012

09⁰⁰-12³⁰ **Second Plenary Session**

15⁰⁰-18⁴⁵ **Symposium A**

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

Wednesday, September 5, 2012

09⁰⁰-11⁰⁰ **Third Plenary Session**

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

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

Thursday, September 6, 2012

09⁰⁰-10³⁰ **Fourth Plenary Session**

11⁰⁰-12⁰⁰ **Symposium E**

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

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

Friday, September 7, 2012

09⁰⁰-12⁴⁵ **Symposium B**

12⁴⁵-13¹⁵ **Awards and Closing of the Conference**

FIRST PLENARY SESSION

Monday, September 3, 2012

Session I: 09³⁰-13⁰⁰

Chairmen: R. Sinclair and V. Radmilović

09³⁰-10⁰⁰ ATOMIC CONFIGURATIONS AND OPTICAL PROPERTIES OF POINT DEFECTS IN GRAPHENE

S.J. Pennycook^{1,2,3}, W. Zhou^{2,1}, J. Lee^{1,2}, J.C. Idrobo^{1,2}, M.P. Oxley^{2,1}, M. Kapetanakis^{2,1}, S.T. Pantelides^{2,1}

¹Materials Science and Technology Division, Oak Ridge National Laboratory, Oak Ridge, TN, USA, ²Department of Physics and Astronomy, Vanderbilt University, Nashville, TN, USA, ³Department of Materials Science and Engineering, University of Tennessee, Knoxville, TN, USA

10⁰⁰-10³⁰ APPLICATION OF TiO₂ NANOWIRES

L. Forró

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

10³⁰-11⁰⁰ NANOSTRUCTURE – BIOMOLECULE INTERACTIONS AND THEIR IMPLICATIONS FOR NEW MATERIALS AND HEALTHCARE

R.W. Siegel

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

Break: 11⁰⁰-11³⁰

Chairmen: R.W. Siegel and L. Forró

11³⁰-12⁰⁰ AN UPDATE ON THE ABERRATION-CORRECTED, MONOCHROMATED ENVIRONMENTAL TEM

R. Sinclair, H.J. Jung, A.L. Koh

Department of Materials Science and Engineering, Stanford University, Stanford, CA, USA

12⁰⁰-12³⁰ ATOM-PROBE TOMOGRAPHY AND THE SCIENCE OF A NEW CLASS OF Al-Sc BASED ALLOYS

D.N. Seidman^{1,2}, D.C. Dunand¹

¹Department of Materials Science and Engineering, Northwestern University, Evanston, IL, USA, ²Northwestern University Center for Atom-Probe Tomography (NUCAPT), Evanston, IL, USA

12³⁰-13⁰⁰ **VOLUMETRICALLY CONSTRAINED PHASE TRANSITIONS**
V.R. Radmilović¹, J.D. Sugar², J.T. McKeown², R. Gronsky², A.M. Glaeser²
¹*Nanotechnology and Functional Materials Center, Faculty of Technology and Metallurgy, University of Belgrade, Belgrade, Serbia,* ²*Department of Materials Science and Engineering, University of California, Berkeley, California, USA*

Break: 13⁰⁰-15⁰⁰

SYMPOSIUM C: NANOSTRUCTURED MATERIALS

Session I: 15⁰⁰-18⁴⁵

Chairpersons: V. Uskoković and S. Lazić

15⁰⁰-15¹⁵ **IN-SITU TEM OBSERVATIONS OF ISLAND GRAIN SHRINKAGE IN GOLD MAZED BICRYSTAL THIN FILMS**
T. Radetić^{1,3}, D. Olmsted², C. Ophus¹, M. Asta², U. Dahmen¹
¹*National Center for Electron Microscopy, Lawrence Berkeley National Lab, Berkeley, CA, USA,* ²*Department of Materials Science and Engineering, University of California, Berkeley, CA, USA,* ³*Faculty of Technology and Metallurgy, University of Belgrade, Belgrade, Serbia*

15¹⁵-15³⁰ **CHARACTERIZATION OF SELF-ASSEMBLED GADOLINIUM NANOPARTICLES USING TEM-EELS**
P.J. Kempen¹, A.L. Koh², D. Ye³, P. Pandit³, J. Rao³, R. Sinclair^{1,2}
¹*Department of Materials Science and Engineering, Stanford University, Stanford, CA, USA,* ²*Stanford Nanocharacterization Laboratory, Stanford University, Stanford, CA, USA,* ³*Department of Radiology, Stanford University, Stanford, CA, USA*

15³⁰-15⁴⁵ **WHITE LIGHT EMISSION FROM FLUCTUATING NANOCLUSTERS**
T.J. Pennycook^{1,2*}, J.R. McBride³, S.J. Rosenthal^{3,1,2}, S.J. Pennycook^{2,1}, S.T. Pantelides^{1,2,4}
¹*Department of Physics and Astronomy, Vanderbilt University, Nashville, TN, USA,* ²*Materials Science and Technology Division, Oak Ridge National Laboratory, Oak Ridge, TN, USA,* ³*Department of Chemistry, Vanderbilt University, Nashville, TN, USA,* ⁴*Department of Electrical Engineering and Computer Science, Vanderbilt University, Nashville, TN, USA,* **Present address: SuperSTEM, Daresbury, UK*

- 15⁴⁵-16⁰⁰ **A TRANSPORT-BASED INTEGRATED EXCITON MULTIPLEXER – TOWARDS OPTICAL SIGNAL PROCESSING USING EXCITONS**
S. Lazić^{1,2}, A. Violante¹, R. Hey¹, P. V. Santos¹, K. Cohen³, R. Rapaport³
¹*Paul-Drude-Institut für Festkörperelektronik, Berlin, Germany,* ²*Dpto. de Física de Materiales, Universidad Autónoma de Madrid, Madrid, Spain,* ³*Racah Institute of Physics, Hebrew University of Jerusalem, Jerusalem, Israel*
- 16⁰⁰-16¹⁵ **CALCIUM PHOSPHATE NANOPARTICLES WITH TUNABLE DRUG RELEASE KINETICS FOR THE ADVANCED TREATMENT OF BONE INFECTION**
V. Uskoković, T. Desai
Therapeutic Micro and Nanotechnology Laboratory, Department of Bioengineering and Therapeutic Sciences, University of California, San Francisco, CA, USA
- 16¹⁵-16³⁰ **WAYS OF PHASE TRANSFORMATIONS IN NANOCRYSTALLINE ALLOYS AT HEAVY TREATMENTS**
A.Ye. Yermakov, Yu.N. Gornostyrev, I.K. Razumov
Institute of Metal Physics of the Ural Branch of RAS, Ekaterinburg, Russia
- 16³⁰-16⁴⁵ **SEVERE PLASTIC DEFORMATION (SPD) A NEW TOOL TO REACH HIGH THERMOELECTRIC PERFORMANCE**
G. Rogl^{1,2,3}, A. Grytsiv¹, P. Rogl¹, E. Bauer², M. Zehetbauer³
¹*Institute of Physical Chemistry, University of Vienna, Wien, Austria,* ²*Institute of Solid State Physics, TU-Wien, Wien, Austria,* ³*Physics of Nanostructured Materials, University of Vienna, Wien, Austria*
- 16⁴⁵-17⁰⁰ **TEM/HRTEM INVESTIGATION OF ROOM TEMPERATURE DEFORMATION IN Al/QC COMPOSITE**
B. Markoli¹, F. Zupanič², T. Bončina², H. Guo³, J. Ciston³, P. Ercius³, V.R. Radmilović³, A.M. Minor³
¹*Dept. of Materials and Metallurgy, Faculty of Natural Sciences and Engineering, University of Ljubljana, Slovenia,* ²*Institute of Technology of Materials, Faculty of Mechanical Engineering, University of Maribor, Slovenia,* ³*National Center for Electron Microscopy, Lawrence Berkeley National Laboratory, Berkeley, CA, USA*
- Break: 17⁰⁰-17³⁰**
Chairpersons: T. Radetić and P.J. Kempen
- 17³⁰-17⁴⁵ **NANOSTRUCTURED MATERIALS BASED ON THE ORGANIC AND THE INORGANIC SYSTEMS**
N.V. Kamanina, P.V. Kuzhakov, P.Ya. Vasilyev, V.I. Studeonov
Vavilov State Optical Institute, St. Petersburg, Russia

17⁴⁵-18⁰⁰ **SELF-ORGANIZED TiO₂ NANOTUBE ARRAYS: USE IN DYE-SENSITIZED SOLAR CELLS**

K. Žagar¹, I. Jerman², B. Orel², D. Verhovšek³, M. Čeh¹

¹*Jožef Stefan Institute, Department for Nanostructured Materials, Ljubljana, Slovenia,* ²*National Institute of Chemistry Slovenia, Laboratory for the Spectroscopy of Materials, Ljubljana, Slovenia,* ³*Cinkarna Celje, d.d. Inc., Celje, Slovenia*

18⁰⁰-18¹⁵ **A FAST TWO-STEP DRY SYNTHESIS OF COPPER FERRITE NANOPARTICLES**

O.V. Belousova¹, Yu.G. Morozov¹, M.V. Kuznetsov²

¹*Institute of Structural Macrokinetics and Materials Science Russian Academy of Sciences, Chernogolovka, Moscow Region, Russia,* ²*Mordovian State University, Saransk, Russia*

18¹⁵-18³⁰ **STRUCTURE AND MAGNETIC PROPERTIES OF NANOCRYSTALLINE ZINC FERRITE BASED MATERIALS**

M. Milanović¹, E.G. Moshopoulou², Lj.M. Nikolić¹, V.V. Srdić¹

¹*Department of Materials Engineering, Faculty of Technology, University of Novi Sad, Novi Sad, Serbia,* ²*Institute of Materials Science, NCSR "Demokritos", Athens, Greece*

18³⁰-18⁴⁵ **EFFECT OF STANNOXANE NANO-BUILDING BLOCKS OF DIFFERENT FUNCTIONALITY IN EPOXY NANOCOMPOSITES**

A. Strachota¹, F. Ribot^{2,3}, L. Matějka¹, M. Perchacz¹, B. Strachota¹, M. Šlouf¹, L. Starovoytova¹, J. Pleštil¹

¹*Institute of Macromolecular Chemistry Academy of Sciences of the Czech Republic, Praha, Czech Republic,* ²*UPMC, Chimie de la Matière Condensée de Paris (UMR 7574), Collège de France, Paris, France,* ³*CNRS, Chimie de la Matière Condensée de Paris (UMR 7574), Collège de France, Paris, France*

SECOND PLENARY SESSION

Tuesday, September 4, 2012

Session II: 09⁰⁰-12³⁰

Chairmen: W. Jäger and E. Olsson

09⁰⁰-09³⁰ **CONDITIONS FOR HIGH-RESOLUTION ELECTRON MICROSCOPY OF RADIATION-SENSITIVE OBJECTS**

H. Rose

University of Ulm, Ulm, Germany

09³⁰-10⁰⁰ **LOW-VOLTAGE TEM TO EXPLORE PHYSICS AND CHEMISTRY OF LOW-DIMENSIONAL MATERIALS ON THE ATOMIC SCALE**

U.A. Kaiser

University of Ulm, Ulm, Germany

10⁰⁰-10³⁰ **TOWARDS ATOMIC RESOLUTION STEM OF ENERGY-RELATED MATERIALS**

F. Hofer, W. Grogger, G. Kothleitner, E. Fisslthaler, W. Haas, Th. Haber, F. Schmidt
Institute for Electron Microscopy and Fine Structure Research, Graz, Austria

Break: 10³⁰-11⁰⁰

Chairmen: F. Hofer and U.A. Kaiser

11⁰⁰-11³⁰ **TRANSMISSION ELECTRON MICROSCOPY FOR HIGH-EFFICIENCY SOLAR CELLS**

W. Jäger

Microanalysis of Materials, Institute of Materials Science, Christian-Albrechts-Universität zu Kiel, Kiel, Germany

11³⁰-12⁰⁰ **IN SITU CHARACTERISATION OF DYNAMICS OF CHARGES AND MATTER AT INTERFACES BY ELECTRON MICROSCOPY**

E. Olsson

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

12⁰⁰-12³⁰ **APPLICATIONS OF ABERRATION CORRECTED TEMs IN ENERGY SCIENCE**

J. Mayer, M. Beigmohamadi, J. Barthel, S. Roitsch

Central Facility for Electron Microscopy, RWTH Aachen University, Aachen, Germany, and Ernst Ruska-Centre for Microscopy and Spectroscopy with Electrons, Research Centre Juelich, Juelich, Germany

Break: 12³⁰-15⁰⁰

SYMPOSIUM A: ADVANCED METHODS IN SYNTHESIS AND PROCESSING OF MATERIALS

Session I: 15⁰⁰-18⁴⁵

Chairmen: S. Milonjić and V. Bobnar

15⁰⁰-15¹⁵ **COMBUSTION SYNTHESIS OF COMPLEX OXIDES FOR GAS-SENSING APPLICATIONS**

M.V. Kuznetsov

Mordovian State University, Saransk, Russia

15¹⁵-15³⁰ **EFFICIENT BULK PRODUCTION OF JANUS PARTICLES BY BIPOLAR ELECTROCHEMISTRY**

J. Roche, G. Loget, A. Kuhn

Université de Bordeaux, ISM, UMR 5255, ENSCBP, Pessac, France

15³⁰-15⁴⁵ **FORMATION OF CAST METAL-MATRIX COMPOSITES BASED ON TERNARY BORIDES OBTAINED BY SHS**

V. Sanin, D. Ikornikov, D. Andreev, V. Yukhvid

Institute of Structural Macrokineitics and Materials Science RAS, Chernogolovka, Moscow Region, Russia

15⁴⁵-16⁰⁰ **COLOR STABILITY OF MODEL POLYURETHANES WITH COVALENTLY BOUND STABILIZERS**

J. Podešva¹, V. Špaček², J. Kovářová¹, J. Spěváček¹

¹Institute of Macromolecular Chemistry, v.v.i., Academy of Sciences of the Czech Republic, Prague, Czech Republic; ²SYNPO, a.s., Pardubice, Czech Republic

16⁰⁰-16¹⁵ **CORROSION RESISTANCE OF OXIDE COATINGS ON ALUMINUM OBTAINED BY PLASMA ELECTROLYTIC OXIDATION IN SODIUM TUNGSTATE SOLUTION**

R. Vasilic¹, S. Stojadinović², J. Bajat³, V. Mišković-Stanković³

¹Faculty of Environmental Governance and Corporate Responsibility, Educons University, Sremska Kamenica, Serbia, ²Faculty of Physics, University of Belgrade, Belgrade, Serbia, ³Faculty of Technology and Metallurgy, University of Belgrade, Belgrade, Serbia

- 16¹⁵-16³⁰ **BONDING ADDITIVES – A THERMOANALYTICAL APPROACH**
J. Kovářová, J. Podešva
*Institute of Macromolecular Chemistry, Academy of Sciences of the Czech Republic
v.v.i., Prague, Czech Republic*
- 16³⁰-16⁴⁵ **COERCIVITY ENHANCEMENT VIA GRAIN-BOUNDARY DIFFUSION
PROCESS**
M. Soderžnik¹, P. McGuinness^{1,2}, S. Kobe¹
¹*Jožef Stefan Institute, Department for Nanostructured Materials, Ljubljana,
Slovenia*, ²*NAMASTE Centre of Excellence, Ljubljana, Slovenia*
- 16⁴⁵-17⁰⁰ **PROGRESS IN THE CHARACTERISATION OF THE MATERIALS'
BEHAVIOUR BY THE DISK PRESSURE TESTING**
E. Laman¹, P. Jouinot²
¹*Polytechnic University of Tirana, Albania*, ²*Institut Supérieur de Mécanique de
Paris, Laboratoire d'Ingénierie des Systèmes Mécaniques et des Matériaux, Saint
Ouen, France*
- Break: 17⁰⁰-17³⁰**
Chairmen: A.Ye. Yermakov and M.V. Kuznetsov
- 17³⁰-17⁴⁵ **NEW PRECURSORS FOR DEPOSITION OF NANOSIZED NICKEL FILMS**
N.B. Morozova^{1,2}, S.I. Dorovskikh^{1,2}, A.N. Mikheev^{1,2}, A.V. Arzhannikov², M.K.A.
Thumm²
¹*Nikolaev Institute of Inorganic Chemistry SB RAS, Novosibirsk, Russia*, ²*Novosibirsk
State University, Novosibirsk, Russia*
- 17⁴⁵-18⁰⁰ **THE PREPARATION AND CHARACTERISATION OF NICKEL FERRITE
THIN FILM**
S.M. Busurin¹, P.A. Tsygankov², O.D. Boyarchenko¹, M.L. Busurina¹, A.E. Sytchev¹
¹*Institute of Structural Macrokinetics and Materials Science RAS, Chernogolovka,
Moscow region, Russia*, ²*Bauman Moscow State Technical University, Moscow,
Russia*
- 18⁰⁰-18¹⁵ **SOME ASPECTS IN PZT FILMS PREPARATION**
S. Timoshenkov, V. Vodopyanov, A. Borisov, N. Korobova
*Department of Microelectronics, National Research University of Electronic
Technology, Moscow, Russia*

18¹⁵-18³⁰ **NEW METHODS OF TRIS-ACETYLACETONATES OF RUTHENIUM(III),
RHODIUM(III) AND BIS-KETOIMINATE PALLADIUM(II) SYNTHESIS
USING MICROWAVE HEATING**

A.N. Mikheev^{1,2}, N.B. Morozova^{1,2}, K.V. Zherikova^{1,2}, G.I. Zharkova¹, A.V.
Arzhannikov², M.K.A. Thumm²

¹*Nikolaev Institute of Inorganic Chemistry SB RAS, Novosibirsk, Russia,* ²*Novosibirsk
State University, Russia*

18³⁰-18⁴⁵ **THE INFLUENCE OF THE ADMIXTURE OF THE FULLERENE C₆₀ ON
STRENGTH PROPERTIES OF ALUMINUM AND CUPPER UNDER
SHOCK-WAVE LOADING**

G.S. Bezruchko¹, S.V. Razorenov¹, M.Y. Popov²

¹*Institute of Problems of Chemical Physics RAS, Chernogolovka, Russia,*

²*Technological Institute for Superhard and Novel Carbon Materials, Troitsk, Russia*

THIRD PLENARY SESSION

Wednesday, September 5, 2012

Session III: 09⁰⁰-11⁰⁰

Chairmen: J. Wittig, R.A. Andrievski and L.L. Shaw

09⁰⁰-09³⁰ **NANOMATERIALS FOR ONBOARD HYDROGEN STORAGE APPLICATIONS**

L.L. Shaw

Department of Mechanical, Materials and Aerospace Engineering, Illinois Institute of Technology, Chicago, IL, USA

09³⁰-10⁰⁰ **NANOGASSES AND AMORPHOUS/NANOCRYSTALLINE MATERIALS: SOME NEW APPROACHES**

R.A. Andrievski

Institute of Problems of Chemical Physics, Chernogolovka, Russia

10⁰⁰-10³⁰ **THE INFLUENCE OF STACKING FAULT ENERGY ON THE DEFORMATION MECHANISMS OF Fe-Mn AUSTENITIC STEELS**

J. Wittig

Vanderbilt University, Nashville, Tennessee, USA

10³⁰-11⁰⁰ **STRUCTURAL AND DIELECTRIC INVESTIGATIONS OF ADVANCED RELAXOR POLYMER SYSTEMS**

V. Bobnar¹, A. Eršte¹, X.-Zh. Chen², X. Li³, G. Casar¹, S. Glinšek¹, X. Qian³, Q.-D. Shen², Q. Zhang³

¹*Jožef Stefan Institute and Jožef Stefan International Postgraduate School, Ljubljana, Slovenia,* ²*Polymer Science and Engineering Dept. and Key Laboratory of Mesoscopic Chemistry of MOE, School of Chemistry and Chemical Engineering, Nanjing University, China,* ³*Department of Electrical Engineering and Materials Research Institute, The Pennsylvania State University, University Park, Pennsylvania, USA*

FOURTH PLENARY SESSION

Thursday, September 6, 2012

Session IV: 09⁰⁰-10³⁰

Chairmen: J. De Yoreo and F.-H. Lin

09⁰⁰-09³⁰ **PHYSICAL INSIGHTS INTO NATURE'S WAY OF MAKING MATERIALS**

J. De Yoreo

Molecular Foundry, Lawrence Berkeley National Laboratory, Berkeley, CA, USA

09³⁰-10⁰⁰ **TRICOPOLYMER/FIBRINGLUE COMPOSITE AS SCAFFOLD FOR ARTICULAR CARTILAGE TISSUE ENGINEERING**

F.-H. Lin

Institute of Biomed Eng., National Taiwan University, Taipei, Taiwan

10⁰⁰-10³⁰ **NANOMATERIALS: ARE THEY SAFE?**

M. Filipič

National Institute of Biology, Department for Genetic Toxicology and Cancer Biology, Ljubljana, Slovenia

Break: 10³⁰-11⁰⁰

SYMPOSIUM E: BIOMATERIALS

Session I: 11⁰⁰-12⁰⁰

Chairmen: D. Raković and N. Ignjatović

11⁰⁰-11¹⁵ **MULTIFUNCTIONAL NANO SCALE DRUG DELIVERY PARTICLES BASED ON VITAMIN D3-LOADED HYDROXYAPATITE IN BONE TISSUE ENGINEERING**

N. Ignjatović¹, Z. Ajduković², V. Uskoković³, D. Uskoković¹

¹*Institute of Technical Sciences of SASA, Belgrade, Serbia,* ²*University of Niš, Faculty of Medicine, Clinic of Stomatology, Department of Prosthodontics, Niš, Serbia,* ³*Therapeutic Micro and Nanotechnology Laboratory, Department of Bioengineering and Therapeutic Sciences, University of California, San Francisco, USA*

- 11¹⁵-11³⁰ **THE DYNAMICS OF THE DISSOLUTION OF THE ULTRAFINE IBUPROFEN IN COMPARISON WITH INITIAL SUBSTANCE**
S.A. Myz¹, A.G. Ogienko², T.P. Shakhtshneider¹, E.V. Boldyreva¹, A.Yu. Manakov³, V.V. Boldyrev¹, A.A. Ogienko⁴, A.S. Yunoshev⁵, A.A. Krasnikov⁶, A.V. Ildyakov³, E.G. Zevak², A.I. Ancharov¹
¹*Institute of Solid State Chemistry and Mechanochemistry, SB RAS, Novosibirsk, Russia,* ²*Research and Education Centre "Molecular Design and Ecologically Safe Technologies" at the Novosibirsk State University, Novosibirsk, Russia,* ³*Nikolaev Institute of Inorganic Chemistry SB RAS, Novosibirsk, Russia,* ⁴*Institute of Cytology and Genetics SB RAS, Novosibirsk, Russia,* ⁵*Lavrentiev Institute of Hydrodynamics SB RAS, Novosibirsk, Russia,* ⁶*Central Siberian Botanical Garden SB RAS, Novosibirsk, Russia*
- 11³⁰-11⁴⁵ **NITROSYL [2Fe-2S] PROTEINS ACTIVE SITES BIOMIMETICS AS A NEW NO DONATING AGENTS FOR THE TUMOR DISEASES THERAPY**
N.A. Sanina
Institute of Problems of Chemical Physics RAS, Chernogolovka, Russia
- 11⁴⁵-12⁰⁰ **BIODEGRADABLE MICROCARRIERS BASED ON CHITOSAN AND POLYESTERS FOR TISSUE ENGINEERING**
T. Demina¹, T. Akopova¹, Ch. Sevrin², M. Drozdova³, E. Markvicheva³, A. Zelenetskii¹, Ch. Grandfils²
¹*Enikolopov Institute of Synthetic Polymer Materials, Russian Academy of Sciences, Moscow, Russia,* ²*Research Centre of Biomaterials, University of Liège, Belgium,* ³*Shemyakin-Ovchinnikov Institute of Bioorganic Chemistry of Russian Academy of Sciences, Moscow*

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

Friday, September 7, 2012

Session I: 09⁰⁰-12⁴⁵

Chairmen: P. Rogl and Lj. Korugic-Karasz

09⁰⁰-09¹⁵ **PERITECTIC MELTING OF β -BORON IN THE B-C BINARY – A LONG
STANDING PUZZLE SOLVED**

P.F. Rogl¹, T. Tanaka², S. Takenouchi³, J. Vrestal⁴

¹*Institute of Physical Chemistry, University of Vienna, Wien, Austria,* ²*Boride Research Group, Scientific Information Office, National Institute for Materials Science, 1-2-1 Sengen, Tsukuba, Ibaraki, Japan,* ³*Materials Analysis Station, Research Network and Facility Service Division, National Institute for Materials Science, 1-1 Namiki, Tsukuba, Ibaraki, Japan,* ⁴*Central European Institute of Technology (CEITEC), Masaryk University, Kamenice, Brno, Czech Republic*

09¹⁵-09³⁰ **RUDDLESDEN-POPPER TYPE PHASES AS SEEN BY HIGH-
TEMPERATURE ⁵⁷FE MÖSSBAUER SPECTROSCOPY**

P. Gaczyński¹, T. Klande², A. Feldhoff², K.-D. Becker¹

¹*Institute of Physical and Theoretical Chemistry, Braunschweig University of Technology, Braunschweig, Germany,* ²*Institute of Physical Chemistry and Electrochemistry, Leibniz University Hannover, Hannover, Germany*

09³⁰-09⁴⁵ **THERMOELECTRIC PROPERTIES OF PPV-BASED BLOCK
COPOLYMERS AND THEIR COMPOSITES**

Lj. Korugic-Karasz¹, Patrick S. Taylor¹, Paul M. Lahti², Frank Karasz¹

¹*Department of Polymer Science and Engineering,* ²*Department of Chemistry, University of Massachusetts-Amherst Amherst, Massachusetts, USA*

09⁴⁵-10⁰⁰ **POLYMERIC MATERIALS FROM ALGAE OIL**

Z.S. Petrović, J. Hong, I. Javni, O. Bilić

Kansas Polymer Research Center, Pittsburg State University, Pittsburg, KS, USA

10⁰⁰-10¹⁵ **THE EFFECT OF ELECTRIC POTENTIAL ON MATERIAL
MICROHARDNESS AND DISLOCATION DENSITY IN ZINC
MONOCRYSTALS**

D.V. Orlova, V.I. Danilov, L.B. Zuev

Institute of Strength Physics and Materials Science, SB RAS, Tomsk, Russia

10¹⁵-10³⁰ POLYURETHANE – Fe POWDER FILMS: PREPARATION AND CHARACTERIZATIONM. Špírková¹, R. Bureš², M. Fáberová²¹*Institute of Macromolecular Chemistry AS CR, v.v.i., Prague, Czech Republic,*²*Institute of Materials Research SAS, Košice, Slovak Republic***Break: 10³⁰-11⁰⁰**

Chairmen: Z. Petrović and M. Špírková

11⁰⁰-11¹⁵ FORMATION OF HYPEREUTECTIC ALUMINIUM-BASED ALLOYS OR NICKEL ALUMINIDES USING SACRIFICIAL NICKEL COATINGSL. Čelko^{1,2}, L. Klakurková^{1,2}, K. Slámečka^{1,2}, B. Smetana³, S. Zlá³, M. Žaludová³¹*Faculty of Mechanical Engineering, Brno University of Technology, Brno, Czech Republic,* ²*CEITEC – Central European Institute of Technology, Brno University of**Technology, Brno, Czech Republic,* ³*Faculty of Metallurgy and Materials Engineering, VŠB – Technical University of Ostrava, Ostrava, Czech Republic***11¹⁵-11³⁰ FLY ASH GEOPOLYMER BASED IMMOBILIZATION OF ELECTRIC ARC FURNACE DUST**I. Nikolić¹, R. Zejak²¹*University of Montenegro, Faculty of Metallurgy and Technology, Podgorica,**Montenegro,* ²*University of Montenegro, Faculty of Civil Engineering, Podgorica, Montenegro***11³⁰-11⁴⁵ NOVEL HYBRID INORGANIC-ORGANIC ONE-DIMENSIONAL CHAIN SYSTEMS TAILORED WITH MONOCARBOXYLIC ACIDS**L. Djerđ¹, J. Popović¹, J. Stare², S.D. Škapin³, B. Kozlevčar⁴, D. Pajić^{5,6}, Z.Jagličić^{5,7}, Z. Crnjak Orel²¹*Ruđer Bošković Institute, Zagreb, Croatia,* ²*National Institute of Chemistry,**Ljubljana, Slovenia,* ³*Institute Jožef Stefan, Ljubljana, Slovenia,* ⁴*Faculty of Chemistry and Chemical Technology, University of Ljubljana, Ljubljana, Slovenia,*⁵*Institute of Mathematics, Physics and Mechanics, Ljubljana, Slovenia,* ⁶*Department of Physics, Faculty of Science, University of Zagreb, Zagreb, Croatia,* ⁷*Faculty of Civil and Geodetic Engineering, University of Ljubljana, Ljubljana, Slovenia***11⁴⁵-12⁰⁰ EFFECT OF CLAY ON REACTION-INDUCED PHASE SEPARATION IN MULTIPHASE EPOXY**I. Kelnar, J. Rotrekl*Institute of Macromolecular Chemistry, Academy of Sciences of the Czech Republic, Prague, Czech Republic*

- 12⁰⁰-12¹⁵ **SYNTHESIS AND CHARACTERIZATION OF POLYANILINE-SILOXANE COMPOSITES**
K. Depa¹, A. Strachota¹, J. Stejskal¹, P. Bober¹, J. Prokeš², M. Trchová¹, M. Šlouf¹
¹*Institute of Macromolecular Chemistry Academy of Sciences of the Czech Republic, Praha, Czech Republic,* ²*Faculty of Mathematics and Physics, Charles University in Prague, Praha, Czech Republic*
- 12¹⁵-12³⁰ **ANALYSIS OF CUTOUT FIBER AS SOURCE OF DELAMINATION IN COMPOSITES SYSTEM USING FEM**
R.A. Al-Madani¹, A. Elmahmody², M. Jarnaz³
¹*Al-Jabel Algharbi University, Engineering Faculty, Gharian, Libya,* ²*Al-Fateh University, Engineering Faculty, Tripoli, Libya,* ³*Academy of Graduate Studies, Tripoli, Libya*
- 12³⁰-12⁴⁵ **STUDY of MICROSTRUCTURES AND PHASE TRANSFORMATIONS IN THE CeO₂-Er₂O₃ SYSTEM**
E.R. Andrievskaya^{1,2}, O.A. Kornienko¹, A.V. Sameljuk¹
¹*Institute of Materials Science Problems, National Ukrainian Academy of Sciences, Kiev, Ukraine,* ²*National Technical University Kiev Polytechnic Institute, Kiev, Ukraine*
- 12⁴⁵-13¹⁵ **CLOSING CEREMONY**

POSTER SESSION I

Tuesday, September 4, 2012, 20⁰⁰-22⁰⁰

SYMPOSIUM A: ADVANCED METHODS IN SYNTHESIS AND PROCESSING OF MATERIALS

P.S.A.1. THE SORPTION SEQUENCE OF IONS FROM AQUEOUS SOLUTIONS ON OXIDES

S.K. Milonjić

The Vinča Institute of Nuclear Sciences, University of Belgrade, Belgrade, Serbia

P.S.A.2. SYNTHESIS AND CHARACTERIZATION OF SILICA CORE/NANO-FERRITE SHELL PARTICLES

M.P. Nikolić¹, K.P. Giannakopoulos², M. Bokorov³, V.V. Srdić¹

¹Department of Materials Engineering, Faculty of Technology, University of Novi Sad, Novi Sad, Serbia, ²Institute of Microelectronics, National Centre for Scientific Research "Demokritos", Athens, Greece, ³Department of Biology and Ecology, Faculty of Natural Sciences, University of Novi Sad, Novi Sad, Serbia

P.S.A.3. HYDROTHERMAL SYNTHESIS OF ZnO POWDERS WITH A TAILORED PARTICLE MORPHOLOGY AND IMPROVED OPTICAL CHARACTERISTICS

A. Stanković¹, Z. Stojanović¹, Lj. Veselinović¹, I. Bračko², S. Skapin², S. Marković¹, D. Uskoković¹

¹Institute of Technical Sciences of SASA, Belgrade, Serbia, ²Jožef Štefan Institute, Ljubljana, Slovenia

P.S.A.4. NANOSIZED OXIDE PARTICLE SYNTHESIS BY ULTRASONIC SPRAY PYROLYSIS FOR ENHANCED GOLD PLATING

J. Bogović¹, S. Stopić¹, B. Friedrich¹, J. Song², C. Koch², L. Wang², A. Fuhrmann³, A. Moebius³

¹IME Process Metallurgy and Metal Recycling of the RWTH Aachen University, Aachen, Germany, ²OWL University of Applied Sciences, Lemgo, Germany, ³Enthone GmbH, Langenfeld, Germany

P.S.A.5. FLEXIBILITY OF ULTRASONIC SPRAY PYROLYSIS PROCESS FOR THE SYNTHESIS OF CORE-SHELL NANOPARTICLES

S. Stopić, J. Bogović, B. Friedrich

IME Process Metallurgy and Metal Recycling of the RWTH Aachen University, Aachen, Germany

P.S.A.6. MICROSCOPY IN THE DESIGN OF NEW DRUG FORMSA.A. Ogienko^{1,2}, S.A. Myz^{1,3}, E.V. Boldyreva^{1,3}¹Research and Education Centre "Molecular Design and Ecologically Safe Technologies" at the Novosibirsk State University, Novosibirsk, Russia, ²Institute of Cytology and Genetics SB RAS, Novosibirsk, Russia, ³Institute of Solid State Chemistry and Mechanochemistry, SB RAS, Novosibirsk, Russia**P.S.A.7. DESIGN OF NEW DRUG FORMS BY CRYO-NANOTECHNOLOGY**A.G. Ogienko^{1,2}, E.V. Boldyreva^{1,3}, A.Yu. Manakov^{1,2}, A.S. Yunoshev^{1,4}, A.A. Ogienko^{1,5}, S.A. Myz^{1,3}, E.G. Zevak^{1,2}, A.I. Ancharov^{1,3}, V.V. Boldyrev^{1,3}¹Research and Education Centre "Molecular Design and Ecologically Safe Technologies" at the Novosibirsk State University, Novosibirsk, Russia, ²Nikolaev Institute of Inorganic Chemistry SB RAS, Novosibirsk, Russia, ³Institute of Solid State Chemistry and Mechanochemistry, SB RAS, Novosibirsk, Russia, ⁴Lavrentiev Institute of Hydrodynamics SB RAS, Novosibirsk, Russia, ⁵Institute of Cytology and Genetics SB RAS, Novosibirsk, Russia**P.S.A.8. SYNTHESIS AND MAGNETIC PROPERTIES OF THE SOLID SOLUTIONS****Zn_{0.9}Cd_{0.1}GeAs₂**I.V. Fedorchenko¹, A. Kochura², A.N. Aronov¹, S.F. Marenkin¹¹Kurnakov Institute of General and Inorganic Chemistry RAS, Moscow, Russia, ²South - West State University, Kursk, Russia**P.S.A.9. TOPOLOGICAL-NETWORK NANOCLUSTERING IN OVER-STOICHIOMETRIC ARSENIC SULPHIDES**O. Shpotyuk^{1,2}, M. Hyla², Ya. Shpotyuk¹¹Lviv Scientific Research Institute of Materials of SRC "Carat", Lviv, Ukraine, ²Institute of Physics of Jan Dlugosz University, Czestochowa, Poland**P.S.A.10. PREPARATION OF LITHIUM-SELECTIVE NANOCOMPOSITE SORBENT**A.D. Ryabtsev, E.V. Mamylova

JSC "Ekostar-Nautech", Novosibirsk, Russia

P.S.A.11. NANODISPERSED Li₄Ti₅O₁₂/C COMPOSITE AS AN ULTRA-FAST ANODE MATERIAL FOR LI-ION BATTERIESM. Vujković, I. Stojković, N. Cvjetićanin, S. Mentus*

Faculty of Physical Chemistry, Belgrade University, Belgrade, *Serbian Academy of Science and Arts, Belgrade, Serbia

- P.S.A.12. NANOCRYSTALLIZATION OF ION CONDUCTING GLASS-CERAMICS IN THE SYSTEM $\text{Li}_2\text{O}-\text{Al}_2\text{O}_3-\text{GeO}_2-\text{P}_2\text{O}_5$**
S.D. Matijašević¹, M.B. Tošić¹, S.R. Grujić², V.D. Živanović¹, J.N. Stojanović¹, J.D. Nikolić¹, S.N. Zildžović¹, S.V. Ždralc²
¹*Institute for Technology of Nuclear and Other Mineral Raw Materials, Belgrade, Serbia,* ²*Faculty of Technology and Metallurgy, University of Belgrade, Belgrade, Serbia*
- P.S.A.13. TAILORING OF MULTIFUNCTIONAL KAlSiO_4 - KAlSi_2O_6 BASED CERAMIC MATERIALS**
B. Antić¹, M. Bošković¹, P. Vulić², V. Spasojević¹, A. Kremenović²
¹*VINCENT, Institute of Nuclear Sciences "Vinča", Belgrade, Serbia,* ²*Faculty of Mining and Geology, University of Belgrade, Belgrade, Serbia*
- P.S.A.14. SYNTHESIS AND CHARACTERIZATION OF IRON-CONTAINING ZEOLITES: ZSM-5, BEA AND CLINOPTIOLITES**
A. Jović¹, V. Dondur¹, Lj. Damjanović¹, A. Radulović², V. Rakić³
¹*Faculty of Physical Chemistry, University of Belgrade, Belgrade, Serbia;* ²*Institute of General and Physical Chemistry, Belgrade, Serbia;* ³*Faculty of Agriculture, University of Belgrade, Belgrade-Zemun, Serbia*
- P.S.A.15. SYNTHESIS AND CHARACTERIZATION OF Pt NANOCATALYST ON TIN OXIDE BASED SUPPORT FOR OXYGEN REDUCTION**
Lj.M. Gajić-Krstajić¹, N.R. Elezović², B.M. Babić³, V. Radmilović⁴, N.V. Krstajić⁴, Lj.M. Vračar⁴
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, Belgrade, Serbia,* ⁴*Faculty of Technology and Metallurgy, University of Belgrade, Belgrade, Serbia*
- P.S.A.16. FABRICATION TECHNOLOGY OF $\text{Bi}_{1-x}\text{Nd}_x\text{FeO}_3$ CERAMICS**
J. Dzik, B. Wodecka-Dus, K. Osinska, H. Bernard, A. Lisinska-Czekaj, D. Czekaj
University of Silesia, Department of Materials Science, Sosnowiec, Poland
- P.S.A.17. SPECTROSCOPY INVESTIGATION OF NANOSTRUCTURED ZINK FERRITE OBTAINED BY MECHANOCHEMICAL SYNTHESIS**
Z.Ž. Lazarević¹, Č. Jovalekić², A. Milutinović¹, M. Romčević¹, D. Sekulić³, M. Slankamenac³, S. Baloš³, N.Ž. Romčević¹
¹*Institute of Physics, University of Belgrade, Zemun, Belgrade, Serbia,* ²*The Institute for Multidisciplinary Research, University of Belgrade, Belgrade, Serbia,* ³*Faculty of Technical Sciences, University of Novi Sad, Novi Sad, Serbia*

- P.S.A.18. PREPARATION OF TUNGSTEN BRONZES ON TITANIUM BY PLASMA ELECTROLYTIC OXIDATION PROCESS**
S. Stojadinović¹, R. Vasilić², M. Petković¹, B. Kasalica¹, I. Belča¹, Lj. Zeković¹
¹*Faculty of Physics, University of Belgrade, Belgrade, Serbia,* ²*Faculty of Environmental Governance and Corporate Responsibility, Educons University, Sremska Kamenica, Serbia*
- P.S.A.19. STRUCTURE MODIFICATIONS OF MULTILAYERED Al/Ti SYSTEMS INDUCED BY LASER IRRADIATIONS**
D. Peruško¹, J. Kovač², S. Petrović¹, M. Čizmović¹, M. Mitrić¹, M. Obradović¹, D. Pjević¹, M. Milosavljević¹
¹*Vinča Institute of Nuclear Sciences, Belgrade University, Belgrade, Serbia,* ²*Jožef Stefan Institute, Ljubljana, Slovenia*
- P.S.A.20. SYNTHESIS, MICROSTRUCTURE AND THE CRYSTALLINE STRUCTURE OF BARIUM TITANATE CERAMICS DOPED WITH LANTHANUM**
B. Wodecka-Dus, J. Dzik, D. Czekaj
University of Silesia, Department of Materials Science, Sosnowiec, Poland
- P.S.A.21. ELECTRICAL AND THERMOMAGNETIC PROPERTIES of NiFeWCu AMORPHOUS POWDER**
Z. Vuković, M. Plazinić, J. Živanić, S. Djukić
Joint Laboratory for Advanced Materials of SASA, Section for Amorphous Systems, Technical Faculty Čačak, Čačak, Serbia
- P.S.A.22. MAGNETIC PROPERTIES OF BULK NANOSTRUCTURED Co₅₈Ni₁₀Fe₅B₁₆Si₁₁ ALLOYS PRODUCED BY DYNAMIC COMPACTION AND PLASMA SPRAY DEPOSITION**
L. Kuzovnikova¹, E. Denisova¹, A. Kuzovnikov², R. Iskhakov¹, A. Lepeshev³
¹*Kirensky Institute of Physics SB RAS, Krasnoyarsk, Russia,* ²*JSC «Pulse technologies», Krasnoyarsk, Russia,* ³*Siberian Federal University, Krasnoyarsk, Russia*
- P.S.A.23. STRUCTURE AND MAGNETIC PROPERTIES OF ELECTRODEPOSITED COMPOSITE Ni_{79,1}Co_{18,6}Cu_{2,3} ALLOY**
L. Ribić-Zelenović¹, P. Mašković¹, A. Maričić², M. Spasojević¹
¹*Faculty of Agronomy, University of Kragujevac, Čačak, Serbia,* ²*Technical Faculty, University of Kragujevac, Čačak, Serbia*

- P.S.A.24. **MICROSTRUCTURE AND MAGNETIC PROPERTIES OF A NOVEL COMPOSITE POWDER**
M. Spasojević¹, A. Maričić², D. Gospavić¹, L. Ribić-Zelenović¹
¹Faculty of Agronomy, Čačak, University of Kragujevac, Čačak, Serbia, ²Technical Faculty, Čačak, University of Kragujevac, Čačak, Serbia
- P.S.A.25. **EFFECT OF MECHANICAL ACTIVATION ON MAGNETIC AND ELECTRICAL PROPERTIES OF ELECTRODEPOSITED Ni-28Fe-4W POWDER**
N. Ćirović¹, L. Ribić-Zelenović², A. Maričić¹, M. Spasojević²
¹Technical Faculty, Čačak, University of Kragujevac, Čačak, Serbia, ²Faculty of Agronomy, Čačak, University of Kragujevac, Čačak, Serbia
- P.S.A.26. **INFLUENCE OF THERMAL EFFECTS ON STRUCTURAL CHANGES IN NANOCRYSTALLINE AISi10Mg ALLOY**
B. Jordović¹, A. Maričić¹, B. Nedeljković¹, D. Sretenović²
¹Technical Faculty Čačak, University of Kragujevac, Čačak, Serbia, ²Technical School of Professional Studies, Čačak, Serbia
- P.S.A.27. **INFLUENCE OF STRUCTURAL STATE OF A DOPING ALLOY ON THE PROPERTIES OF HEAT-RESISTANT ALUMINUM CAST IRON**
V.P. Ermakova, O.Yu. Sheshukov, L.A. Marshuk
Institute of Metallurgy of the Ural Branch of RAS, Ekaterinburg, Russia
- P.S.A.28. **EFFECT OF ALLOYING ELEMENTS ON THE DISSOLUTION OF CuAl₂ PHASE IN Al-Cu-Si ALLOYS**
B. Zlatičanin¹, S. Kovačević²
¹University of Montenegro, Faculty of Metallurgy and Technology, Podgorica, Montenegro, ²Central School of Chemical Technology "Spasoje Raspopović", Podgorica, Montenegro
- P.S.A.29. **THE APPLICATIONS OF CONTROL WITH NDT TECHNIQUES IN PASHALIMAN SHIPYARD**
M. Shehu, Dj. Ilija, K. Lapa, P. Cacaj
DIMN, Department of Mechanical & Naval Engineering, University of Vlora, Albania
- P.S.A.30. **PROBLEMS IN THE THEORY OF ELECTROCAPILLARITY FOR SOLID-LIQUID INTERFACE**
E.M. Gutman
Dept. of Materials Engineering, Ben-Gurion University of the Negev, Beer-Sheva, Israel

- P.S.A.31. **TRANSPORT COEFFICIENTS IN MIXTURES Ar/H₂**
Ž. Nikitović, V. Stojanović, Z.Lj. Petrović
Institute of Physics, University of Belgrade, Belgrade, Serbia
- P.S.A.32. **QUANTIFICATION OF POLY(VINYLPYRROLIDONE) BY “ON-LINE” PYROLYSIS COUPLED TO GAS CHROMATOGRAPHY**
B. Jovančičević¹, V. Antić², M. Antić², J. Schwarzbauer³
¹Faculty of Chemistry, University of Belgrade, Belgrade, Serbia, ²Faculty of Agriculture, University of Belgrade, Zemun, Serbia, ³Institute of Geology and Geochemistry of Petroleum and Coal, RWTH Aachen University, Aachen, Germany
- P.S.A.33. **INFLUENCE OF ELECTRODE MATERIAL ON GAS FILLED SURGE ARRESTERS PREBREAKDOWN CURRENT IN γ AND X RADIATION FIELD**
B. Lončar¹, S.J. Stanković²
¹Faculty of Technology and Metallurgy, University of Belgrade, Belgrade, Serbia, ²Vinča Institute of Nuclear Sciences, University of Belgrade, Belgrade, Serbia
- P.S.A.34. **INCREASE OF COLD-RESISTANCE OF STEEL BY TITANIUM MODIFICATION**
V.P. Ermakova, O.Yu. Sheshukov, V.S. Gulyakov, I.V. Nekrasov, L.A. Marshuk
Institute of Metallurgy of the Ural Branch of RAS, Ekaterinburg, Russia
- P.S.A.35. **INFLUENCE MONTMORILLONITE NANOCOMPOSITES ON DEFORMATION PROPERTIES OF POLYSTYRENE KRASTEN 171**
M. Mihaliková¹, E. Čizmarová²
¹Department of Materials Science, Faculty of Metallurgy, Technical University of Košice, Slovak Republic, ²Czech Technical University in Prague, Faculty of Mechanical Engineering, Departments of materials engineering, Czech Republic
- P.S.A.36. **INFLUENCE OF NANO-STRUCTURED FILLERS ON PHASE RELATIONS IN ELASTOMER BLENDS**
M.M. Plavšić¹, R. Aleksić¹, J. Budinski-Simendić², V. Radojević¹, I. Pajić-Lijaković¹, M.B. Plavšić¹
¹Faculty of Technology and Metallurgy, Belgrade University, Belgrade Serbia, ²Faculty of Technology, University of Novi Sad, Novi Sad, Serbia
- P.S.A.37. **PROPERTIES OF THE BITUMEN AFTER WINTER STORAGE**
S.G. Mamylov¹, A.I. Donchouck², O.I. Lomovsky¹
¹Institute of Solid State Chemistry and Mechanochemistry SB RAS, Novosibirsk, Russia, ²OOO “Sibstroytseny”, Novosibirsk, Russia

- P.S.A.38. KINETIC INVESTIGATIONS OF DECONVOLUTED PROCESSES OF THERMAL DEGRADATION OF Co(II), Cd(II) AND Zn(II) COMPLEXES WITH N-BENZYLOXYCARBONYLGLYCINATO LIGAND**
M. Šumar Ristović¹, A. Grković², V. Blagojević², K. Anđelković¹, D. Poletić³, D.M. Minić¹
¹Faculty of Physical Chemistry, University of Belgrade, Belgrade, Serbia, ²Faculty of Chemistry, University of Belgrade, Belgrade, Serbia, ³Department of General and Inorganic Chemistry, Faculty of Technology and Metallurgy, University of Belgrade, Belgrade, Serbia
- P.S.A.39. INDENTATION AND SCRATCH TESTING AT NANOSCALE OF NEAT AND GRAFTED POLYETHYLENE NANOCOMPOSITES AS A FUNCTION OF CRYSTALLINITY**
D.B. Stojanović¹, A. Kojić¹, A. Orlović¹, I. Balac², V. Radojević¹, P.S. Uskoković¹, R. Aleksić¹
¹Faculty of Technology and Metallurgy, University of Belgrade, Belgrade, Serbia, ²Faculty of Mechanical Engineering, University of Belgrade, Belgrade, Serbia
- P.S.A.40. THE CORRELATION BETWEEN THE MECHANICAL STRAIN DEGREE AND ELECTRON STATE DENSITY CHANGE AT FERMI LEVEL IN Č-4580 STEEL WIRES SAMPLES**
A. Kalezić-Glišović, N. Mitrović, S. Radonjić, A. Maričić
Joint Laboratory for Advanced Materials of SASA, Section for Amorphous Alloys, Technical Faculty Čačak, Čačak, Serbia
- P.S.A.41. DESIGN OF CHARACTERISTIC BRAIN SIGNALS IN MATLAB**
M. Milovanović¹, P. Lukić², Z. Golubović²
¹Military Medical Academy, Belgrade, Serbia, ²University of Belgrade, Faculty of Mechanical Engineering, Belgrade, Serbia
- P.S.A.42. ADVANTAGES AND APPLICATIONS OF USING ATOMIC FORCE MICROSCOPY**
I. Vozga¹, J. Kacani¹, V. Kasemi²
¹Polytechnic University of Tirana, Mechanical Engineering Faculty, Tirana, Albania, ²"Ismail Qemali" University of Vlora, Vlora, Albania
- P.S.A.43. INFLUENCE OF STRETCHING ON DIELECTRIC, ELECTROMECHANICAL AND ELECTROCALORIC RESPONSE OF P(VDF-TrFE-CFE) TERPOLYMER**
G. Casar¹, X. Li², A. Eršte¹, S. Glinšek¹, X. Qian², Q. Zhang², V. Bobnar¹
¹Jožef Stefan Institute and Jožef Stefan International Postgraduate School, Ljubljana, Slovenia, ²Department of Electrical Engineering and Materials Research Institute, The Pennsylvania State University, University Park, Pennsylvania, USA

POSTER SESSION II

Wednesday, September 5, 2012, 20⁰⁰-22⁰⁰

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

**P.S.B.1. TEMPERATURE DEPENDENCE OF GRAPHENE ELECTRICAL
CONDUCTIVITY**

S.K. Jaćimovski¹, D.I. Raković², J.P. Šetrajčić^{3,*}, I.J. Šetrajčić³, V.M. Zorić³
¹Academy of Criminalistic and Police Studies, Belgrade, Serbia, ²University of
Belgrade, Faculty of Electrical Engineering, Serbia, ³University of Novi Sad, Faculty
of Sciences, Department of Physics, Vojvodina – Serbia, ^{*}Academy of Sciences and
Arts of the Republic of Srpska – B&H

**P.S.B.2. IMPACT OF SHAPE OF EXTENDED OBJECTS ON JAMMING AND
PERCOLATION ON A LATTICE**

Lj. Budinski–Petković¹, I. Lončarević¹, M. Petković², J.R. Šćepanović³, Z.M. Jakšić³,
S.B. Vrhovac³
¹Faculty of Engineering, University of Novi Sad, Novi Sad, Serbia, ²RTRK, Novi Sad,
Serbia, ³Institute of Physics Belgrade, University of Belgrade, Zemun, Belgrade,
Serbia

**P.S.B.3. SINTERING OF OXIDE POWDER SYSTEMS PRODUCED BY CHEMICAL
PRECIPITATION AND PLASMA SPRAY SYNTHESIS**

A.V. Kozlova¹, S.P. Buyakova^{1,2}, S.N. Kulkov^{1,2}
¹Tomsk State University, Tomsk, Russia, ²Institute of Strength Physics and Material
Science SB RAS, Tomsk, Russia

**P.S.B.4. SINTERING EFFECTS ON MICROSTRUCTURE AND DIELECTRIC
PROPERTIES OF CCTO CERAMICS**

S. Marković¹, M. Lukić¹, Č. Jovalekić², S.D. Škapin³, D. Suvorov³, D. Uskoković¹
¹Institute of Technical Sciences of SASA, Belgrade, Serbia, ²Institute for
Multidisciplinary Research, Belgrade, Serbia, ³Jožef Stefan Institute, Ljubljana,
Slovenia

**P.S.B.5. SYNERGISTIC EFFECT OF HYDROXYAPATITE NANOPOWDERS' HIGH
CRYSTALLINITY AND NON-ORDERED PARTICLES' BOUNDARY
REGIONS ON LOW-TEMPERATURE SINTERING**

M.J. Lukić, Lj. Veselinović, S. Marković, D. Uskoković
Institute of Technical Sciences of SASA, Belgrade, Serbia

P.S.B.6. SYNTHESIS AND CHARACTERIZATION OF LiFePO_4/C COMPOSITE OBTAINED BY CELLULOSE TEMPLATE

D. Jugović¹, M. Mitrić², M. Milović¹, B. Jokić³, 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 Technology and Metallurgy, University of Belgrade, Belgrade, Serbia*

P.S.B.7. SYNTHESIS AND CHARACTERIZATION OF $\text{Li}_2\text{FeSiO}_4/\text{C}$ COMPOSITE

M. Milović¹, D. Jugović¹, M. Mitrić², B. Jokić³, 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 Technology and Metallurgy, University of Belgrade, Belgrade, Serbia*

P.S.B.8. SYNTHESIS OF ZIRCONIUM TUNGSTATE BY COPRECIPTATION ROUTE

E.S. Dedova¹, S.N. Kulkov^{1,2}

¹*Institute of Strength Physics and Material Science SB RAS, Tomsk, Russia*, ²*Tomsk State University, Tomsk, Russia*

P.S.B.9. CATHODIC REDUCTION OF NITRO-1,4-DIHYDRO-4-OXOQUINOLINES STUDIED BY EPR AND UV-vis-NIR SPECTROELECTROCHEMISTRY

K. Lušpai, A. Staško, P. Rapta, V. Brezová

Institute of Physical Chemistry and Chemical Physics, Faculty of Chemical and Food Technology, Slovak University of Technology in Bratislava, Bratislava, Slovak Republic

P.S.B.10. ELECTRON STRUCTURE, VALENCE STATE AND MAGNETIC PROPERTIES OF THE NEW TERNARY INTERMETALLIC COMPOUNDS: EXPERIMENTAL AND THEORY

I.D. Shcherba¹, I. Kravchenko², D. Uskoković³, V.M. Antonov⁴, M.V. Sacharevych⁵, A.O. Stosyk⁵, B.M. Jatcyk⁶

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P.S.B.11. STRUCTURAL CHARACTERIZATION AND ELECTRICAL PROPERTIES OF SINTERED MAGNESIUM-TITANATE CERAMICS

S. Filipović¹, N. Obradović¹, J. Krstić², M. Šćepanović³, V. Pavlović¹, V. Paunović⁴, M.M. Ristić⁵

¹*Institute of Technical Sciences of SASA, Belgrade, Serbia,* ²*Institute of Chemistry, Technology and Metallurgy, Department of Catalysis and Chemical Engineering, Belgrade, Serbia,* ³*Institute of Physics, University of Belgrade, Belgrade, Serbia,* ⁴*Faculty of Electronic Engineering, University of Niš, Niš, Serbia,* ⁵*Serbian Academy of Sciences and Arts, Belgrade, Serbia*

P.S.B.12. KINETICS OF CRYSTALLIZATION PROCESS OF BULK METALLIC GLASS FeCrMoGaPCB PREPARED BY COOPER MOLD CASTING

N. Mitrović¹, B. Čukić¹, N. Obradović², M. Kićanović¹, M. Stoica³

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P.S.B.13. MAGNETIC AND STRUCTURAL PROPERTIES OF IRON-COBALT BASED ALLOYS

N. Mitrović¹, B. Zlatkov², E. Gašanin¹, M. Mitrić³, B. Nedeljković¹, S. Randjić¹, V. Pavlović⁴, H. Danninger⁵

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P.S.B.14. THE ROLE OF TECHNOLOGICAL INPUT PARAMETERS ON A QUALITY OF PLASMA SPRAYED THERMAL BARRIER COATINGS

L. Klakurková^{1,2}, L. Čelko^{1,2}, K. Slámečka^{1,2}, E. Dvořáček³, T. Podrábský^{1,2}, J. Švejcar^{1,2}

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P.S.B.15. MICROMECHANICAL INCLINOMETER FOR TRANSPORT SYSTEMS

S. Timoshenkov, V. Kalugin, D. Litmanovich, K. Tikhonov, N. Korobova
Department of Microelectronics, National Research University of Electronic Technology, Moscow, Russia

- P.S.B.16. IDENTIFICATION WIND TURBINE BLADE STRUCTURAL DAMAGES BY MAGNETIC FORCE MICROSCOPY**
D. Bekrić¹, I. Mileusnić², I. Djuričić², Lj. Petrov³, Dj. Koruga²
¹Faculty of Mechanical Engineering, University of Belgrade, Serbia, ²NanoLab, Faculty of Mechanical Engineering, University of Belgrade, Serbia, ³Innovative Center, Faculty of Mechanical Engineering, University of Belgrade, Serbia
- P.S.B.17. INFLUENCE OF SHAFT-TO-BEARING CONTACT PROPERTIES ON CUP ANEMOMETER PERFORMANCE**
M. Zlatanović
Faculty of Electrical Engineering, University of Belgrade, Beograd, Serbia
- P.S.B.18. THE STRUCTURE OF HOT DIP GALVANIZED COATINGS OBTAINED ON THE 23MnNiCrMo52 STEEL**
H. Kania¹, P. Liberski¹, Z. Guzy²
¹Silesian University of Technology, Gliwice, Poland, ²Mining Tools and Equipment Factories Capital Group FASING Plc, Katowice, Poland
- P.S.B.19. THE INFLUENCE OF Si CONTENT IN STEEL ON THE GROWTH KINETICS AND STRUCTURE OF HOT DIP Zn-31Al-3Mg COATINGS**
H. Kania
Silesian University of Technology, Gliwice, Poland
- P.S.B.20. RELAXATION PROPERTIES IN LATTICE GAS MODEL WITH EXTENDED PARTICLES**
J.R. Šćepanović¹, I. Lončarević², Lj. Budinski-Petković², M. Petković³, Z.M. Jakšić¹, S.B. Vrhovac¹
¹Institute of Physics, University of Belgrade, Zemun, Belgrade, Serbia, ²Faculty of Engineering, University of Novi Sad, Serbia, ³RTRK, Novi Sad, Serbia
- P.S.B.21. REDUCTIVE DEGRADATION OF THE NEW EXPLOSIVE MATERIAL FOX-7**
L. Šimková, J. Klíma, J. Urban, J. Ludvík
J. Heyrovský Institute of Physical Chemistry ASCR, Prague, Czech Republic
- P.S.B.22. CHARACTERIZATION OF SLURRY ALUMINIDE DIFFUSION COATINGS ON INCONEL 713LC**
T. Podrábský^{1,2}, L. Čelko^{1,2}, L. Klakurková^{1,2}, K. Slámečka^{1,2}, S. Pospíšilová^{1,2}, J. Švejcar^{1,2}
¹Faculty of Mechanical Engineering, Brno University of Technology, Brno, Czech Republic, ²CEITEC – Central European Institute of Technology, Brno University of Technology, Brno, Czech Republic

- P.S.B.23. **INTERNAL FRICTION AND ACTUATION IN SHAPE MEMORY ALLOYS**
C.M. Craciunescu¹, I. Mitelea¹, A. Ercuta^{1,2}, V. Budau¹
¹*Politehnica" University of Timisoara, Timisoara, Romania,* ²*Vest University of Timisoara, Romania*
- P.S.B.24. **LIFETIME ANALYSIS OF RHODAMINE B/PMMA FLUORESCENCE EMISSION**
D. Šević¹, M.S. Rabasović¹, V. Radojević², I. Radović², R. Aleksić², B.P. Marinković¹
¹*Institute of Physics, University of Belgrade, Serbia,* ²*Faculty of Technology and Metallurgy, University of Belgrade, Serbia*
- P.S.B.25. **DISPERSION OF REFRACTIVE INDEX AND OPTICAL BANDGAP OF THE NON-CRYSTALLINE CHALCOGENIDES IN CdS-As₂S₃ SYSTEM**
K.O. Čajko, S.R. Lukić-Petrović, I.O. Guth, M.V. Šiljegović, R.V. Kisić
University of Novi Sad, Faculty of Sciences, Department of Physics, Novi Sad, Serbia
- P.S.B.26. **SYNTHESIS AND STRUCTURE OF THE FIRST VANADIUM(V) COMPLEX WITH THE SCHIFF BASE OF PYRIDOXAL AND AMINOGUANIDINE**
M.M. Lalović, V.M. Leovac, Lj.S. Vojinović-Ješić, V.I. Češljević
Department of Chemistry, Biochemistry and Environmental Protection, Faculty of Sciences, Novi Sad, Serbia
- P.S.B.27. **THE REACTIVITY OF EPOXY RESIN MODIFIED WITH LOW MOLECULAR WEIGHT SILOXANE COMPOUNDS**
P. Murias¹, H. Galina¹, H. Maciejewski²
¹*Rzeszów University of Technology, Faculty of Chemistry, Department of Industrial and Materials Chemistry, Rzeszów, Poland,* ²*Institution Poznań Science and Technology Park, Adam Mickiewicz University Foundation, Poznań, Poland*
- P.S.B.28. **KINETIC-SPECTROPHOTOMETRIC METHOD FOR DETERMINATION OF INSECTICIDE DIFLUBENZURON**
E.T. Pecev-Marinković, Z.M. Grahovac, S.S. Mitić, A.N. Pavlović, M.N. Mitić
Faculty of Sciences and Mathematics, Department of Chemistry, Niš, Serbia
- P.S.B.29. **POLYCARBONATE-BASED POLYURETHANE ELASTOMERS: RELATION BETWEEN STRUCTURE AND PROPERTIES**
R. Poręba¹, Z. Hrdlička², A. Kuta², M. Špírková¹
¹*Nanostructured Polymers and Composites Department, Institute of Macromolecular Chemistry AS CR, v.v.i., Prague, Czech Republic,* ²*Department of Polymers, Institute of Chemical Technology Prague, Prague, Czech Republic*

- P.S.B.30. EPDM/CSM/RWP RUBBER BLENDED COMPOSITES**
G. Marković¹, M. Marinović-Cincović², V. Jovanović³, S. Samaržija-Jovanović³, J. Budinski-Simendić⁴
¹Tigar, Pirot, Serbia; ²University of Belgrade, Institute of Nuclear Sciences Vinča, Belgrade, Serbia, ³Faculty of Natural Science and Mathematics, University of Priština, Serbia, ⁴University of Novi Sad, Faculty of Technology, Serbia
- P.S.B.31. PROBABILISTIC ASPECT OF THE RUPTURE OF FRAGILE POLYMERS: CASE OF THE PHENOLIC RESIN**
S. Achouri^{1,2}, B. Redjel¹, D. Berdjane², S. Bouhouche²
¹Laboratory of Civil Engineering, University of Annaba, LP 12, Annaba, ²Research Center Scientific and Technical in Welding and Control - Urasm-CSC- Annaba LP 196, Algeria
- P.S.B.32. DYNAMIC DESTRUCTION OF LAYERED MATERIALS**
A. Tovpinets, M. Dmitrieva
Immanuel Kant Baltic Federal University, Kaliningrad, Russia
- P.S.B.33. DIFFERENT NON DESTRUCTIVE METHODS TO DETECT AND EVALUATE DEFECTS IN COMPOSITE MATERIALS**
E. Sotja (Konda), D. Sotja, G. Nardoni, M. Zeqo, E. Bebi, P. Nardoni
Polytechnic University of Tirana, Mechanic Department, Tirana, Albania; Institute I&T Nardoni, Brescia, Italy
- P.S.B.34. MEASURE RATE OF REFUND OF CRITICAL ENERGY IN COMPOSITE MATERIAL SHOCK**
S. Achouri^{1,2}, B. Redjel², D. Berdjane¹, S. Bouhouche¹
¹Scientific and Technical Research center in Welding and Control-Urasm-Csc-Annaba LP 196 Annaba, ²Laboratory Civil Engineering, University of Annaba, Annaba, Algeria
- P.S.B.35. MICROSTRUCTURAL CHANGES IN NICKEL AND COBALT BASE SUPERALLOYS AFTER THERMOMECHANICAL TREATMENTS APPLIED**
A. Milosavljević¹, S. Petronić², S. Polić-Radovanović³, S. Nedeljković¹, M. Perović⁴, D. Bajić⁵
¹Faculty of Mechanical Engineering, Belgrade, Serbia, ²Innovation Center, Faculty of Mechanical Engineering, Belgrade, Serbia, ³CIK, Belgrade, Serbia, ⁴Chamber of Economy of Montenegro, ⁵Faculty of Mechanical Engineering, University of Podgorica, Montenegro

- P.S.B.36. THE CHOICE OF CONSTRUCTION MATERIAL AND ITS IMPACT ON SOME MAIN CHARACTERISTICS OF THE SHIP**
B. Xhaferaj, K. Lapa, S. Sinanaj
Faculty of Technical Science - University of Vlora, Vlore, Albania
- P.S.B.37. FINITE ELEMENT ANALYSIS OF METAL TO METAL BONDED BUTT JOINT OF COMPOSITE STRUCTURAL ELEMENTS**
A.O. Houssein, K.K. Dinesh
Al Jabel Algharbi University, Faculty of Engineering - Jadoo, Libya
- P.S.B.38. SIGNATURES OF ANTIBONDING GROUND STATES IN NEUTRAL EXCITON SPECTRA OF VERTICALLY COUPLED NANORINGS IN ELECTRIC FIELD**
V. Arsoski¹, M. Tadić¹, F.M. Peeters²
¹*School of Electrical Engineering, University of Belgrade, Belgrade, Serbia,*
²*Department of Physics, University of Antwerp, Antwerp, Belgium*
- P.S.B.39. CALCULATION OF ELEVATOR SAFETY COEFFICIENT: ADVICE ON SAFETY AND HAZARD IMPLICATIONS**
M. Kullolli, A. Hasanaj
Polytechnic University of Tirana, Albania
- P.S.B.40. ALTERNATING CURRENT/DIRECT CURRENT ELECTRICAL PROPERTIES OF CARBON NANOFIBER/EPOXY RESIN COMPOSITES**
A.G. Bannov¹, N.F. Uvarov^{1,2}, G.G. Kuvshinov^{1,3}
¹*Novosibirsk State Technical University, Novosibirsk, Russia,* ²*Institute of Solid State Chemistry, Siberian Branch of Russian Academy of Science, Novosibirsk, Russia,*
³*Department of Environmental Engineering, General and Inorganic Chemistry, Sochi State University, Sochi, Russia*
- P.S.B.41. ESTABLISHING OF OPTIMUM FORMING TEMPERATURE ON 100CrMo7-3 AND 100CrMnSi6-4 BEARING STEELS UNDER PARTIAL HEATING CONDITIONS**
P. Doležal¹, J. Zapletal¹, L. Klakurková^{1,2}, L. Čelko^{1,2}, T. Podrábský^{1,2}
¹*Faculty of Mechanical Engineering, Brno University of Technology, Brno, Czech Republic,* ²*CEITEC – Central European Institute of Technology, Brno University of Technology, Brno, Czech Republic*
- P.S.B.42. SUPERPOROUS HYDROGELS OF CHITOSAN, ITACONIC ACID AND METHACRYLIC ACID**
M. Lučić, N. Milosavljević, N. Milašinović, J. Filipović, M. Kalagasidis Krušić
University of Belgrade, Faculty of Technology and Metallurgy, Belgrade, Serbia

P.S.B.43. **DISPERSED ALUMINA INFLUENCE ON PROPERTIES OF Cu-ODS
ALLOY OBTAINED BY ORIGINAL METHOD**

P. Tomić¹, M. Davidović², K. Kutin², Z. Nedić³, B. Gligorijević²

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POSTER SESSION III

Thursday, September 6, 2012, 20⁰⁰-22⁰⁰

SYMPOSIUM C: NANOSTRUCTURED MATERIALS

P.S.C.1. COMPUTATIONAL STUDY OF SUMANENES SUBSTITUTED WITH NITROGEN

S. Armaković¹, I.J. Šetrajić¹, J.P. Šetrajić^{1,*}

¹University of Novi Sad, Faculty of Sciences, Department of Physics, Novi Sad, Vojvodina, Srbija, *Academy of Sciences and Arts of Republic of Srpska, Banja Luka, Republic of Srpska, B&H

P.S.C.2. OPTICAL SPECIFICITY OF SYMMETRIC MOLECULAR NANO-FILMS

J.P. Šetrajić^{1,*}, D. Rodić¹, S. Armaković¹, D.Lj. Mirjanić^{2,*}, A.J. Šetrajić-Tomić³, S.S. Pelemiš⁴

¹University of Novi Sad, Faculty of Sciences, Department of Physics, Vojvodina – Serbia, ²University of Banja Luka, Faculty of Medicine, Republic of Srpska – B&H, ³University of Novi Sad, Faculty of Medicine – Pharmacy, Vojvodina – Serbia, ⁴University of East Sarajevo, Faculty of Technology Zvornik, Republic of Srpska – B&H, *Academy of Sciences and Arts of the Republic of Srpska, Banja Luka, B&H

P.S.C.3. OPTICAL PROPERTIES OF ASYMMETRIC MOLECULAR NANO-FILMS

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P.S.C.4. ORGANIC/INORGANIC HYBRIDS IN BIOSENSORS

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P.S.C.5. MECHANICAL APPLICATIONS OF NANOMATERIALS

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- P.S.C.6. MULTILAYER NANOFIBROUS CONSTRUCTS WITH INCORPORATED GENTAMICIN FOR CONTROLLED DRUG RELEASE**
J. Sirc¹, P. Kozlik², D. Stranska³, S. Kubinova⁴, R. Hobzova¹, J. Michalek¹
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- P.S.C.7. PAL SPECTROSCOPY AS A TOOL TO CHARACTERIZE NANOSTRUCTURED VOIDS IN PHYSICALLY-AGED GLASSY CHALCOGENIDES**
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²*Opole University of Technology, Opole, Poland,* ³*Institute of Physics of Jan Długosz University, Czestochowa, Poland*
- P.S.C.8. THERMAL DEGRADATION OF POLYCARBONATE-BASED POLYURETHANES AND THEIR NANOCOMPOSITES**
R. Poreba¹, M. Špirková¹, J. Pavličević², J. Budinski-Simendić², K. Mészáros Szécsényi³, B. Hollo³
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²*University of Novi Sad, Faculty of Technology, Novi Sad, Serbia,* ³*University of Novi Sad, Faculty of Sciences, Chemistry Department, Novi Sad, Serbia*
- P.S.C.9. SYNTHESIS AND CHARACTERIZATION OF SHAPE MEMORY HYBRIDS BASED ON EPOXY RESIN**
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- P.S.C.10. RAMAN SCATTERING FROM ZnO(Mn) NANOPARTICLES**
B. Hadžić¹, M. Gilić¹, M. Petrović-Damjanović¹, N. Romčević¹, J. Trajić¹, D. Timotijević¹, M. Romčević¹, I. Kuryliszyn-Kudelska², W. Dobrowolski², U. Narkiewicz³, D. Sibera³
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- P.S.C.11. ATOMIC MICROSCOPY OF ConTec LC ADHESIVE**
V.D. Mirjanić, S. Čupić
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- P.S.C.12. CHARACTERIZATION OF MICROBIAL MORPHOTYPES IN DENTAL CALCULUS DEPOSITS BY NANO PROBE MICROSCOPY AND OPTO-MAGNETIC SPECTROSCOPY**
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- P.S.C.13. FRICTION CHARACTERISTICS DEGRADATION OF SELF LUBRICATED SHAFT-TO-BEARING CONTACT SURFACE**
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- P.S.C.14. CHARACTERIZATION COMMERCIAL AND NANOPHOTONIC RIGID GAS PERMEABLE CONTACT LENSES BY OPTO-MAGNETIC SPECTROSCOPY AND OPTICAL POWER MEASUREMENT**
A. Debeljković¹, D. Stamenković², N. Jagodić², L. Matija¹, Dj. Koruga¹
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- P.S.C.15. WATER – MATERIALS SURFACE INTERACTION ON MACRO, MICRO AND NANO SCALES**
Dj. Koruga¹, G. Pollack², R. Tsenkova³, L. Matija¹, Z. Golubović¹, J. Munčan¹, S. Nijemčević⁴, A. Debeljković¹
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³Biomeasurment Laboratory, Faculty of Agriculture, Kobe University, Kobe, Japan,
⁴Vlatacom Research Center, Belgrade, Serbia
- P.S.C.16. STRUCTURAL AND DIELECTRIC PROPERTIES OF NICKEL FERRITE AND NICKEL FERRITE-STRONTIUM TITANATE CERAMICS**
B. Mojić¹, S.M. Ognjanović¹, J. Vukmirović¹, I. Tokić¹, Ž. Cvejić², V.V. Srdić¹
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- P.S.C.17. SPRAY PYROLYSIS SYNTHESIS OF FTO-SUPPORTED ELECTROCHROMIC FILMS**
S.A. Serenko¹, N.F. Uvarov^{1,2,3}, Yu.G. Mateyshina^{2,3}, A.S. Ulihin³
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P.S.C.18. HYDROTHERMAL SYNTHESIS OF MAGNETIC NANOPARTICLES AND FABRICATION OF MAGNETIC COMPOSITE PARTICLES USING POLY(L – LACTIDE)

Z. Stojanović¹, M. Otoničar², S. Marković¹, D. Uskoković¹

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P.S.C.19. EFFECT OF INITIAL POWDER DISPERSITY ON THE PHYSICAL AND MECHANICAL PROPERTIES OF SiC CERAMICS SINTERED AT HIGH PRESSURE

V.S. Urbanovich¹, A.M. Makei¹, P. Klimczyk², L. Jaworska², B. Matović³, S. Bošković³, V.S. Niss⁴, L.V. Sudnik⁵

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SYMPOSIUM E: BIOMATERIALS

P.S.E.1. ADVANCED BIOPOLYMERS CHARACTERIZED WITH PAL SPECTROSCOPY

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P.S.E.2. BAND GAP PHOTONIC STRUCTURES IN DICHROMATE BIOPOLYMER

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P.S.E.3. MALDI-TOF MASS SPECTROMETRY CHARACTERIZATION OF COLLAGEN

D. Aćimović, Z. Rogić Miladinović, J. Cvetičanin, Dj. Trpkov, O. Nešković

Institute of Nuclear Sciences Vinča, University of Belgrade, Belgrade, Serbia

P.S.E.4. COLLAGEN STRUCTURE AND MORPHOLOGY ANALYSIS BY TEM AND AFM

Z. Rogić Miladinović, D. Aćimović, Dj. Trpkov, J. Cvetičanin, N. Bibić, Z.

Rakočević, O. Nešković

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P.S.E.5. A NEW KINETIC SPECTROPHOTOMETRIC METHOD FOR TOTAL POLYPHENOLS DETERMINATION IN WHITE WINES

S.S. Mitić, M.N. Mitić

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P.S.E.6. OPTO-MAGNETIC SPECTROSCOPY STUDY OF COLORECTAL, CERVICAL AND SKIN CANCER SPECIMENS

A. Dragičević¹, B. Jeftić¹, I. Mileusnić¹, Z. Krivokapić², M. Papić-Obradović³, J. Bandić⁴, L. Matija¹

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- P.S.E.7. EYE POSITIONING SYSTEM LENS INVESTIGATION BY SCANNING PROBE MIRCROSCOPY**
I. Djuričić¹, I. Mileusnić¹, I. Koruga², A. Debeljković¹, R. Sofrenić¹, Dj. Koruga¹
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- P.S.E.8. SYNTHESIS OF GOLD NANOPARTICLES BY ULTRASONIC SPRAY PYROLYSIS AND HYDROGEN REDUCTION**
S. Stopić¹, R. Rudolf^{2,3}, M. Colić⁴, I. Anžel², B. Friedrich¹
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²*Faculty of Mechanical Engineering, Maribor, Slovenia,* ³*Zlatarna Celje d.d., Celje, Slovenia,* ⁴*Military Medical Academy, Institute of Medical Research, Belgrade, Serbia*
- P.S.E.9. EFFECT OF SILVER(I) AND COPPER(II) IONS ON CONTROLLED RELEASE AND ANTIMICROBIAL ACTIVITY OF SILVER AND COPPER/POLY(2-HYDROXYETHYL ACRYLATE/ITACONIC ACID) HYBRID HYDROGELS**
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²*Faculty of Technology and Metallurgy, University of Belgrade, Belgrade, Serbia*
- P.S.E.10. IN VITRO ANTITUMORAL ACTIVITY OF PLATINUM(IV) COMPLEXES WITH O,O'-DIALKYL-(S,S)-ETHYLENEDIAMINE-N,N'-DI-2-(4-METHYL)PENTANOATE LIGANDS ON HUMAN BREST CANCER**
J.M. Vujić¹, G.N. Kaludjerović², T.P. Stanojković³, S.R. Trifunović⁴
¹*Faculty of Agronomy, University of Kragujevac, Čačak, Serbia,* ²*Institut für Chemie, Martin-Luther-Universität Halle-Wittenberg, Halle, Germany,* ³*Institute for Oncology and Radiology of Serbia, Belgrade, Serbia,* ⁴*Department of Chemistry, Faculty of Science, University of Kragujevac, Kragujevac, Serbia*
- P.S.E.11. PHYTOCHEMICAL SCREENING, ANTIMICROBIAL AND ANTIOXIDANT ACTIVITIES OF PLANT SPECIES *SESELI RIGIDUM WALDST. & KIT.***
P.Z. Mašković¹, S.R. Solujić², N.T. Manojlović³, J. Mladenović¹, J. Pantović¹, M. Cvijović¹, G. Aćamović-Djoković¹
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P.S.E.12. ZnO BIOCOMPATIBILITY ASPECTS

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P.S.E.13. MICROSTRUCTURAL CHARACTERISATION OF ORTHODONTIC Ni-Ti WIRE

R. Rudolf^{1,2}, J. Ferčec¹, E. Markovič³, B. Glišič³, I. Ščepan³, D. Stamenković³, L. Zorko¹

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P.S.E.14. OPTIMIZATION OF POLYMERIZATION SHRINKAGE ANALYSIS OF DENTAL COMPOSITES USING A 3D OPTICAL METHOD IN EXTRACTED TEETH

M. Milošević¹, N. Mitrovič³, V. Miletič², D. Manojlovič², T. Savić-Stanković², T. Maneski³

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P.S.E.15. DENTAL IN VITRO EXPERIMENTS USING 3D DIGITAL IMAGE CORRELATION METHOD

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P.S.E.16. THE APPLICATION OF THE DEVICE "LIFE SYSTEM" IN THE TREATMENT OF MULTIPLE SCLEROSIS

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P.S.E.17. REGENERATION BONE TISSUE BY NEW NANOPARTICULES SYSTEM BASED ON HYDROXIAPATITE AS SYSTEMS FOR LOCAL DELIVERY OF VITAMIN D3

Z. Ajduković¹, M. Petrović¹, N. Ignjatović², V. Savić³, D. Mihailović⁴, D. Uskoković²

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P.S.E.18. HYDROXYAPATITE AND HYDROXYAPATITE SUBSTITUENTS IN STRENGTHENING OF THE JAW BONE TEGMENTA

Z. Ajduković¹, N. Ignjatović², V. Savić³, S. Najman³, D. Mihailović⁴, J. Rajković⁵, N. Petrović¹, D. Uskoković²

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P.S.E.19. MECHANICAL PROPERTY IN INFLECTION 3 POINTS OF A COMPOSITE MATERIAL OF ORTHOPEDIC USE

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P.S.E.20. OPTICAL ABSORPTION PROPERTIES AND APPLICATIONS OF FULLERENES

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P.S.E.21. MONOLAYERS AND NANOAGGREGATES OF POLYMERS IN THE SYNTHESIS OF GOLD NANOPARTICLES

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- P.S.E.22. **FREEZE-DRYING METHOD TO PRODUCE A RANGE OF PCL PARTICLES WITH TAILORED MORPHOLOGICAL PROPERTIES**
N. Filipović¹, M. Stevanović¹, P. Stupar, J. Petković², M. Filipič², D. Uskoković¹
¹*Institute of Technical Sciences of SASA, Belgrade, Serbia,* ²*Department of Genetic Toxicology and Cancer Biology, National Institute of Biology, Ljubljana, Slovenia*
- P.S.E.23. **ENHANCED ANTIMICROBIAL EFFICACY BY CO-DELIVERY OF PGA CAPPED SILVER NANOPARTICLES AND ASCORBIC ACID WITH POLY(LACTIDE-CO-GLYCOLIDE)**
M. Stevanović¹, M. Milenković², J. Petković³, M. Filipič³, D.P. Uskoković¹
¹*Institute of Technical Sciences of SASA, Belgrade, Serbia,* ²*Department of Microbiology and Immunology, Faculty of Pharmacy, University of Belgrade, Belgrade, Serbia,* ³*Department of Genetic Toxicology and Cancer Biology, National Institute of Biology, Ljubljana, Slovenia*
- P.S.E.24. **NANOFILTRATION IN BIOMEDICINE**
Z.Z. Golubović¹, D.V. Petrović², Z.Dj. Golubović³
¹*University in Belgrade, Faculty of Mechanical Engineering, Belgrade, Serbia,* ²*University in Belgrade, Faculty of Agriculture, Zemun, Serbia,* ³*University in Belgrade, Faculty of Mechanical Engineering, Belgrade, Serbia*
- P.S.E.25. **COMPARATIVE STUDY OF THE EFFECTS OF DIFFERENT NANOMATERIALS ON THE VIABILITY OF HUMAN OSTEOBLAST-LIKE CELLS**
S. Stojanović¹, S. Najman¹, Z. Ajduković², N. Ignjatović³, D. Uskoković³
¹*University of Niš, Faculty of Medicine, Institute of Biology and Human Genetics, Niš, Serbia;* ²*University of Niš, Faculty of Medicine, Clinic of Stomatology, Department of Prosthodontics, Niš, Serbia;* ³*Institute of Technical Sciences of SASA, Belgrade, Serbia*

P.S.E.26. ADIPOSE DERIVED MESENCHYMAL STEM CELLS AS A MODEL FOR STUDY OF OSTEOINDUCTIVE ACTIVITY OF BONE SUBSTITUTING BIOMATERIALS

S. Najman^{1,5}, S. Stojanović¹, J. Najdanović¹, J. Živković¹, D. Petrović², I. Vučković², V. Cvetković³, Lj. Sekulović^{1,4}, D. Tričković-Vukić⁵, M. Vukelić¹, P. Vasiljević³, M. Trajanović⁶

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P.S.E.3.

MALDI-TOF MASS SPECTROMETRY CHARACTERIZATION OF COLLAGEN

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Collagen is the most frequently occurring fibrillar protein in mammals, which can be found in cartilage, tendon, bone, ligament, skin, etc. The structure of collagen is based on a complicated helix structure of single chains of amino acids (most abundant is glycine-Gly, proline-Pro and hydroxyproline-Hyp) which are connected by hydrogen bonds. We tried to establish MALDI method to get better resolution of collagen's mass spectra. Digested collagen (type II from bovine Achilles tendon which was digested with collagenase from *Clostridium histolyticum*) has been analysed on MALDI-TOF MS in order to find peptide's fragments that are characteristic for collagen. In mass spectra we found peaks of peptides, which is highly indicative for collagen (Gly-Pro-Hyp, Gly-Pro-Asp, Gly-Pro-Glu ect.) We hope that it should be possible to obtain MS analysis and structure characterization of collagen by MALDI-TOF/TOF in future.

P.S.E.4.

COLLAGEN STRUCTURE AND MORPHOLOGY ANALYSIS BY TEM AND AFM

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J. Cvetičanin, N. Bibić, Z. Rakočević, O. Nešković
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Collagens, one of the most abundant on the Earth, are family of proteins which constitute the basis of connective tissue (extracellular matrix) in multicellular organisms. We used collagen type II from bovine Achilles tendon. In further work, collagen has been studied by transmission electron microscopy (TEM) and atomic force microscopy (AFM). Using TEM we successfully obtained images of collagen and whole collagen fibrils. Using AFM we captured images of whole collagen as well as images of fragments from collagenase-treated collagen (it was digested with collagenase from *Clostridium histolyticum*). AFM images of collagenase-treated collagen showed many fibrils grouping into large bundles – collagen fiber. Based on obtained images we studied surface morphology, shape and length of fragments from collagenase-treated collagen.

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