Programme & The Book of Abstracts

Twentieth Annual Conference

YUCOMAT 2018

Herceg Novi, Montenegro, September 3–7, 2018

Organised by

SERBIA MRS

endorsed by

MRS ENDORSED MEETING

E-MRS

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TWENTIETH ANNUAL CONFERENCE

YUCOMAT 2018

Hunguest Hotel Sun Resort Herceg Novi, Montenegro,
September 3-7, 2018
http://www.mrs-serbia.org.rs

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and
The Book of Abstracts

Organised by:
Materials Research Society of Serbia

Endorsed by:
Materials Research Society,
European Materials Research Society
and
Federation of European Material Societies

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YUCOMAT 2018
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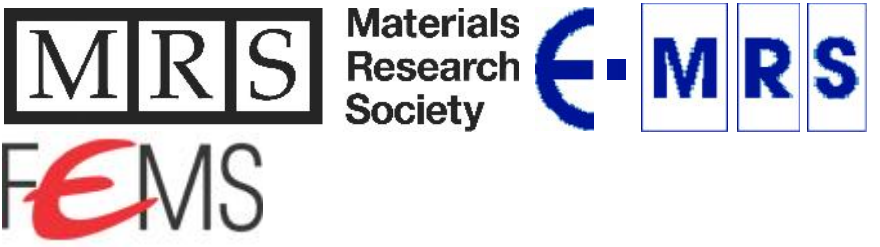
Acknowledgments: This conference is celebrating 20 years of YUCOMAT



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WELCOME SPEECH BY THE PRESIDENT OF MRS-SERBIA:

Dear Attendees,

It is my pleasure to welcome you to the 20th anniversary YUCOMAT. We started off in 1995 and have made great strides since then, having transformed a small national conference that the 1st YUCOMAT was into an international and world-renowned meeting of today. Crème de la crème of the field of materials science and engineering gathers here every year and none of us, including the four founders of the MRS-Serbia (Drs. Milonjić, Radmilović, Raković and myself), could have foreseen the eminent levels that YUCOMAT would reach when we organized it for the first time, 23 years ago.

This particular, 20th anniversary YUCOMAT is above all the others based on some measures, one of which is the total duration of oral presentations. It is to be blamed for the minimal free time in-between the talks this year and I know that some participants will not forgive this to me so easily. We have 33 plenary lectures, 2 satellite symposia with around 12 talks each and 44 regular oral presentations, along with 63 posters, and I will let these numbers alone speak about the continuous rising track that YUCOMAT has been on since its inception. Out of 170 works that are to be presented, eighty percent are international in origin, whereas one-third will be presented by scientists affiliated with national institutions. As for the international participants, the most numerous delegation is that of the United States, with 15 presenters. It is followed by South Korea with 13 participants, Taiwan with 12 and then by Poland, Czech Republic, Germany and other countries. Serbian researchers are very well represented too, with 38 presentations in total, as well as the researchers from the region of the former Yugoslavia.

This YUCOMAT is the fourth one in a row at which we give out the award of the MRS-Serbia for a lasting and outstanding contribution to materials science and engineering. After Ivan Božović, Gordana Vunjak-Novaković and Velimir Radmilović, the winner of this award for 2018 is Laszlo Forro, a professor of the physics of complex matter at the École polytechnique fédérale de Lausanne (EPFL), for his immense contribution to the field of engineering of new materials, including inorganic and organic, as well as biomaterials. Dr. Forro is recognized not only for his scientific contribution, but also for the effort to unify the community of former Yugoslavian scientists working domestically and abroad, which is one of the important missions of our MRS. Dr. Forro is the member of Croatian, Hungarian and Serbian academic

institutions, which is a transnational accomplishment that a very small number of scientists from this region can pride themselves on. All of us are delighted that Laszlo Forro is here with us today and that he will present some of his most significant research as a part of the Opening Ceremony.

Two years ago we organized the seminal satellite symposium dedicated to presentations by Korean researchers working in the field of hybrid materials. The positive impressions they received here have brought them back to YUCOMAT this year for the satellite symposium on Hybrid Interphase Materials. All Korean experts this year participate through solicitation by the Director of the National Core Research Center for Hybrid Solutions of Busan University, Prof. Kwang-Ho Kim and the renowned Fellow of the Korea Institute of Science and Technology (KIST), Prof. Kyung-Ho Shin. At the symposium, which will be held on Wednesday, twelwe Korean distinguished reserchers will present their newest discoveries on this subject. Positive impressions are passed around within the materials science community and following the success with this satellite symposium two years ago, another one held this year is organized by Prof. Feng-Huei Lin, the Director of the National Health Research Institute (NHRI) in Taipei, Taiwan, and its title is Advanced Materials for Biomedical Engineering. In this exciting symposium, professors and students from Taiwan will present their most recent research in the field of advanced materials for various applications in biomedical engineering. Specifically, six Taiwanese professors will present orally on Wednesday morning as well as seven PhD students, who will give shorter talks and will additionally have the opportunity to present posters at the third and the final poster session, which will be held on Thursday evening.

Like the last year, this year's diamond sponsors of YUCOMAT are Thermo Fisher Scientific and the International Journal of Nanomedicine. We are incredibly indebted to them for lightening up the financial burdens that have been troubling our society in the past years. The members of our International Advisory Board, specifically its President Bob Sinclair and its distinguished member, Hamish Fraser, should also be acknowledged for initiating the idea of voluntary registration fee self-coverage by the invited lecturers traditionally freed of that obligation. Another thing we achieved with the voluntary help of the members of our MRS is the expansion of the current database of potential participants up to 11,000 names, which makes it twice larger than the previous list. It gives us hopes that informing a greater number of people from the materials science community about YUCOMAT would directly correspond to a greater number of participants in the years that follow. Also, for the first time in its history, YUCOMAT is financially supported by the gold and the silver sponsors too, the names of which could be found on the list of sponsors in the Book of Abstracts.

One of the central goals of MRS-Serbia is the promotion of science through support of young scientists. The lecture hall, for those who have not noticed, is filled with young

people who are members of various organizational committees at YUCOMAT. In addition, from the first to the present YUCOMAT, we have engaged in the effort to inspire and motivate young researchers through rewarding the best oral and poster presenters and the best doctoral theses defended in the timespan between the two successive conferences. The same practice was adopted at our conferences for young researchers held at the Serbian Academy of Sciences and Arts in Belgrade every December. As of two years ago, we have also begun to subsidize these prospective young scientists' participations at EUROMAT Junior conferences.

Many of you might notice that YUCOMAT has traditionally attracted scientists from academic institutions, but the conference has not been as popular among scientists coming from industry. Materials science and engineering is a highly applicative field and a number of technologies presented at this conference are directly translatable to marketable applications. On top of this, we could wonder if the economy of a country could ever grow beyond a certain level if its basic science and industry remain as disconnected as they are in today's Serbia and most other countries of this region. Oh well, but how do we simultaneously promote state-of-the-art basic materials science, whose applications may be decades ahead, and industrial research, which in this particular setting would feed best on more modest concepts, some of you might ask and there is no easy answer. Aside from learning from some of the best examples, including the Korean and the Taiwanese success, which we will hear about in the respective satellite symposia, palpable ideas are needed on how to bridge this gap between basic science and industry in the region with many of the limitations and challenges that are no longer relevant in the developed world.

As we do succeed in bridging this gap, there will be, as ever, other challenges to cope with and some of them stem from today's rather ambiguous relationship between science and money. When I began my scientific career 50 years ago, science was a place attracting true aficionados of knowledge, who paid no heed to finance, but this is not so anymore in the developed world. There, science has become a lucrative business to many and being indifferent to money is these days, sadly, a secure way out of the scientific profession. The general opinion of youth in science today, especially in this region of the world, where funding is meager, is that lots more money would solve all their problems. It would enable better and more numerous experiments to be conducted, thus increasing the quality of science, and it would also bring about the comfort of professional and private lives to the scientists. However, the other side of the coin is often overlooked. In the United States, for example, the country I visit often, I witness firsthand the extent to which money spoils this very science that it helps grow. How? One reason is that scientific institutions, increasingly adopting aggressive business models, have begun to prioritize the acquisition of funds over the creation of new knowledge. This flawed prioritization has been creating negative selection, especially at

the level of junior scientists; namely, those who are very smart and cunning when it comes to acquisition of funds, knowing how to sell their ideas well, even when they are not so inventive, push out of the scientific pyramid those who are not so skilled at selling their science. Like in the business world, the quality of packaging and marketing has taken over the quality of the product. As science evolves on top of these flawed premises, it becomes a cutthroat business where not the most benevolent and inventive are retained, but rather those who are the most talented entrepreneurs. The latter model, very often, feeds on an exploitative environment, careless mentorship and, perhaps most critically of all, superficially conducted science. For, science conducted on the premise that material wealth and prolific resources are all that matter sooner or later becomes akin to a conveyer belt, a factory that inertly produces knowledge with not even a zest of creativeness. What I urge the young scientists in this region of the world and abroad to do is to be aware of this rampant materialism and the dehumanization of science that it bears and take a stand against it when their time to change the science policies for better comes. As far as this region is concerned, inertly following in the footsteps of the developed world when it comes to creation of these policies is an error and every country should find a model that is suited to it, uniquely. It should also watch out for inevitable mistakes committed by the more developed countries and, like a frog, leap over them, thus accelerating its progress and, one day, maybe even transcending those who are way ahead of them right now. After all, if this region of the world has been historically known for something, it is the ability to rebuff imperialism while showing that the power of the mind rules over matter and that ideas should drive technologies and not the other way around. What better time to elicit this bold stance in the sphere of materials science and science in general than today?

This is all to say that in spite of the enjoyable times spent at YUCOMAT, we should be aware that all of us are assigned the task to do something creative to ameliorate the existing imbalances and promote welfare for the future generations of humanity, both locally and globally, to the best of our capacities. No greater gift could be left to them than relishing in the joys of scientific exploration of the world. Therefore, I wish this to be yet another YUCOMAT that brings the joy of science and friendship to us all. Let us enjoy in all good that materials science and we, its stewards and spokespersons, have to offer!

Sincerely Yours,

Dragan Uskoković
MRS-Serbia, President

2018 MRS-SERBIA AWARD FOR A LASTING AND OUTSTANDING CONTRIBUTION TO MATERIALS SCIENCE AND ENGINEERING

We are pleased to announce that the laureate of the 2018 MRS-Serbia Award for a Lasting and Outstanding Contribution to Materials Science and Engineering is Prof. Dr. László Forró of the Ecole Polytechnique Fédérale de Lausanne, Laboratory of Physics of Complex Matter. He is awarded for his achievements in the engineering of new materials, including inorganic and organic materials, as well as biomaterials.

This is the decision of the MRS-Serbia Executive Board:
The Executive Board of the MRS-Serbia Presidency, at their meeting on April 10, 2018, considered the submitted nominations for the MRS-Serbia's 2018 Award for a Lasting and Outstanding Contribution to Materials Science and Engineering and concluded that the procedure was conducted in accordance with the Awarding Rulebook, that the Call was announced on the MRS-Serbia's website on January 1, 2018, and that in the stipulated period of 45 days only one nomination was submitted, that for Prof. László Forró, by Prof. Dr. Davor Pavuna (Ecole Polytechnique Fédérale de Lausanne, Switzerland). The nomination was strongly supported by five members of the Presidency of the MRS Serbia: Academician Zoran Popović, Academician Zoran Petrović, Academician Slavko Mentus, Prof. Milenko Plavšić and Prof. Dr. Miodrag Zlatanović.

Having received the opinion from the Expert Committee members, Prof. Dragan Uskoković (President of MRS-Serbia), Prof. Robert Sinclair (Chair of YUCOMAT Conferences International Advisory Board), Dr. Slobodan Milonjić (Vice-President of MRS-Serbia), Prof. Danilo Suvorov (Member of YUCOMAT Conferences International Advisory Board), Prof. Dejan Raković (Vice-President of MRS-Serbia) and Prof. Dr. Ivan Božović (2015 Laureate), Prof. Dr. Gordana Vunjak-Novaković (2016 Laureate), and Prof. Dr. Velimir Radmilović (2017 Laureate), the Executive Board of the MRS-Serbia Presidency took the decision that Prof. Dr. László Forró be granted MRS-Serbia's 2018 Award for a Lasting and Outstanding Contribution to Materials Science and Engineering.

Prof. Dr. László Forró's invited plenary lecture "Organo-metallic lead iodide perovskites: a material science approach" will be presented during the Opening Ceremony of the 20th Materials Research Society of Serbia Annual Conference YUCOMAT 2018 on September 3, 2018.

President of MRS-Serbia, Prof. Dr. Dragan Uskoković
Vice-President of MRS-Serbia, Dr. Slobodan Milonjić
Vice-President of MRS-Serbia, Prof. Dr. Dejan Raković

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 3-7, 2018, at the Hunguest Hotel Sun Resort, in Herceg Novi, Montenegro. Participants will also be accommodated there. The conference will begin on Monday, September 3th, at 09.00 and end on Friday, September 7th, 2018, at 12.30.

REGISTRATION: Registration, registration fee payment, conference materials distribution, etc, will take place at the conference desk (Conference Secretariat) open on Sunday, September 2, and Monday, September 3, from 8.00 to 19.00, on Tuesday, 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.

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. Video-beam is available. PowerPoint presentations, recorded on CD or USB flash-memory, should be given at registration, specifying the name of the speaker and the day and session number.
In POSTER SESSIONS, the authors are requested to display their posters 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 20.00-22.00.

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 excursion on Thursday afternoon (boat trip around Boka Kotorska Bay) will be organized again.

Programme

GENERAL CONFERENCE PROGRAMME

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
SYMPOSIUM F: Advanced Materials for Biomedical Applications
SYMPOSIUM G: Hybrid Interface Materials

Sunday, September 2 2018
08^{00}-19^{00} **Registration**

Monday, September 3, 2018
08^{00}-19^{00} **Registration**
09^{00} -10^{00} **OPENING CEREMONY**
- Introduction and Welcome
Main Conference Hall
10^{30}-13^{00} **First Plenary Session**, Main Conference Hall
13^{00} **Photo Session**
14^{30}-19^{00} **Second Plenary Session**, Main Conference Hall
19^{30}-21^{00} **Cocktail Party**

Tuesday, September 4, 2018
08^{30}-13^{00} **Third Plenary Session**, Main Conference Hall
14^{30}-20^{00} **Fourth Plenary Session**, Main Conference Hall
20^{00}-22^{00} **Poster Session I** (Symposium A and B1), Villa Mimoza

Wednesday, September 5, 2018
09^{00}-13^{00} **Symposium F**, Main Conference Hall
15^{00}-19^{00} **Symposium G**, Main Conference Hall
20^{00}-22^{00} **Poster Session II** (Symposium B2, C and D), Villa Mimoza

Thursday, September 6, 2018
09^{00}-12^{45} **First Oral Session**, Main Conference Hall
09^{00}-12^{15} **Second Oral Session**, Small Conference Hall
14^{00}-19^{00} **Boat-trip around Boka Kotorska Bay**
20^{00}-22^{00} **Poster Session III** (Symposiums E), Villa Mimoza

Friday, September 7, 2018
09^{00}-12^{15} **Third Oral Session**, Main Conference Hall
09^{00}-12^{00} **Fourth Oral Session**, Small Conference Hall
12^{30}-13^{00} **Awards and Closing of the Conference**

OPENING CEREMONY

Monday, September 3, 2018
Main Conference Hall

09^{00}-10^{00}

Welcome Speach
Dragan Uskoković, President of MRS-Serbia, Belgrade, Serbia
Welcome Address
Robert Sinclair, Chair of International Advisory Board
Presentation of YUCOMAT 2017 Awards
Slobodan Milonjić, Vice President of MRS-Serbia, Belgrade, Serbia

MRS-Serbia 2018 Award for a Lasting and Outstanding Contribution to Materials Science and Engineering
Organo-metallic lead iodide perovskites: a material science approach
László Forró
Laboratory of Physics of Complex Matter, Ecole Polytechnique Fédérale de Lausanne, Switzerland

Break: 10^{00}-10^{30}

FIRST PLENARY SESSION

Main Conference Hall

Session I: 10^{30}-13^{00}
Chairpersons: Yury Gogotsi and Joseph T. Hupp

10^{30}-11^{00} **Synthesis and properties of two-dimensional carbides and nitrides (MXenes)**
Yury Gogotsi
Department of Materials Science and Engineering, and A. J. Drexel Nanomaterials Institute, Drexel University, Philadelphia, PA 19104, USA

11^{00}-11^{30} **AIM-ing for single-atom precision for heterogeneous catalysts**
Joseph T. Hupp
Northwestern University Department of Chemistry Evanston, IL 60208, USA

11^{30}-12^{00} **Applying chemistry to make today's best tunable millimeter wave dielectric even better**
Darrell G. Schlom
Department of Materials Science and Engineering, Cornell University, USA

12^{00}-12^{30} **Ultra-high resolution study by aberration-corrected TEM of pyrochlore BZN supplying information on displacive atom-site disorder**
Knut W. Urban[1,2], Chun-Lin Jia[1,2], Hong Wang [2]
[1]PGI-5 and Ernst Ruska Center, Research Center Juelich, Juelich/Germany; [2]School of Electronic and Information Engineering and State Key Laboratory for Mechanical Behaviour of Materials, Xi'an Jiaotong University, Xi'an, China

12^{30}-13^{00} **Electric field control of magnetism**
Ramamoorthy Ramesh
Department of Physics and Department of Materials Science and Engineering
Lawrence Berkeley National Laboratory, University of California, Berkeley, CA 94720, USA

13^{00}-13^{30} Photo session

Break: 13^{30}-14^{30}

SECOND PLENARY SESSION

Main Conference Hall

Session I: 14^{30}-16^{30}
Chairpersons: Knut W. Urban and Rolf Erni

14^{30}-15^{00} **Correction of aberrations – past – present – and future perspectives**
Harald Rose
Ulm University, Ulm, Germany

15^{00}-15^{30} **Prospects and challenges for high-resolution transmission electron microscopy**
Rafal E. Dunin-Borkowski, Lei Jin, András Kovács, Andreas Thust
Ernst Ruska-Centre for Microscopy and Spectroscopy with Electrons and Peter Grünberg Institute, Forschungszentrum Jülich, 52425 Jülich, Germany

15^{30}-16^{00} **High precision STEM studies of spatial strain distribution in nanostructures with correlation to properties**
Eva Olsson
Chalmers University of Technology, Eva Olsson Group, Gothenburg, Sweden

16^{00}-16^{30} **Unconventional imaging by scanning transmission electron microscopy**
Rolf Erni, Trond Henninen, Feng Wang, Marta Bon, Debora Keller, Nabeel Ahmad, Marta D. Rossell, Marco Campanini
Electron Microscopy Center, Empa, Swiss Federal Laboratories for Materials Science and Technology, 8600 Dübendorf, Switzerland

Break: 16^{30}-17^{00}

Session II: 17^{00}-19^{00}
Chairpersons: Eva Olsson and Rafal E. Dunin-Borkowski

17^{00}-17^{30} **Growth of wide bandgap semiconducting layers: a transmission electron microscopy study**
Bela Pecz
Institute for Technical Physics and Materials Science, Centre for Energy Research, Hungarian Academy of Sciences, MTA EK MFA, 1121 Budapest, Konkoly-Thege M. u. 29-33, Hungary

17^{30}-18^{00} **The role of interface complexions on processing ceramic matrix nanocomposites**
Ruth Moshe, Rachel Marder, Wayne D. Kaplan
Department of Materials Science and Engineering, Technion - Israel Institute of Technology, Haifa, Israel

18^{00}-18^{30} **Sub 30 meV in a monochromated Themis Z**
Anil Yalcin
Thermo Fisher Scientific, Eindhoven, Netherlands

18^{30}-19^{00} **High-resolution 3D crack visualization in multi-component materials and structures during mechanical loading – A novel application of X-ray microscopy**
Ehrenfried Zschech, Sven Niese[1], Kristina Kutukova, Juergen Gluch
Fraunhofer IKTS Dresden, Germany
[1]now with AXO Dresden GmbH, Dresden, Germany

THIRD PLENARY SESSION

Tuesday, September 4, 2018
Main Conference Hall

Session I: 08^{30}-10^{30}
Chairpersons: Vladimir Torchilin and Robert Sinclair

08^{30}-09^{00} **An update on advanced electron microscopy for cancer nanotechnology research**
Robert Sinclair[1,2], Yitian Zeng[1,2], Steven J. Madsen[1,2], Ai L. Koh[1]
[1]Stanford University, Department of Materials Science and Engineering, Stanford, USA; [2]Stanford University, Center for Cancer Nanotechnology Excellence, Stanford, USA

09^{00}-09^{30} **Recent developments in combination nanopreparations against cancer**
Vladimir Torchilin
Center for Pharmaceutical Biotechnology and Nanomedicine, Northeastern University, Boston, MA 02115, USA

09^{30}-10^{00} **The future of medicine: implantable nanosensors**
Thomas J. Webster
Department Chemical Engineering; Northeastern University; USA

10^{00}-10^{30} **Ceramic nanoparticles for advanced biomedical applications: from bone to brain**
Vuk Uskoković
University of Illinois at Chicago, USA

Break: 10^{30}-11^{00}

Session II: 11^{00}-13^{00}
Chairperons: Danilo Suvorov and Paul V. Braun

11^{00}-11^{30} **Solid-state oxygen abstraction from stable oxides for energy storage materials**
Mamoru Senna
Keio University, Yokohama, Japan Faculty of Science and Technology, Hiyoshi, Yokohama 223-8522, Japan

11^{30}-12^{00} **High energy density electrodeposited Li and Na-ion battery electrodes**
Paul V. Braun
University of Illinois at Urbana-Champaign, Urbana, USA

12^{00}-12^{30} **(Early actinoid metal)-boron-carbon systems: phase equilibria, crystal structures and physical properties**
Peter Rogl[1], Raimund Podloucky[2], Henri Noel[3], Gerald Giester[4]
[1]Institute of Materials Chemistry & Research, University of Vienna, A-1090 Vienna, Austria; [2]Institute of Physical Chemistry, University of Vienna, A-1090 Vienna, Austria; [3]Laboratoire de Chimie du Solide et Materiaux, UMR-CNRS 6226, Université de Rennes I, F-35042 Rennes, France; [4]Institute of Mineralogy and Crystallography, University of Vienna, A-1090 Vienna, Austria

12^{30}-13^{00} **Solid-state synthesis of lead-free $(K/Na)_{0.5}Bi_{0.5}TiO_3$ piezoceramics: peculiarities and their influence on the electrical properties**
Danilo Suvorov, Jakob König, Matjaž Spreitzer
Advanced Materials Department, Jožef Stefan Institute, Ljubljana, Slovenia

Break: 13^{00}-14^{30}

FOURTH PLENARY SESSION

Main Conference Hall

Session I: 14^{30}-17^{00}
Chairpersons: Richard W. Siegel and Hamish L. Fraser

14^{30}-15^{00} **A unified computational approach for dislocation-based plasticity**
Richard LeSar, John Graham, Laurent Capolungo
Iowa State University, Department of Materials Science and Engineering, Ames, IA, USA; Ames Laboratory, Ames, IA, USA; Los Alamos National Laboratory, Los Alamos, NM, USA

15^{00}-15^{30} **Materials characterization and integrated computational materials engineering: providing solutions for near-net shape manufacturing**
Hamish L. Fraser
Center for the Accelerated Maturation of Materials, The Ohio State University, Columbus, USA

15^{30}-16^{00} **On the nucleation of planar faults in single crystal Ni-base superalloys**
Gunther Eggeler
Bochum University, Ruhr, Germany

16^{00}-16^{30} **Quo vadis quantum matter?!**
Davor Pavuna
Complex Matter Laboratory - Institute of Physics, Ecole Polytechique Federale de Lausanne, CH-1015 Lausanne, Switzerland

16^{30}-17^{00} **Ultimate atom resolution**
Richard W. Siegel
Materials Science and Engineering Department, Rensselaer Polytechnic Institute, Troy, New York 12180, USA

Break: 17^{00}-17^{30}

Session II: 17^{30}-20^{00}
Chairperson: Toshiaki Makabe and Vikram Jayaram

17^{30}-18^{00} **Probing mechanical behaviour at small length scales: from spatially resolved toughness in Pt-Ni-Al bond coats on superalloys to small scale cantilever creep for residual life assessment**
Vikram Jayaram
Indian Institute of Science, Department of Materials Engineering, Bangalore 560012, India

18^{00}-18^{30} **NV centers in diamond: potentials and limitations for quantum metrology**
Karoly Holczer[1], Jason Cleveland[2]
[1]UCLA, Department of Physics & Astronomy 475 Portola Plaza, Los Angeles, CA 90095-1547, USA; [2]SomaLogic Inc. 2945 Wilderness Place Boulder, CO 80301, USA

18^{30}-19^{00} **Metastable-watching for the structure and property of low-temperature plasmas**
Toshiaki Makabe
Keio University, Japan

19^{00}-19^{30} **On the origin of high glass forming ability in metallic systems**

Emil Babić[1], Ramir Ristić[2], Ignacio A. Figueroa[3], Damir Pajić[1], Željko Skoko[1], Krešo Zadro[1]

[1]Department of Physics, Faculty of Science, University of Zagreb, Zagreb, HR 10000, Croatia; [2]Department of Physics, University of Osijek, Osijek, HR 31000, Croatia; [3]Institute of Materials Research-UNAM, Universitaria Coyoacan, C. P. 04510 Mexico, Mexico

19^{30}-20^{00} **Fundamental aspects of the use of metal hydrides in hydrogen energy and chemical current sources**

Yuriy Solonin, Valentin Dobrovolsky, Olga Ershova, Oleg Khyzhun

Institute for Problems of Materials Sciences National Academy of Sciences of Ukraine, Ukraine

SYMPOSIUM F: ADVANCED MATERIALS FOR BIOMEDICAL APPLICATIONS

Wednesday, September 5, 2018
Main Conference Hall

Session I: 09^{00}-10^{30}
Chairpersons: Feng-Huei Lin and Ching-Li Tseng

09^{00}-09^{30} **The preparation of injectable angiogenic bone cement for femoral head avascular necrosis**
Feng-Huei Lin
Institute of Biomed Eng & Nanomed., National Health Research Institutes, Taiwan ; Institute of Biomed Eng., National Taiwan University, Taipei, Taiwan

09^{30}-10^{00} **Gelatin nanoparticles with anti-inflammatory/anti-angiogenesis agent loading for ocular disease treatment**
Ching-Li Tseng
Graduate Institute of Biomedical Materials & Tissue Engineering, College of Biomedical Engineering; Taipei Medical University, Taipei, Taiwan, ROC

10^{00}-10^{15} **High throughput generation of alginate-gelatin capsules for human osteoblast-like cells (MG63) long-term cultivation**
Jia-En Yang[1], Yi-Chia Hsieh[1], Ching-Yun Chen[2], Kai-Fa Teo[1], Chun-Hsu Yao[3,4], Cherng-Jyh Ke[1,4]
[1]China Medical University, College of Biopharmaceutical and Food Sciences, Department of Biological Science and Technology, Taichung, Taiwan; [2]National Health Research Institutes, Institute of Biomedical Engineering and Nanomedicine, Miaoli, Taiwan; [3]China Medical University Hospital, Biomaterial Translational Research Center, Taichung, Taiwan; [4]China Medical University, College of Medicine, Department of Biomedical Imaging and Radiological Science, Taichung, Taiwan

10^{15}-10^{30} **Using continuous bioreactor system to cultivate human bone-like tissues for bone tissue engineering**
Ching-Yun Chen[1], Cherng-Jyh Ke[2,3], Jui-Sheng Sun[4,5], Feng-Huei Lin[1,6]
[1]Institute of Biomedical Engineering and Nanomedicine (I-BEN), NHRI, Taiwan; [2]Biomaterials Translational Research Center, China Medical University Hospital, Taiwan; [3]Department of Biological Science and Technology, China Medical University, Taiwan; [4]Department of Orthopedics, College of Medicine, NTU, Taiwan; [5]Department of Orthopedic Surgery, NTUH, Taiwan ; [6]Institute of Biomedical Engineering, College of Medicine and College of Engineering, NTU, Taiwan

10^{30}-10^{45} **Fabrication of multilayered gold/silica/gadolinium compound core-shell particles and their properties of X-ray imaging and MRI**

Yuta Shindo[1], Tomoya Inose, Takahiro Oikawa[1], Masayuki Tokunaga[2], Yohsuke Kubota[2], Kohsuke Gonda[3], Yoshio Kobayashi[1]

[1]Ibaraki University, College of Engineering, Department of Materials Science and Engineering, Hitachi, Japan; [2]Tohoku University, Graduate School of Medicine, Department of Gastroenterological Surgery, Sendai, Japan; [3]Tohoku University, Graduate School of Medicine, Department of Medical Physics, Sendai, Japan

Break: 10^{45}-11^{15}

Session II: 11^{15}-13^{00}
Chairperson: Chien-Chung Chen and How Tseng

11^{45}-12^{15} **The self-assembled, microtube array membranes (MTAM) and their applications for cancer translation**

Chien-Chung Chen[1,2,3,7], Chee-Ho Chew[1], Wan-Ting Huang[7], Kang-Yan Lee[4], Po-Li Wei[5,6], Shih-Shin Tu[5,6]

[1]Grad Inst. Biomedical Materials and Tissue Engineering, College of Biomedical Engineering, Taipei Medical University, Taipei, Taiwan; [2]Ph.D Program in Biotechnology Research and Development, Taipei Medical University, Taipei, Taiwan; [3]International Ph.D. Program for Cell Therapy and Regenerative Medicine, Taipei Medical University, Taipei, Taiwan; [4]Division of Thoracic Medicine, Taipei Medical University Shuang Ho Hospital, Taipei Medical University, Taipei, Taiwan; [5]Division of General Surgery, Taipei Medical University Hospital, Taipei Medical University, Taipei, Taiwan; [6]TMU Research Center of Cancer Translational Medicine, Taipei Medical University Hospital, Taipei Medical University, Taipei, Taiwan; [7]Research & Development Dept. MTAM Tech Inc. Taipei, Taiwan

12^{15}-12^{30} **Cornea epithelium reconstruction by a new way to engineer cell sheet**

How Tseng, Chein-Cheng Tai, Yuan-Yi WU, Kun-De Lin
Taipei Medical University, Medical School, Department of Biochemistry and Molecular Cell Biology, Taipei 11031, Taiwan

12^{30}-12^{35} **Addition of porogens improved the characteristics of biodegradable implants made of poly(ε-caprolactone)/calcium phosphate ceramic composites**

Chang-Chin Wu[1,2], Kai-Chiang Yang[3,4], Feng-Huei Lin[5]

[1]Department of Orthopedics, En Chu Kong Hospital, New Taipei City, Taiwan; [2]Department of Orthopedics, National Taiwan University Hospital, College of Medicine, National Taiwan University, Taipei, Taiwan; [3]Department of Organ Reconstruction, Institute for Frontier Medical Sciences, Kyoto University, Kyoto, Japan; [4]School of Dental Technology, College of Oral Medicine, Taipei Medical

University, Taipei, Taiwan; [5]Ins. of Biomed. Eng., National Taiwan University, Taiwan

12^{35}-12^{40} **The application of hydroxyapatite as the Bletilla striata polysaccharide carrier for sarcopenia treatment**
Ya-Jyun Liang[1], Jia-Yu Hong[1], Chun-Han Hou[2], Feng-Huei Lin[1]
[1]National Taiwan University, Institute of Biomedical Engineering, Taipei, Taiwan; National [2]Taiwan University Hospital, Department of orthopedic surgery, Taipei, Taiwan

12^{40}-12^{45} **Hydroxyapatite/gelatin particles embedding stromal cell-derived factor-1 for bone tissue engineering**
Chih Hsiang Fang[1], Yi Wen Lin[1], Jui Sheng Sun[2], Feng Huei Lin [1,3]
[1]Institute of Biomedical Engineering, College of Medicine and College of Engineering, National Taiwan University, Taipei 100, Taiwan; [2]Department of Orthopedic Surgery, National Taiwan University Hospital, Taiwan; [3]Division of Biomedical Engineering and Nanomedicine Research, National Health Research Institutes, Miaoli 350, Taiwan

12^{45}-12^{50} **A novel multilayer capsule as desensitizing agent for dental hypersensitivity**
Kuo-Hui Chiu[1], Hsiu-Min Chen[1], Yuan-Yu Hsia[1], Ting-Ru Chung[2], Chih-Yu Shu[3], Chia-Yung Lin[4], Cherng-Jyh Ke[1,3]
[1]China Medical University, College of Biopharmaceutical and Food Sciences, Department of Biological Science and Technology, Taichung, Taiwan; [2]China Medical University, College of Medicine, Department of Biomedical Imaging and Radiological Science, Taichung, Taiwan; [3]China Medical University Hospital, Biomaterial Translational Research Center, Taichung, Taiwan; [4]Taichung Hospital, Ministry of Health and Welfare, Department of Dentistry, Taichung, Taiwan

12^{50}-12^{55} **Electrospun silk fibroin composite scaffold for tendon repair**
Yi-You Huang
Institute of Biomedical Engineering, National Taiwan University, Taipei, Taiwan.

12^{55}-13^{00} **BMP-2 and insulin delivered from plasma synthesis of carbon-based nanocarriers for bone regeneration**
Yi Wen Lin[1], Chih Hsiang Fang[1], Jui Sheng Sun[2], Feng Huei Lin[1,3]
[1]Institute of Biomedical Engineering, College of Medicine and College of Engineering, National Taiwan University, Taipei 100, Taiwan; [2]Department of Orthopedic Surgery, National Taiwan University Hospital, Taiwan; [3]Division of Biomedical Engineering and Nanomedicine Research, National Health Research Institutes, Miaoli 350, Taiwan

Break: 13^{00}-15^{00}

SYMPOSIUM G: HYBRID INTERFACE MATERIALS

Wednesday, September 5, 2018
Main Conference Hall

Session I: 15^{00}-16^{45}
Chairpersons: Kwang Ho Kim and Yeon Sik Jung

15^{00}-15^{30} **Vertical alignment of $BaTiO_3$ nanoparticles for enhanced piezoelectric performance**
Je Moon Yun[1], Kwang Ho Kim[1,2]
[1]Global Frontier R&D Center for Hybrid Interface Materials (GFHIM), Republic of Korea; [2]School of Materials Science and Engineering, Pusan National University, Republic of Korea.

15^{30}-15^{45} **High performance photodetector using graphene barristor**
Byoung Hun Lee
Center for emerging electronic devices and systems (CEEDS), Korea; School of Materials Science and Engineering, Gwangju Institute of Science and Technology (GIST), Republic of Korea.

15^{45}-16^{00} **High performance Al alloys development by simultaneous increasing strength and its trade-off properties**
Seung Zeon Han[1], Kwang Ho Kim[2,3]
[1]Computational materials department, Korea Institute of Materials Science (KIMS), Korea; [2]Global Frontier R&D Center for Hybrid Interface Materials (GFHIM), Republic of Korea; [3]School of Materials Science and Engineering, Pusan National University, School of Materials Science and Engineering, Korea

16^{00}-16^{15} **Improving the mechanical properties and wettability of metals by control interfacial characteristics: Study based on first-principles**
Eun-Ae Choi
Computational materials department, Korea Institute of Materials Science (KIMS), Korea

16^{15}-16^{30} **Hybrid materials imaging initiative: past, present and future**
Seungbum Hong
Dept. of Materials Science and Engineering, Korea Advanced Institute of Science and Technology (KAIST), Korea

16^{30}-16^{45} **Circular double-patterning lithography using a block-copolymer template and tomic layer deposition**
Se-Hun Kwon, Kyung Mox Cho
School of Materials Science and Engineering, Pusan National University, Korea

Break: 16^{45}-17^{15}

Session II: 17^{15}-19^{00}
Chairpersons: Kyung Ho Shin and Se-Hun Kwon

17^{15}-17^{45} **Various nanoarchitectural hybrid materials for high-performance supercapacitors**
Kyung Ho Shin[1], Kwang Ho Kim[2,3], Je Moon Yun[2]
[1]Technology Business Division, Korea Institute of Science and Technology (KIST), Republic of Korea; [2]Global Frontier R&D Center for Hybrid Interface Materials (GFHIM), Republic of Korea; [3]School of Materials Science and Engineering, Pusan National University, Republic of Korea

17^{45}-18^{00} **High-performance hybrid energy storages enabling ultrafast charging and high energy density along with robust cycle life**
Jeung Ku Kang
Dept. of KAIST, 373-1 Guseong Dong, Yuseong Gu, Daejeon (305-701), Republic of Korea

18^{00}-18^{15} **Thermal management by electrochemical process: thermoelectric and radiative cooling materials**
Jae-Hong Lim
Department of Electrochemistry, Korea Institute of Material Science, Korea

18^{15}-18^{30} **Solution plasma synthesized carbon-supported hybrid catalysts for energy converting systems**
Oi Lun (Helena) Li
School of Materials Science and Engineering, Pusan National University, Korea

18^{30}-18^{45} **3-dimensional hybrid nanostructures: novel fabrication strategies and applications**
Yeon Sik Jung
Dept. of Materials Science and Engineering, Korea Advanced Institute of Science and Technology (KAIST), Korea

18^{45}-19^{00} **Virus: the next generation material**
Jin-Woo Oh
Dept. of Nanoenergy Engineering, Pusan National University
Busan, Republic of Korea, 609-735

FIRST ORAL SESSION

Thursday, September 6, 2018
Main Conference Hall

Session I: 09^{00}-10^{45}
Chairpersons: Branko Z. Matović and Zoran Jovanović

09^{00}-09^{15} **Anion-mediated photophysical behaviour in a C_{60} fullerene [3] rotaxane shuttle**
Timothy A. Barendt[1], Ilija Rašović[2], Maria A. Lebedeva[2], George A. Farrow[3], Alexander Auty[3], Dimitri Chekulaev[3], Igor V. Sazanovich[4], Julia A. Weinstein[3], Kyriakos Porfyrakis[2], Paul D. Beer[1]
[1]University of Oxford, Chemistry Research Laboratory, Department of Chemistry, Oxford, United Kingdom; [2]University of Oxford, Department of Materials, Oxford, United Kingdom; [3]University of Sheffield, Department of Chemistry, Sheffield, United Kingdom; [4]Research Complex at Harwell, Laser for Science Facility, Rutherford Appleton Laboratory, Didcot, United Kingdom

09^{15}-09^{30} **Synthesis and densification of monolithic nanocrystalline SiC ceramics**
Branko Z. Matović
Belgrade University, Institute for nuclear sciences Vinca, Cextreme Lab, Serbia

09^{30}-09^{45} **First principles investigations of structural, electronic, elastic and mechanical properties of barium sulfide from standard to extreme high pressures**
Dejan Zagorac[1,2], Jelena Zagorac[1,2], Dragana Jordanov[1], Milena Rosić[1], Maria Čebela[1], Jelena Luković[1,2], Branko Matović[1,2]
[1]Institute of Nuclear Sciences Vinča, Materials Science Laboratory, Belgrade University, Belgrade, Serbia; [2]Center for synthesis, processing and characterization of materials for application in the extreme conditions-CextremeLab, Belgrade, Serbia

09^{45}-10^{00} **Tuning of the stoichiometry of PLD grown SrO thin films via fluency optimization**
Zoran Jovanović[1,2], Matjaž Spreitzer[1], Anže Založnik[3], Danilo Suvorov[1]
[1]Advanced Materials Department, Jožef Stefan Institute, Jamova 39, 1000 Ljubljana, Slovenia; [2]Laboratory of Physics, Vinča Institute of Nuclear Sciences, University of Belgrade, P.O. Box 522, 11001 Belgrade, Serbia; [3]Department of Low and Intermediate Energy Physics, Jožef Stefan Institute, Jamova 39, 1000 Ljubljana, Slovenia

10^{00}-10^{15} **Conduction in calcium containing $LaAlO_3$ solid solutions prepared via ball milling**

Martin Fabián[1], Aleksey Yaremchenko[2], Hristo Kolev[3], Mária Kaňuchová[4], Jaroslav Briančin[1]
[1]Institute of Geotechnics, Slovak Academy of Sciences, 040 01 Kosice, Slovak Republic; [2]Aveiro Institute of Materials, Department of Materials and Ceramic Engineering, University of Aveiro, 3810-193 Aveiro, Portugal; [3]Institute of Catalysis, Bulgarian Academy of Sciences, Acad. G. Bonchev St., Bldg. 11, 1113 Sofia, Bulgaria; [4]Technical University of Košice, Letná 9, 04200 Košice, Slovakia

10^{15}-10^{30} **Novel reactive infiltration process for production of fine grained Fe-Al intermetallics**

Srđan Milenković, Anna Hynowska
IMDEA Materials Institute, Madrid, Spain

10^{30}-10^{45} **Properties of composite parts manufactured with help of LATP technology**

Samoil Samak[1], Svetlana Risteska[2], Dijana Cvetkoska[1], Julija Gogu[2], Stefanija Acevska[1]
[1]Mikrosam A.D.
[2]Institute for Advanced Composites and Robotics (IACR) Prilep, Macedonia

Break: 10^{45}-11^{15}

Session II: 11^{15}-12^{45}
Chairpersons: Gerda Rogl and Remon Pop-Iliev

11^{15}-11^{30} **High pressure torsion - a rapid tool for the production of high ZT skutterudites**

Ramakrishnan Anbalagan[1], Ernst Bauer[2], Jiri Bursik[3], Andriy Grytsiv[4], Gerda Rogl[4], Peter Rogl[4], Michael Zehetbauer[5]
[1]Institute of Atomic and Molecular Sciences, Taipei City, Taiwan, Province of China; [2]Institute of Solid State Physics, TU Wien, Vienna, Austria; [3]Academy of Sciences of the Czech Republic, Brno, Czech Republic; [4]Christian Doppler Laboratory for Thermoelectricity, TU Wien, Vienna, Austria; [5]Faculty of Physics, University of Vienna, Vienna, Austria

11^{30}-11^{45} **Advanced concepts for processing integral-skin multilayered cellular polymeric composites**

Remon Pop-Iliev
UOIT- University of Ontario Institute of Technology Faculty of Engineering & Applied Science Canada, Canada

11^{45}-12^{00} **Interaction between flow and faceted crystal growth**
Mihaela Stefan-Kharicha, Abdellah Kharicha, Andreas Ludwig, Meghuai Wu
Montanuniversitaet Leoben, Department Metallurgy, Simulation and Modelling Metallurgical Processess, Leoben, Austria

12^{00}-12^{15} **Tool geometry effect on microstructure and properties of friction stir welded 5083 and 7075 aluminium alloys**
Izabela Kalemba-Rec[1], Mateusz Kopyściański[1], Damian Miara[2], Krzysztof Krasnowski[2]
[1]Faculty of Metal Engineering and Industrial Computer Science, AGH University of Science and Technology, Av. Mickiewicza 30, 30-059 Krakow, Poland; [2]Instytut Spawalnictwa (Institute of Welding), 16-18 Bł. Czesława Str., 44-100 Gliwice, Poland

12^{15}-12^{30} **Development of highly piezoelectric coaxial fiber for energy harvest by using thermal drawing and post-process towers**
Thinh Tam Luong, Anh Tuan Luu, Quang Van Duong, Thu Thi Nguyen, Seung Tae Choi
School of Mechanical Engineering, Chung-Ang University, Republic of Korea

12^{30}-12^{45} **Fabrication and application of polyvinylidene fluoride (PVDF) fabric sensors for in situ health monitoring of fibrous composite structures**
Seung-Hwan Chang, Kyung-Chae Jung
Chung-Ang University, School of Mechanical Engineering, Seoul, Republic of Korea

SECOND ORAL SESSION

Small Conference Hall

Session I: 09^{00}-10^{30}
Chairpersons: Rosalía Cid Barreno and Smilja Marković

09^{00}-09^{15} **Epitaxial $Fe_3O_4/La_{0.7}Ca_{0.3}MnO_3$ thin film heterostructures for spintronic devices**
Rosalía Cid Barreno[1,2], Juan Rubio Zuazo[1,2], Eduardo Salas Colera[1,2], Germán R. Castro[1,2]
[1]SpLine CRG BM25 Beamline, European Synchrotron Radiation Facility (ESRF), 38000 Grenoble, France
[2]Instituto de Ciencia de Materiales de Madrid, Consejo Superior de Investigaciones Científicas (ICMM-CSIC), 28049 Madrid, Spain

09^{15}-09^{30} **Fe_3O_4-based heterostructures for semiconductor spintronics**
Iciar Arnay, Juan Rubio-Zuazo, German R. Castro
ICMM-CSIC (Instituto de Ciencia de Materiales de Madrid), Ciudad Universitaria de Cantoblanco, 28049 Madrid, Spain; BM25-SpLine, ESRF (European Synchrotron Radiation Facility), 71 Avenue Martyrs, 38000 Grenoble, France

09^{30}-09^{45} **Synthesis of TiO_2 -WO_3 composite nanofibers by electrospinning for application in photocatalysis and fuel cells**
Vincent Otieno Odhiambo, Orsolya Kéri, Imre Miklós Szilágyi
Department of Inorganic and Analytical Chemistry, Budapest University of Technology and Economics, Hungary

09^{45}-10^{00} **The new integrated process flow sheet for production of Fe-NiAl composite microgranules for the additive technology**.
Vitalii V. Sanin[1] , Mikhail R. Filonov[2], Evgenii A. Levashov[3], Yurii S. Pogozhev[3], Vladimir I. Yukhvid [4], Denis M. Ikornikov[4]
[1]NUST «MISIS», Scientific-educational center "Nanomaterials and nanotechnologies"", Moscow, Russia; [2]NUST «MISIS», Department of Science and innovation, Moscow, Russia; [3]NUST «MISIS», Division of Powder Metallurgy and Functional Coatings, Moscow, Russia; [4]ISMAN Department SHS Melts and Cast Materials, Chernogolovka, Russia

10^{00}-10^{15} **Reducing the deformation temperature of AZ31 magnesium alloy through CCT approach**
Mohammad Mirghasemi, Ali Reza Eivani, Seyyed Hosein Seyedein, Hamid Reza Jafarian
School of Metallurgy and Materials Engineering,, Iran University of Science and Technology, Tehran, Iran

10^{15}-10^{30} **Eco-technology: the application of calcined waste mine overburdun clay materials as cement substitution**
Pozhhan Mokhtari, Sorour Semsari Parapari, Noyan Ozkan, Mehmet Ali Gulgun
Department of Material Sciences and Nano-Engineering, Sabanci University, Tuzla, Istanbul, Turkey

Break: 10^{30}-11^{00}

Session II: 11^{00}-12^{15}
Chairpersons: Dragana Jugović and Pozhhan Mokhtari

11^{00}-11^{15} **Structural and electrochemical study of lithium iron (II) pyrophosphate**
Dragana Jugović[1], Miloš Milović[1], Miodrag Mitrić[2], Valentin Ivanovski[2], Srečo Škapin[3], Dragan Uskoković[1]
[1]Institute of Technical Sciences of SASA, Belgrade, Serbia; [2]Vinča Institute of Nuclear Sciences, University of Belgrade, Belgrade, Serbia; [3]Jožef Štefan Institute, Jamova 39, SI-1000 Ljubljana, Slovenia

11^{15}-11^{30} **$Li_4Ti_5O_{12}$. Promissing anode material for Li-ion batteries synthesized via mechanochemically assised route**
Martin Fabián[1], Markéta Žukalová[2], Ladislav Kavan[2], Vladimír Šepelák[1,], Mamoru Senna[3]
[1]Institute of Geotechnics, Slovak Academy of Sciences, 040 01 Košice, Slovak Republic; [2]J. Heyrovsky Institute of Physical Chemistry, Acad. Sci. Czech Republic, 182 23 Praha, Czech Republic; [3]Faculty of Science and Technology, Keio University, 223-8522, Yokohama, Japan

11^{30}-11^{45} **CTAB- and pluronic F-127-assisted microwave processing of ZnO particles with modified morphology and optical properties**
Smilja Marković[1], Ivana Stojković-Simatović[2], Sanita Ahmetović[2], Ljiljana Veselinović[1], Stevan Stojadinović[3], Vladislav Rac[4], Srečo Škapin[5], Dragan Uskoković[1]
[1]Institute of Technical Sciences of SASA, Knez Mihailova 35/IV, 11000 Belgrade, Serbia; [2]University of Belgrade, Faculty of Physical Chemistry, Belgrade, Serbia; [3]University of Belgrade, Faculty of Physics, Belgrade, Serbia; [4]University of Belgrade, Faculty of Agriculture, Belgrade, Serbia; [5]Jožef Stefan Institute, Ljubljana, Slovenia

11^{45}-12^{00} **Synthesis of tribological WS_2 powder from oxide precursor**
Nataša Gajić[1], Željko Kamberović[2], Zoran Anđić[3], Jarmila Trpčevska[4], Beatrice Plešingerova[4], Jovana Đokić[3]
[1]University of Belgrade, Innovation Center of the Faculty of Technology and Metallurgy in Belgrade Ltd.,Belgrade, Serbia; [2]University of Belgrade, Faculty of Technology and Metallurgy, Belgrade, Serbia; [3]University of Belgrade, Innovation center of Faculty of Chemistry Ltd., Belgrade, Serbia; [4]Technical University of Košice, Faculty of Materials, Metallurgy and Recycling, Košice, Slovakia

12^{00}-12^{15} **Thermochemistry aspects of mechanochemistry activation of the flotation processes**
Milan M. Petrov, Marina S. Blagojev, Ljubiša D. Andrić, Dragan S. Radulović
Institute for Technology of Nuclear and other Raw Materials, Belgrade, Serbia

THIRD ORAL SESSION

Friday, September 7, 2018
Main Conference Hall

Session I: 9^{00}-10^{45}
Chairpersons: Nenad L. Ignjatović and Milena Špírková

09^{00}-09^{15} **CaP that kills: the intrinsic antimicrobial effect of calcium phosphate nanoparticles**
Victoria Wu
Advanced Materials and Nanobiotechnology Laboratory, Garage & Backyard @ Woodbridge, Irvine, CA 92604, USA

09^{15}-09^{30} **Cell-selective toxicity of hydroxyapatite-chitosan oligosaccharide lactate particles loaded with a steroid cancer inhibitor**
Nenad Ignjatović[1], Marija Sakač[2], Ivana Kuzminac[2], Vesna Kojić[3], Smilja Marković[1], Victoria Wu[4], Vuk Uskoković[5], Dragan Uskoković[1]
[1]Institute of Technical Sciences of the Serbian Academy of Science and Arts, Knez Mihailova 35/IV, P.O. Box 377, 11000 Belgrade, Serbia; [2]University of Novi Sad, Faculty of Sciences, Department of Chemistry, Biochemistry and Environmental Protection, Trg Dositeja Obradovića 3, 21000 Novi Sad, Serbia; [3]University of Novi Sad, Faculty of Medicine, Oncology Institute of Vojvodina, Put Dr Goldmana 4, Sremska Kamenica 21204, Serbia; [4]Advanced Materials and Nanobiotechnology Laboratory, Irvine, USA; [5]Department of Bioengineering, College of Medicine and College of Engineering, The University of Illinois at Chicago, Chicago, 851 South Morgan Street, Chicago, IL 60607-7052, USA

09^{30}-09^{45} **Synthesis of antimicrobial cobalt ferrite/gold nanocomposites**
Sonja Jovanović[1,2], Lea Udovc[1], Jelena Rmuš[2], Matjaž Spreitzer[1], Marija Vukomanović[1]
[1]Institute Jožef Stefan, Advanced Materials Department, Ljubljana, Slovenia; [2]University of Belgrade, Vinca Institute of Nuclear Sciences, Laboratory of Physics, Belgrade, Serbia

09^{45}-10^{00} **New agents for no-chemotherapy of socially significant diseases: structure and properties of nitrosile [1Fe -2S] ferredoxins mimetics – nitric oxide donors**
Nataliya A. Sanina
Russian Academy of Sciences Institute of Problems of Chemical Physics, 1, Acad. Semenov Av., 142432, Chernogolovka, Russia

10^{00}-10^{15} **Characterization of the TiNi surface after modified by electron beam and its effect on the morphology and cytoskeleton of mesenchymal stem cells**

Ekaterina Yu. Gudimova[1], Ludmila L. Meisner[1,3], Evgenii V. Yakovlev[2], Olga I. Shabalina[1,3]

[1]Institute of Strength Physics and Materials Science SB RAS, Tomsk, Russia; [2]Institute of High Current Electronics SB RAS, Tomsk, Russia; [3]National Research Tomsk State University, Tomsk, Russia

10^{15}-10^{30} **Bias voltage effect in the development of new beta/alpha-Ti-Nb-Zr biocompatible coating with low Young's modulus and high toughness for medical applications**

Emilio Frutos[1], Miroslav Karlík[2,3], José Antonio Jiménez[4], Tomas Polcar[1,5]

[1]Department of Control Engineering, Faculty of Electrical Engineering, Czech Technical University in Prague, Technická 2, Prague, Czech Republic; [2]Department of Materials, Faculty of Nuclear Sciences and Physical Engineering, Czech Technical University in Prague, Trojanova 13, 120 00 Prague, Czech Republic; [3]Charles University, Department of Physics of Materials, Ke Karlovu 5, 121 16 Prague, Czech Republic; [4]Centro Nacional de Investigaciones Metalúrgicas (CENIM-CSIC), Avd. Gregorio del Amo no 8, 28040 Madrid, Spain; [5]nCATS, University of Southampton, University Road, Southampton SO17 1BJ, United Kingdom

10^{30}-10^{45} **Waterborne polycarbonate-based polyurethane films**

Milena Špírková, Jiří Hodan, Jana Kredatusová and Luďka Machová
Institute of Macromolecular Chemistry AS CR, Heyrovského nám. 2, 162 06 Prague 6, Czech Republic

Break: 10^{45}-11^{15}

Session II: 11^{15}-12^{15}
Chairpersons: Jan Kusinski and Natalia Kamanina

11^{15}-11^{30} **Nanotechnology approach in optical materials modification**

Natalia Vladimirovna Kamanina
Lab for Photophysics of media with nanoobjects Vavilov State Optical Institute, Kadetskaya Liniya V.O., dom.5, korpus 2,St.- Petersburg, 199053, Russia
St.-Petersburg Electrotechnical University ("LETI"), Russia

11^{30}-11^{45} **Synthesis of highly porous monolithic 3D nanomaterials based on aluminum oxides: development of methods for their functionalization using structural and chemical modification**

Anatole N. Khodan[1], Alexander G. Martynov[1], Andrei V. Bykov[5], Yulia G. Gorbunova[1], Aslan Yu. Tsivadze[1], Mohamed R. Amamra[2], Andrei V Kanaev[2], Alexander E. Baranchikov[3], Vladimir K. Ivanov[3], Sergey P. Kopitsa[4], Andrei A. Konovko[5], Khursand E. Yorov[6]

[1]A.N. Frumkin Institute of Physical Chemistry and Electrochemistry RAS (IPCE RAS) Moscow, Russia; [2]Laboratoire des Sciences des Procédés et des Matériaux CNRS, Université Paris 13, Villetaneuse, France; [3]N.S. Kurnakov Institute of General and Inorganic Chemistry RAS (IGIC RAS) Moscow, Russia; [4]B.P. Konstantinov Petersburg Nuclear Physics Institute, National Research Center ""Kurchatov Institute"", Gatchina, Russia; [5]M.V. Lomonosov Moscow State University, Physics Faculty, Chair of General Physics and Wave Processes, Moscow, Russia; [6]M.V. Lomonosov Moscow State University, Department of Materials Science, Moscow, Russia

11^{45}-12^{00} **Amorphous FeSiB ribbons crystallized by using laser interference treatment**

Jan Kusinski[1], Olaf Czyz[1], Agnieszka Radziszewska[1], Roman Ostrowski[2], Antoni Rycyk[2], Jarosław Kanak[3], Małgorzata Kac[4]

[1]AGH – University of Science and Technology, Faculty of Metals Engineering and Industrial Computer Science, Department of Surface Engineering and Materials Characterisation, 30 Mickiewicza, 30-059 Krakow, Poland; [2]Military University of Technology, Institute of Optoelectronics, Warsaw, 2 Gen. S. Kaliskiego, 00-908 Warsaw, Poland; [3]AGH – University of Science and Technology, Faculty of Computer Science, Electronics and Telecommunications, Department of Electronics, 30 Mickiewicza, 30-059 Krakow, Poland; [4]Institute of Nuclear Physics Polish Academy of Sciences, ul. Radzikowskiego 152, 31-342 Krakow, Poland

12^{00}-12^{15} **Correlation methods of analysis in studies of mechanochemical reactions**

Dmitriy S. Rybin, Grigoriy N. Konygin

The Udmurt Federal Research Center of the Ural Branch of the Russian Academy of Sciences, Physical-Technical Institute, Department of Physics and Chemistry of Nanomaterials, Laboratory of Mechanoactivation of Organic Systems, Izhevsk 426001, Russia

FOURTH ORAL SESSION

Small Conference Hall

Session I: 9^{00}-10^{30}
Chairpersons: Aleksandr Kryshtal and Andrey V. Zadesenets

9^{00}-9^{15} **In situ aberration-corrected STEM of metal-induced crystallization: the case of the Ag/Ge couple**
Aleksandr Kryshtal[1], Sergiy Bogatyrenko[2], Alexey Minenkov[2], Paulo Ferreira[3,4,5]
[1]AGH University of Science and Technology, Faculty of Metals Engineering and Industrial Computer Science & International Centre of Electron Microscopy for Material Science, Krakow, Poland; [2]Karazin National University, Department of Physics and Technology, Kharkiv, Ukraine; [3]Iberian International Institute of Nanotechnology, Braga, Portugal; [4]The University of Texas at Austin, Materials Science & Engineering Program, Austin, USA; [5]University of Lisbon, Instituto Superior Técnico, Mechanical Engineering Department and IDMEC, Lisboa, Portugal

9^{15}-9^{30} **Microstructure characterization of a nanostructured austenitic steel annealed under high hydrostatic pressure**
Agnieszka T. Krawczynska[1], Stanislaw Gierlotka[2], Przemyslaw Suchecki[1], Daria Setman[3], Boguslawa Adamczyk-Cieslak[1], Michal Gloc[1], Witold Chrominski[1], Malgorzata Lewandowska[1], Michael Zehetbauer [3]
[1]Warsaw University of Technology, Faculty of Materials Science and Engineering, Warsaw, Poland; [2]Institute of High Pressure Physics UNIPRESS, Warsaw, Poland
[3]University of Vienna, Faculty of Physics, Vienna, Austria

9^{30}-9^{45} **Double complex salts as precursors of bimetallic nanoalloys**
Evgeny Y. Filatov, Andrey V. Zadesenets, Sergey V. Korenev
Nikolaev Institute of Inorganic Chemistry of Siberian Branch of the Russian Academy of Sciences, Novosibirsk, Russia; Novosibirsk State University, Novosibirsk, Russia

9^{45}-10^{00} **Oxalatopalladates of Co, Ni and Zn as precursors of nanoalloys: from thermal properties to supported catalysts**
Andrey V. Zadesenets, Ilia A. Garkul, Sergey V. Korenev
Nikolaev Institute of Inorganic Chemistry SB RAS, Novosibirsk, Russian Federation
Novosibirsk State University, Novosibirsk, Russia

10^{00}-10^{15} **Ni-Pd/Al_2O_3 catalyst in the form of foam for dry methane reforming**
Vesna Nikolić[1], Zoran Anđić[2], Dragana Radovanović[1], Jelena Uljarević[1], Maja Stevanović[1]
[1]University of Belgrade, Innovation Center of the Faculty of Technology and Metallurgy in Belgrade Ltd, Belgrade, Serbia; [2]University of Belgrade, Innovation Center of the Faculty of Chemistry, Belgrade, Serbia

10^{15}-10^{30} **Modeling transport through an environment crowded by obstacles of different shapes and sizes**

Dijana Dujak[1], Aleksandar Karač[2], Ivana Lončarević[3], Ljuba Budinski-Petković[3], Zorica M. Jakšić[4], Slobodan B.Vrhovac[4]
[1]University of Zenica, Faculty of Metallurgy and Materials, Zenica, Bosnia and Herzegovina, [2]University of Zenica, Polytechnic faculty, Zenica, Bosnia and Herzegovina, [3]University of Novi Sad, Faculty of Technical Sciences, Novi Sad, Serbia, [4]University of Belgrade, Institute of Physics Belgrade, Scientific Computing Laboratory, Center for the Study of Complex Systems, Belgrade, Serbia

Break: 10^{30}-11^{00}

Session II: 11^{00}-12^{00}
Chairpersons: Jan Grym and Ekaterina D. Grayfer

11^{00}-11^{15} **Interfaces and mechanisms: a molecular dynamics approach to fine tunning manipulation of interfaces**

Alberto Fraile[1], Hakan Yavas[1], Emilio Frutos[1], Teodor Huminiuc[2], Tomas Polcar[1,2]
[1]Department of Control Engineering, Czech Technical University, Czech Republic; [2]Engineering Science, Faculty of Engineering and the Environment. University of Southampton, United Kingdom

11^{15}-11^{30} **Properties of ZnO nanorods grown in continuous-flow reactors**

Jan Grym, Roman Yatskiv, Hana Faitová, Šárka Kučerová, Nikola Bašinová, Ondřej Černohorský, Stanislav Tiagulskyi, David Roesel, Jan Vaniš
Institute of Photonics and Electronics of the CAS, Prague, Czech Republic

11^{30}-11^{45} **The use of layered nanomaterials in composites with metals and their compounds**

Ekaterina D. Grayfer, Mariia N. Kozlova, Sofya B. Artemkina, Pavel A. Poltarak, Anastasiia A. Poltarak, Elena E. Plotnikova, Vladimir E. Fedorov
Nikolaev Institute of Inorganic Chemistry (NIIC) of the Siberian Branch of the Russian Academy of Sciences, Novosibirsk, Russia; Novosibirsk State University, Novosibirsk, Russia

11^{45}-12^{00} **Dielectric behaviour of polyimide/silica based nanocomposites at low temperatures**

Marius Andrei Olariu[1], Arcire Alexandru[1], Elena Hamciuc[2]
[1]Gh. Asachi" Technical University, Electrical Engineering Faculty, B-dul D. Mangeron 67, Iasi-700050, Romania; [2]Petru Poni" Institute of Macromolecular Chemistry, Aleea Gr. Ghica Voda 41A, 700487 Iasi, Romania

POSTER SESSION I

Tuesday, September 4, 2018, 20^{00}-22^{00}

SYMPOSIUM A: ADVANCED METHODS IN SYNTHESIS AND PROCESSING OF MATERIALS

P.S.A.1. **Plasma assisted strategies for advanced synthesis and processing of materials**
Siavash Assadolahi[1,2], Daniele Benetti[3], Claude Côté[1], Ryan Porter[1], Sean Wolfe[1], Fabian Ambriz Vargas[3], , Diego Mantovani[4], Andreas Ruediger[3], Luc Stafford[2], Andranik Sarkissian[1]
[1]Plasmionique Inc, Varennes, QC, Canada; [2]University of Montreal, QC, Canada; [3]INRS-EMT, Varennes, QC, Canada, [4]Biomaterials Engineering Unit, Saint-François d'Assise Hospital, Laval University, QC, Canada

P.S.A.2. **Polimorphous transformations in mechanoactivated molecular crystals**
Dmitriy S. Rybin[1], Grigoriy N. Konygin[1], Kirill N. Susloparov[2], Alla A. Zhygalova[2]
[1]The Udmurt Federal Research Center of the Ural Branch of the Russian Academy of Sciences, Physical-Technical Institute, Laboratory of Mechanoactivation of Organic Systems, Izhevsk, RU; [2]Mezomax Inc, San Francisco, USA

P.S.A.3. **Microstructure development of the Cu-Ti-TiB_2 composite obtained by laser sintering**
Jelena Stašić, Dušan Božić
Centre of Excellence-CextremeLab, Institute of Nuclear Sciences "Vinča", University of Belgrade, Mike Petrovića Alasa 12-14, PO Box 522, 11001 Belgrade, Serbia

P.S.A.4. **Anomalous electron pulse annealing in Ti implanted GaP**
Zbigniew Werner[1], Marek Barlak[1], Alexey Markov[2], Dmitry Proskurovsky[2], René Heller[3]
[1]National Centre for Nuclear Research, Otwock, Poland; [2]High Current Electronics, Institute, Tomsk, Russia; [3]Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany

P.S.A.5. **The effect of nitrogen ion implantation on the properties of WC-Co composites used in wood-based materials machining**
Jacek Wilkowski[1], Marek Barlak[2], Roman Böttger[3], Zbigniew Werner[2], Joanna Wachowicz[1], Paweł Czarniak[1]
[1]Warsaw University of Life Sciences - SGGW, Faculty of Wood Technology, Department of Mechanical Processing of Wood, Warsaw, Poland; [2]National Centre for Nuclear Research Świerk - NCBJ, Plasma and Ion Technology Division (FM2),

Otwock, Poland, [3]Helmholtz-Zentrum Dresden-Rossendorf, Institute of Ion Beam Physics and Materials Research, Ion Beam Center, Dresden, Germany

P.S.A.6. **Shungite - a russian mineral: possible application as a microwave absorber**

Nina Obradović[1], Mihajlo Gigov[2], Aleksandar Đorđević[3], Frank Kern[4], Svetlana Dmitrović[5], Branko Matović[5], Antonije Đorđević[6,7], Vladimir Pavlović[1]
[1]Institute of Technical Sciences of SASA, Knez Mihailova 35/IV, 11000 Belgrade, Serbia; [2]Mining Institute Ltd., Batajnički put 2, 11080 Belgrade, Serbia; [3]Faculty of Science, Department of Chemistry, Biochemistry and Environmental Protection, University of Novi Sad, Trg Dositeja Obradovica 3, 21000 Novi Sad, Serbia; [4]Universität Stuttgart, Institut für Fertigungstechnologie keramischer Bauteile (IFKB), D- 70567 Stuttgart, Germany; [5]University of Belgrade, Vinča Institute of Nuclear Sciences, Mike Petrovića Alasa 12-14, 11000 Belgrade, Serbia; [6]School of Electrical Engineering, University of Belgrade, Bulevar kralja Aleksandra 73, 11000 Belgrade, Serbia; [7]Serbian Academy of Sciences and Arts, Knez Mihailova 35, 11000 Belgrade, Serbia

P.S.A.7. **Sintering of alumina doped with different oxides, followed by sensitive dilatometer**

Suzana Filipović[1], Nina Obradović[1], Smilja Marković[1], Antonije Đorđević[2,3], Aleksandra Dapčević[4], Jelena Rogan[4], Vladimir Pavlović[4]
[1]Institute of Technical Sciences of SASA, Knez Mihailova 35/IV, 11000 Belgrade Serbia; [2]School of Electrical Engineering, University of Belgrade, Bulevar kralja Aleksandra 73, 11000 Belgrade, Serbia; [3]Serbian Academy of Sciences and Arts, Knez Mihailova 35, 11000 Belgrade, Serbia; [4]Faculty of Technology and Metallurgy, University of Belgrade, Karnegijeva 4, 11120 Belgrade, Serbia

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P.S.A.8. **$Ni_{1-x}Mo_x$ dispersed alloys: synthesis and catalytic properties in 1,2-dichloroethane decomposition process**

Yuliya V. Rudneva[1], Yury V. Shubin[1], Pavel E. Plyusnin[1],Yurii I. Bauman[2], Ilya V. Mishakov[2]
[1]Nikolaev Institute of Inorganic Chemistry SB RAS, Novosibirsk, Russia; [2]Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia

P.S.A.9. **The influence of the method of preparation and temperature of thermal treatment on the phase composition of the $NiO-Al_2O_3$ catalyst using the X-ray diffraction method**

Matilda M. Lazić.
Technical College of Applied Sciences in Zrenjanin, Zrenjanin, Serbia

P.S.A.10. **Chalcogenides of niobium and molybdenum with stoichiometry metal: chalcogen = 2:3**
M.N. Kozlova[1], A.N. Enyashin[2], E.D. Grayfer[1], V.E. Fedorov[1]
[1]Nikolaev Institute of Inorganic Chemistry SB RAS, Novosibirsk, Russia; [2]Institute of Solid State Chemistry UB RAS, Ekaterinburg, Russia

P.S.A.11. **Crystallographic structure of electron pulse annealed GaP implanted with Ti**
Marek Barlak[1], Zbigniew Werner[1], Alexey Markov[2], Dmitry Proskurovsky[2], René Heller[3]
[1]National Centre for Nuclear Research, Otwock, Poland; [2]High Current Electronics Institute, Tomsk, Russia; [3]Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany

P.S.A.12. **The influence of boron on synthesis and characteristics of PM copper-zirconium alloys**
Dušan Božić, Jelena Stašić, Jovana Ružić
Centre of Excellence-CextremeLab, Institute of Nuclear Sciences "Vinča", University of Belgrade, Mike Petrovića Alasa 12-14, PO Box 522, 11001 Belgrade, Serbia

P.S.A.13. **Synthesis and structure of zinc(II) complex with 2-acetylpyridine - aminoguanidine**
Mirjana M. Radanović[1], Ljiljana S. Vojinović-Ješić[1], Marko V. Rodić[1], Željko K. Jaćimović[2], Katalin Mészáros Szécsényi[1]
[1]University of Novi Sad, Faculty of Sciences, Department of Chemistry, Biochemistry and Environmental Protection, Novi Sad, Serbia; [2]University of Montenegro, Faculty of Metallurgy and Technology, Podgorica, Montenegro

P.S.A.14. **Influence of boron on modified characteristics of iron-based alloys with particular reference to boronizing**
Andjelka Milosavljević[1], Radica Prokić-Cvetković[1], Zoran Radaković[1], Aleksandar Jovović[1], Vuk Adžić[1], Zoran Marković[2]
[1] University of Belgrade, Faculty of Mechanical Engineering, Belgrade, Serbia;
[2] University of Belgrade, Faculty of Economics, Belgrade, Serbia

SYMPOSIUM B: ADVANCED MATERIALS FOR HIGH-TECHNOLOGY APPLICATIONS

P.S.B.1. **Autowaves of localized plastic deformation in a material with an unstable phase structure**

Vladimir I. Danilov, Vadim V. Gorbatenko, Dina V. Orlova, Lidia V. Danilova
Institute of Strength Physics and Materials Science of Siberian Branch of Russian Academy of Sciences, Russia

P.S.B.2. **High temperature stability of YSZ and mullite-YSZ coatings deposited by atmospheric plasma spraying**

David Jech[1], Pavel Komarov[2], Karel Slámečka[1], Michaela Remešová[1], Lucie Dyčková[1], Ladislav Čelko[1]
[1]Brno University of Technology, CEITEC – Central European Institute of Technology, Materials Characterization and Advanced Coatings, Brno, Czech Republic; [2]Novosibirsk State Technical University, Faculty of Mechanical Engineering and Technologies, Novosibirsk, Russia

P.S.B.3. **Barium-magnesium-aluminium-silicate environmental barrier coatings: powder manufacturing and plasma spraying**

Lenka Klakurková, Ladislav Čelko, David Jech, Michaela Remešová, Martin Juliš, Pavel Gejdoš, Karel Slámečka
Brno University of Technology, CEITEC, Materials Characterization and Advanced Coatings, Brno, Czech Republic

P.S.B.4. **Magnetic and mechanical properties of nickel-based superalloy after laser induced deformation**

Anđelka Milosavljević[1], Suzana Polić[2], Milesa Srećković[3], Sanja Petronić[4], Darko Vasiljević[5], D.Bekrić[1], Dušan Nasradin[5],
[1]University of Belgrade, Faculty of Mechanical Engineering, Belgrade, Serbia; [2]Central Institute for Conservation, Belgrade, Serbia; [3]University of Belgrade, Faculty of Electrical Engineering, Belgrade, Serbia; [4]University of Belgrade, Institute of Nuclear Science Vinca, Belgrade, Serbia; [5]Institute of Physics, Belgrade, Serbia

P.S.B.5. **Influence of diffusion coatings on magnetic properties of $41CrMo_4$ steel**
Zina Pavloušková[1], David Jech[1], Ladislav Čelko[1], Rostislav Huzlík [2], Tomáš Bulín [2], Lenka Klakurková[1], Jiří Švejcar[1], Jozef Kaiser[1]
[1]Brno University of Technology, CEITEC, Materials Characterization and Advanced Coatings, Brno, Czech Republic; [2]Brno University of Technology, Faculty of Electrical Engineering and Communication, Dept. of Electrical Engineering, Brno, Czech Republic

P.S.B.6. **Electrical and magnetic properties of multiferroic $BiFeO_3$-based flexible composites**
Nikola I. Ilić[1], Guilhermina F. Teixeira[2], Jelena D. Bobić[1], Mirjana M. Vijatović Petrović[1], Adis. S. Džunuzović[1], Maria A. Zaghete[2], Biljana D. Stojanović[1]
[1]University of Belgrade, Institute for Multidisciplinary Research, Materials science department, Belgrade, Serbia; [2]State University of Sao Paulo, Chemistry Institute, Araraquara, Sao Paulo, Brasil

P.S.B.7. **Characterization of different MMC coatings deposited by PTA and FS processes**
Vesna M. Maksimović[1], Aleksandar M. Maslarević[2], Gordana M. Bakić[3], Miloš B. Đukić[3], Bratislav M. Rajičić[3], Vladimir D. Pavkov[1]
[1]University of Belgrade, Vinča, Institute of Nuclear Sciences, Belgrade, Serbia; [2]University of Belgrade, Innovation Center, Faculty of Mechanical Engineering, Belgrade, Serbia; [3]University of Belgrade, Faculty of Mechanical Engineering, Belgrade, Serbia

P.S.B.8. **Determination of ceramic proppant impact on efficiency of shale gas production and the environment**
Joanna Szymanska, Pawel Wisniewski, Jaroslaw Mizera
Warsaw University of Technology, Faculty of Materials Science and Engineering, Warsaw, Poland

P.S.B.9. **Temperature dependence of thermal conductivity of graphene monolayer in the framework of Debay and Calawey models**
Stevo Jaćimovski[1], Dejan Raković[2]
[1]Academy of Criminalistic and Police Studies, Belgrade, Serbia; [2]University of Belgrade, Faculty of Electrical Engineering, Serbia

POSTER SESSION II

Wednesday, September 5, 2018, 20^{00}-22^{00}

SYMPOSIUM B: ADVANCED MATERIALS FOR HIGH-TECHNOLOGY APPLICATIONS

P.S.B.10. **Cup anemometer tribology and revised IEC standard**
Ivan Popović, Miodrag Zlatanović
University of Belgrade, School of Electrical Engineering, Serbia

P.S.B.11. **Prediction of new B_6O structures and their properties using ab initio data mining approach**
Jelena Zagorac[1,2], Dejan Zagorac[1,2], Dragana Jordanov[1], Milena Rosić[1], Maria Čebela[1], Jelena Luković[1,2], Branko Matović[1,2]
[1]Institute of Nuclear Sciences Vinča, Materials Science Laboratory, Belgrade University, Belgrade, Serbia; [2]Center for synthesis, processing and characterization of materials for application in the extreme conditions-CextremeLab, Belgrade, Serbia

P.S.B.12. **Impact of thickness on properties of high-entropy and conventional metallic glasses**
Ramir Ristić[1], Ahmed Kuršumović[2], Ignacio A. Figueroa[3], Emil Babić[4]
[1]Department of Physics, University of Osijek, Trg Ljudevita Gaja 6, HR-3100 Osijek, Croatia; [2]Department of Materials Science, Cambridge University, Pembroke Street, Cambridge CB2 3QZ, UK; [3]Institute for materials research-UNAM, Ciudad Universitaria Coyoacan, C.P. 04510 Mexico D.F., Mexico; [4]Department of Physics, Faculty of Science, Bijenička cesta 32, 10002 Zagreb, Croatia

P.S.B.13. **Crystal structure and X-Ray spectroscopic properties of R.E.2Ni12P5 compounds**
Ivan D. Shcherba[1], Henrik Noga[2], Viktor N. Antonov[3], Olga V. Zhak[1], Dragan Uskoković[4], Bohdan M. Jatcyk[5]
[1]Ivan Franko National University of Lviv, Ukraine; [2]Institute of Technology, the Pedagogical University of Cracow, Podchorazych st. 2 Cracow 30-084 Poland; [3]Institute of Physics of Metals, NASU, Kyiv, Ukraine; [4]Institute of Technical Sciences of SASA Knez Mihailova 35/IV, PO Box 377 11000 Belgrade, Serbia; [5]Lviv National University of Veterinary Medicine and Biotechnologies, Lviv, Ukraine

P.S.B.14. **Study of the interaction between graphene oxide and 12-tungstophosphoric acid in their nanocomposite**

Željko Mravik[1], Danica Bajuk-Bogdanović[2], Smilja Marković[3], Janez Kovač[4], Ivanka Holclajtner-Antunović[2], Zoran Jovanović[1]

[1]University of Belgrade, Vinča Institute of Nuclear Sciences, Laboratory of Physics, Belgrade, Serbia; [2]University of Belgrade, Faculty of Physical Chemistry, Belgrade, Serbia; [3]Institute of Technical Sciences of SASA, Belgrade, Serbia; [4]Jožef Stefan Institute, Department of Surface Engineering and Optoelectronics, Ljubljana, Slovenia

P.S.B.15. **Transport coefficients of Ar^+ in BF_3 gas**

Željka D. Nikitović, Vladimir D. Stojanović, Zoran M. Raspopović
Institute of Physics, University of Belgrade, Pregrevica 118, Belgrade, Serbia

P.S.B.16. **The influence of basalt content on the properties of austenitic stainless steel 316L**

Vladimir D. Pavkov[1], Gordana M. Bakić[2], Vesna Maksimović[1], Branko Matović[1], Tatjana Volkov-Husović[3]

[1]University of Belgrade, Vinca Institute of Nuclear Sciences, Belgrade, Serbia; [2]University of Belgrade, Faculty of Mechanical Engineering, Belgrade, Serbia; [3]University of Belgrade, Faculty of Technology and Metallurgy, Belgrade, Serbia

P.S.B.17. **Comparative study on noble metal based nanocatalysts on different supports for low temperature fuel cells application**

Ljiljana M. Gajić Krstajić[1], Velimir R. Radmilović[2,6], Peter Ercius[3], Borka M. Jović[4], Vladimir D. Jović[4], Piotr Zabinski[5], Nevenka R.Elezović[4]

[1]Institute of Technical Sciences SASA, Knez Mihajlova 45, 11000 Belgrade, Serbia; [2]Faculty of Technology and Metallurgy University of Belgrade, Karnegijeva 4, Belgrade; [3]National Center for Electron Microscopy, LBNL University of California, Berkeley, USA; [4]Institute for Multidisciplinary Research University of Belgrade, P.O. Box 33, 11030 Belgrade, Serbia; [5]AGH University of Science and Technology, Faculty of Non-Ferrous Metals, Al. Mickiewicza 30, Krakow, Poland; [6]Serbian Academy of Sciences and Arts, Knez Mihailova 35, 11000 Belgrade, Serbia

P.S.B.18. **Experimental Study of Drying Process of Porous Materials**

[1]Abdulhamied Twier, [2]Elhassen Ali A. Omer, [3]Ramadan A. Almadani, [4]Mustafa Jarnaz, [5]Abdurrahman Houssein

[1]Industrial Authority, Tripoli, Libya; [2]Mechanical Engineering department, Engineering faculty, Zawia University, Zawia, Libya; [3]Libyan Authority for Research of Natural Science and Technology, Tripoli, Libya; [4]Libyan Academy for Higher Studies, Tripoli, Libya; [5]Faculty of Engineering, Zintan University, Zintan, Libya

SYMPOSIUM C: NANOSTRUCTURED MATERIALS

P.S.C.1. **Production of synthesis gas by carbon dioxide over catalytically active molybdenum based carbide and nitride nanowires**
Mrzel Aleš[1], Damjan Vengust[1], Janez Kovač[1], Venkata Dasireddy[2], Blaž Likozar[2]
[1]Jozef Stefan Institute, Jamova 39, 1000 Ljubljana, Slovenia; [2]National Institute of Chemistry, Hajdrihova 19, 1000 Ljubljana, Slovenia

P.S.C.2. **Nanofibrous polyaniline preparation by the oxidative polymerization of aniline with the oxidant in excess: Raman and FTIR spectroscopy study**
Jana Mišurović, Gordana Ćirić-Marjanović
University of Belgrade, Faculty of Physical Chemistry, Studentski trg 12-16, 11158 Belgrade, Serbia

P.S.C.3. **One-pot synthesis of biocompatible $NaYF_4$:Yb,Er nanoparticles for cell labeling**
Ivana Dinić[1], Marina Vuković[1], Lidija Mančić[2], Aleksandar Krmpot[3], Olivera Milošević[2]
[1]Innovation Center of the Faculty of Chemistry, University of Belgrade, Serbia; [2]Institute of Technical Sciences of SASA, Belgrade, Serbia; [3]Photonic Center, Institute of Physics Belgrade, University of Belgrade, Belgrade, Serbia

P.S.C.4. **Shape-controlled synthesis of CeO_2 nanoparticles: effects of different precursors on the formation of oxygen vacancies**
Igor Đerđ[1], Jelena Bijelić[1], Chenwei Li[2,3], Bernd Smarsly[2], Herbert Over[2]
[1]Department of Chemistry, Josip Juraj Strossmayer University of Osijek, Cara Hadrijana 8/A, 31000 Osijek, Croatia; [2]Physikalisch-Chemisches Institut, Justus-Liebig-Universität, Heinrich-Buff-Ring 17, 35392 Gießen, Germany; [3]Key Laboratory for Advanced Materials, Research Institute of Industrial Catalysis, School of Chemistry and Molecular Engineering, East China University of Science and Technology, Shanghai 200237, China

P.S.C.5. **Characterization of mechanochemically synthesized $CuInS_2$/ZnS nanocomposite**
Erika Dutková[1], Nina Daneu[2], Zdenka Bujňáková[1], Matej Baláž[1], Jaroslav Kováč[3], Jaroslav Kováč Jr. [3]
[1]Institute of Geotechnics, Slovak Academy of Sciences, 04001 Košice, Slovakia; [2]Jožef Stefan Institute, Department for Nanostructured Materials, Ljubljana, SI-1000, Slovenia; [3]Institute of Electronics and Photonics, Slovak University of Technology, 81219 Bratislava, Slovakia

P.S.C.6. **Preparation and characterization of nanostructured silver supported on carbonaceous material obtained by hydrothermal carbonization process**

Branka V. Kaluđerović[1], Vesna LJ. Mandušić[2], Djuro M. Čokeša[3], Jelena Hranisavljević[2], Srđan Đ Milanović[1], Zlatko LJ.Rakočević[4]

[1]University of Belgrade, Serbia, INN Vinca, Center for the synthesis, processing and characterization of materials for use in extreme conditions, Belgrade, Serbia; [2]University of Belgrade, Serbia, INN Vinca,Laboratory of Radiobiology and Molecular Genetics; [3]University of Belgrade, Serbia, INN Vinca, Laboratory of Chemical Dynamics and Permanent Education; [4]University of Belgrade, Serbia, INN Vinca, Laboratory of Atomic Physics, Serbia

P.S.C.7. **Morphological, microstructural and magnetic characteristics of electrodeposited Ni-Fe-W-Cu alloy powders**

Tomislav Trišović, Miroslav Spasojević, Aleksa Maričić, Milica Spasojević

Institute of Technical Sciences of Serbian Academy of Science and Arts, Belgrade, Serbia; Joint Laboratory for Advanced Materials of SASA, Section for Amorphous Systems; Faculty of Technical Sciences, Čačak, University of Kragujevac, Čačak, Serbia; Faculty of Chemistry, University of Belgrade, Belgrade, Serbia

P.S.C.8. **Adsorption of arsenic(III) from aqueous solution on carbon cryogel and carbon cryogel/ceria composite**

Tamara Z. Minović Arsić[1], Ana M. Kalijadis[1], Bojan M. Jokić[2], Milovan M. Stoiljković[1], Biljana M. Babić[3]

[1]University of Belgrade, Vinča Institute of Nuclear Sciences, Belgrade, Serbia; [2]University of Belgrade, Faculty of Applied Arts, Belgrade, Serbia; [3]University of Belgrade, Institute of Physics Belgrade, Belgrade, Serbia

P.S.C.9. **Peculiar optical features of molecular crystalline films**

Jovan P. Šetrajčić[1,2], Igor J. Šetrajčić[1], Ana J. Šetrajčić–Tomić[3]

[1]University of Novi Sad, Faculty of Sciences, Department of Physics, Novi Sad, Vojvodina, Serbia; [2]University "Union – Nikola Tesla", Faculty of Sports, Novi Beograd, Vojvodina, Serbia; [3]University of Novi Sad, Faculty of Medicine, Department of Pharmacy, Novi Sad, Vojvodina, Serbia

SYMPOSIUM D: ECO-MATERIALS AND ECO-TECHNOLOGIES

P.S.D.1. **Lipid production with a high palmitoleic acid content by Debaryomyces globosus yeast under conditions of continuous cultivation**

Nadezda N. Stepanova[1], Grigorii I. Morgunov[2], Svetlana V. Kamzolova[1]
[1]G.K. Skryabin Institute of Biochemistry and Physiology of Microorganisms, Russian Academy of Sciences, Pushchino, Moscow region, 142290, Russia; [2]Peoples' Friendship University of Russia (RUDN University), Moscow, 117198, Russia

P.S.D.2. **New multifunctional materials based on steel slag**

Ivana Milašević[1], Ljubica Ivanović[1], Irena Nikolić[1,2], Dijana Đurović[2], Smilja Marković[3], Vuk Radmilović[4], Velimir R. Radmilović[5,6]
[1]Institut of Public Health of Montenegro, Podgorica, Montenegro; [2]University of Montenegro, Faculty of Metallurgy and Technology, Podgorica,Montenegro; [3]Institute of Technical Sciences of SASA, Belgrade, Serbia; [4]Innovation center, University of Belgrade, Faculty of Technology and Metallurgy, Belgrade, Serbia; [5]Serbian Academy of Sciences and Arts, Belgrade, Serbia; [6]Faculty of Technology and Metallurgy University of Belgrade, Karnegijeva 4, Belgrade

P.S.D.3. **Biological markers of the petroleum alkane fraction as a forensic tool for determining the presence of petroleum pollutants in the environment**

Nada Vidović[1], Ivan Samelak[1], Milica Balaban[1], Mališa Antić[2], Tatjana Šolević-Knudsen[3], Branimir Jovančićević[4]
[1]University of Banja Luka, Faculty of Natural Sciences and Mathematics, 78000 Banja Luka, Bosnia and Herzegovina; [2]University in Belgrade, Faculty of Agriculture, 11080, Belgrade, Serbia; [3]University of Belgrade, Center of Chemistry, Institute of Chemistry, Technology and Metallurgy, 11000 Belgrade, Serbia; [4]University of Belgrade, Faculty of Chemistry, 11001 Belgrade, Serbia

POSTER SESSION III

Thursday, September 6, 2018, 20^{00}-22^{00}

SYMPOSIUM E: BIOMATERIALS

P.S.E.1. **Addition of porogens improved the characteristics of biodegradable implants made of poly(ε-caprolactone)/calcium phosphate ceramic composites**

Chang-Chin Wu[1,2], Kai-Chiang Yang[3,4], Feng-Huei Lin[5]
[1]Department of Orthopedics, En Chu Kong Hospital, New Taipei City, Taiwan; [2]Department of Orthopedics, National Taiwan University Hospital, College of Medicine, National Taiwan University, Taipei, Taiwan; [3]Department of Organ Reconstruction, Institute for Frontier Medical Sciences, Kyoto University, Kyoto, Japan; [4]School of Dental Technology, College of Oral Medicine, Taipei Medical University, Taipei, Taiwan; [5]Ins. of Biomed. Eng., National Taiwan University, Taiwan

P.S.E.2. **The application of hydroxyapatite as the Bletilla striata polysaccharide carrier for sarcopenia treatment**

Ya-Jyun Liang[1], Jia-Yu Hong[1], Chun-Han Hou[2], Feng-Huei Lin[1]
[1]National Taiwan University, Institute of Biomedical Engineering, Taipei, Taiwan; National [2]Taiwan University Hospital, Department of orthopedic surgery, Taipei, Taiwan

P.S.E.3. **Hydroxyapatite/gelatin particles embedding stromal cell-derived factor-1 for bone tissue engineering**

Chih Hsiang Fang[1], Yi Wen Lin[1], Jui Sheng Sun[2], Feng Huei Lin [1,3]
[1]Institute of Biomedical Engineering, College of Medicine and College of Engineering, National Taiwan University, Taipei 100, Taiwan; [2]Department of Orthopedic Surgery, National Taiwan University Hospital, Taiwan; [3]Division of Biomedical Engineering and Nanomedicine Research, National Health Research Institutes, Miaoli 350, Taiwan

P.S.E.4. **A novel multilayer capsule as desensitizing agent for dental hypersensitivity**

Kuo-Hui Chiu[1], Hsiu-Min Chen[1], Yuan-Yu Hsia[1], Ting-Ru Chung[2], Chih-Yu Shu[3], Chia-Yung Lin[4], Cherng-Jyh Ke[1,3]
[1]China Medical University, College of Biopharmaceutical and Food Sciences, Department of Biological Science and Technology, Taichung, Taiwan; [2]China Medical University, College of Medicine, Department of Biomedical Imaging and Radiological Science, Taichung, Taiwan; [3]China Medical University Hospital, Biomaterial Translational Research Center, Taichung, Taiwan; [4]Taichung Hospital, Ministry of Health and Welfare, Department of Dentistry, Taichung, Taiwan

P.S.E.5. **Electrospun silk fibroin composite scaffold for tendon repair**
Yi-You Huang
Institute of Biomedical Engineering, National Taiwan University, Taipei, Taiwan.

P.S.E.6. **BMP-2 and insulin delivered from plasma synthesis of carbon-based nanocarriers for bone regeneration**
Yi Wen Lin[1], Chih Hsiang Fang[1], Jui Sheng Sun[2], Feng Huei Lin[1,3]
[1]Institute of Biomedical Engineering, College of Medicine and College of Engineering, National Taiwan University, Taipei 100, Taiwan; [2]Department of Orthopedic Surgery, National Taiwan University Hospital, Taiwan; [3]Division of Biomedical Engineering and Nanomedicine Research, National Health Research Institutes, Miaoli 350, Taiwan

P.S.E.7. **Rare earth dual-doped multifunctional hydroxyapatite particles for potential application in preventive medicine**
Nenad Ignjatović[1], Lidija Mančić[1], Zoran Stojanović[1], Marko Nikolić[2], Srečo Škapin[3], Ljiljana Veselinović[1], Dragan Uskoković[1]
[1]Institute of Technical Sciences of the Serbian Academy of Science and Arts, Knez Mihailova 35/IV, P.O. Box 377, 11000 Belgrade, Serbia; [2]Photonic Center, Institute of Physics Belgrade, University of Belgrade, Zemun, Belgrade, Serbia; [3]Jožef Stefan Institute, Jamova 39, 1000 Ljubljana, Slovenia

P.S.E.8. **The processing and application of modified dental composites and dental inserts based on Mg-doped HAp**
Đorđe Veljović[1], Tamara Matić[1], Giuma Ayoub[1], Maja Ležaja Zebić[2], Vesna Miletić[2], Rada Petrović[1], Đorđe Janaćković[1]
[1]University of Belgrade, Faculty of Technology and Metallurgy, Department of Inorganic Chemical Technology, Karnegijeva 4, 11120 Belgrade, Serbia, [2]University of Belgrade, School of Dental Medicine, DentalNet Research Group, Rankeova 4, Belgrade, Serbia.

P.S.E.9. **Hybrid dental composites with improved mechanical properties**
Abdulsalam. A. Elmadani[1], Ivana M. Radović[2], Marija N. Radojević[1], Miloš. Petrović[1], Dušica. B. Stojanović[1], Petar S. Uskoković[1], Vesna J. Radojević[1]
[1]University of Belgrade, Faculty of Technology and Metallurgy, Belgrade, Serbia; [2]University of Belgrade, Vinča Nuclear Institute, Belgrade, Serbia

P.S.E.10. **Biomimetic evaluation of novel β-TCP/alginate macroporous scaffolds in perfusion bioreactors for potential in bone tissue engineering**
Nataša Stanojević, Milica Andrejević, Jovana Zvicer, Jasmina Stojkovska, Đorđe Veljović, Bojana Obradović
University of Belgrade, Faculty of Technology and Metallurgy, Belgrade, Serbia
Innovation Center of the Faculty of Technology and Metallurgy, Belgrade, Serbia

P.S.E.11. **The morphology of the osteoporotic rabbit bone after implantation of strontium doped biphasic ceramic**
Mara Pilmane[1], Iize Salma[2], Girts Salms[2], Janis Locs[3]
[1]Institute of Anatomy and Anthropology; [2]Institute of Stomatology, Riga Stradins University; [3]R.Cimdins Centre for Biomaterial Innovation and Development, Riga, Latvia

P.S.E.12. **Spider silk coated with maghemite nanoparticles-synthesis and characterization**
Svetlana Dmitrović[1], Vojislav Spasojević[1], Goran Branković[2], Georgios Constantinides[3], Aleksandra Zarubica[4], Branko Matović[1]
[1]University of Belgrade, "Vinča" Institute of Nuclear Sciences, Belgrade, Serbia; [2]University of Belgrade, Institute for Multidisciplinary Research, Belgrade, Serbia; [3]Cyprus University of Technology, Lemesos, Cyprus; [4]University of Niš, Faculty of Science and Mathematics, Department of Chemistry, Niš, Serbia

P.S.E.13. **Cefazolin-loaded polycaprolactone fibers produced via blend and co-axial electrospinning**
Anđela N. Radisavljević[1], Dušica B. Stojanović[2], Srđan D. Perišić[1], Vesna J. Radojević[2], Mirjana D. Rajilić-Stojanović[2], Petar S. Uskoković[2]
[1]University of Belgrade, Innovation Centre, Faculty of Technology and Metallurgy, Karnegijeva 4, 11120 Belgrade, Serbia; [2]University of Belgrade, Faculty of Technology and Metallurgy, Karnegijeva 4, 11120 Belgrade, Serbia

P.S.E.14. **In silico simulation of carvedilol absorption from oral films and nanofibers**
Marija N. Radojević[1], Sandra V. Cvijić[2], Dušica B. Stojanović[1], Svetlana R. Ibrić[2], Petar S. Uskoković[1]
[1]University of Belgrade - Faculty of Technology and Metallurgy, Department of Materials Science and Engineering, Karnegijeva 4, 11120 Belgrade, Serbia; [2]University of Belgrade - Faculty of Pharmacy, Department of Pharmaceutical Technology and Cosmetology, Vojvode Stepe 450, 11221 Belgrade, Serbia

P.S.E.15. **Stability of the magnetite particles dispersed in different surfactans using wet stirred media milling**
Zdenka Bujňáková[1], Erika Dutková[1], Erika Tóthová[1], Jozef Kováč[2], Matej Baláž[1]
[1]Institute of Geotechnics, Slovak Academy of Sciences, Watsonova 45, 04001 Košice, Slovakia; [2]Institute of Experimental Physics, Slovak Academy of Sciences, Watsonova 47, 04001 Košice, Slovakia

P.S.E.16. **Electrochemical characterization of Mg-Zn bulk materials prepared by powder metallurgy method**

Pavel Doležal[1], Michaela Krystýnová[2], Jozef Minda[1], Stanislava Fintová[1], Matěj Březina[1], Josef Zapletal[1], Jaromír Wasserbauer[2]
[1]Brno University of Technology, Faculty of Chemistry, Materials Research Centre, Purkynova 464/118, 612 00 Brno, Czech Republic; [2]Brno University of Technology, Faculty of Mechanical Engineering, Institute of Materials Science and Engineering, Technicka 2896/2, 616 69 Brno, Czech Republic

P.S.E.17. **Improvement of biocompatibility by formation of nanotubular oxide layer on the ultrafine-grained Ti-13Nb-13Zr alloy**

Veljko R. Đokić[1], Dragana R. Barjaktarević[1], Đorđe N. Veljović[1], Ivana D. Dimić[1], Vesna V. Kojić[2], Marko P. Rakin[1]
[1]University of Belgrade, Faculty of Technology and Metallurgy, 11120 Belgrade, Serbia; [2]University of Novi Sad, Faculty of Medicine, Oncology Institute of Vojvodina, 21204 Sremska Kamenica, Serbia

P.S.E.18. **The longterm chemical degradation of magnesium alloy AZ31 and AZ61 processed by method squeeze casting in SBF solution**

Helena Doležalová Weissmannová[1], Ivana Ročňáková[2], Pavel Doležal[2,3]
[1]Brno University of Technology, Faculty Chemistry, Institute of Chemistry and Technology of Environmental Protection, Brno, Czech Republic; [2]Brno University of Technology, Faculty of Mechanical Engineering, Institute of Materials Science and Engineering, Dept. of Metal Materials, Brno, Czech Republic; [3]Brno University of Technology, Faculty Chemistry Materials Research Centre (MRC), Brno, Czech Republic

P.S.E.19. **Crystal structures of mixed chloride-azide zinc (II) and chloride-isocyanate cadmium (II) complexes with the condensation product of 2-quinolinecarboxaldehyde and girard's reagent**

Tanja Keškić[1], Milica Milenković[1], Božidar Čobeljić[1], Dušanka Radanović [2], Katarina Anđelković[1]
[1]Faculty of Chemistry, University of Belgrade, Studentski trg 12–16, 11000 Belgrade, Serbia; [2]Institute of Chemistry, Technology and Metallurgy, University of Belgrade, Njegoševa 12, P.O. Box 815, 11000 Belgrade, Serbia

P.S.B.6.

Electrical and magnetic properties of multiferroic $BiFeO_3$-based flexible composites

Nikola I. Ilić[1], Guilhermina F. Teixeira[2], Jelena D. Bobić[1], Mirjana M. Vijatović Petrović[1], Adis. S. Džunuzović[1], Maria A. Zaghete[2], Biljana D. Stojanović[1]
[1]University of Belgrade, Institute for Multidisciplinary Research, Materials science department, Belgrade, Serbia; [2]State University of Sao Paulo, Chemistry Institute, Araraquara, Sao Paulo, Brasil

Flexible composite samples were prepared by hot pressing of $BiFeO_3$ powders prepared by chemical methods with polyvinylidene fluoride (PVDF). Role of PVDF is not only to make the samples flexible, but also to improve the properties of $BiFeO_3$, primarily to prevent the problems with high density of leakage currents. Microstructure of composites showed good homogeneity and uniform thickness of around 50 μm. Dielectric, impedance, ferroelectric and ferromagnetic properties of composite samples were studied and compared with those of $BiFeO_3$ powders or ceramic samples. Flexible samples exhibited improved electrical resistivity, which enables them to withstand significantly higher electric fields and to be weakly polarized. By eliminating the sintering step, it is possible to retain weak ferromagnetism originating from Fe_3O_4 nanoparticles formed during the synthesis in compact samples.
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