

TWELFTH ANNUAL CONFERENCE

YUCOMAT 2010

Hotel "Plaža", Herceg Novi, Montenegro, September 6–10, 2010
<http://www.mrs-serbia.org.rs>



Programme and The Book of Abstracts

Organised by:

Materials Research Society of Serbia
and

**Institute of Technical Sciences of the
Serbian Academy of Sciences and Arts, Belgrade**

under the auspices of

Federation of European Materials Societies (FEMS)

and

Materials Research Society (MRS)

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“YUCOMAT 2010”
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WELCOME SPEECH BY THE PRESIDENT OF MRS-SERBIA

Dear Friends and Colleagues, Welcome to YUCOMAT 2010 Conference and the fabulous town of Herceg-Novi!



This year we are celebrating 15 years from the first YUCOMAT Conference, which was held in this very venue in 1995. The Conference initiated the formation of the Yugoslav Materials Research Society, which was a decade or so later renamed to Materials Research Society of Serbia. During the last 15 years, the quality of the Conference, the number and the diversity of the exciting plenary lecturers coming from a variety of scientific centres from all over the globe has steadily grown. As can be expected, the 2010 Conference has some new records to set.

Those exist in terms of the so far unprecedented 4 plenary sessions, 25 invited lectures which will be held by some of the world-renowned experts in their fields, 5 symposia with 5 oral and 3 poster sessions, and 259 presentations overall. The participants of this year's Conference come from 36 countries of the world. We all know how small our MRS is compared to other similar societies of the world and how great of an achievement this could be taken as. This sheds new light on the slogan given for a few past YUCOMAT conferences: “Small is beautiful”.

This year's participants will have a chance to attend presentations on some of the most exciting topics of Materials Science that currently stand on the frontier of the field. Nanostructured materials and thin films, biomaterials for a variety of applications, functional bio-nano-interfaces, structural simulation and modelling, cutting-edge methods for probing materials structure, morphology and various mechanical and spectroscopic properties at the atomic scales, advanced materials applicable in high-tech devices and a plethora of new synthesis methods that offer sophisticated control over materials' properties on various scales are some of the topics that will be discussed during the Conference. Apart from a plenty of interesting lectures, the participants will have a chance to lighten up and communicate in friendly and relaxed settings. As every time before, we have made sure to provide you with a lot of such opportunities. The traditional Photo Session and the Welcome Cocktail on Monday, the Poster Sessions on Tuesday, Wednesday and Thursday evenings, a trip to Dubrovnik on Wednesday afternoon, a boat trip around the Bay on Thursday afternoon, and numerous coffee breaks will present some of these informal occasions for socializing and networking.

To maintain the tradition of scientific excellence in the field, we are giving awards to some of the most prospective young researchers for their achievements. Hence, awards for the best doctoral and master theses defended between the two Conferences will be given as well as those for the best oral and poster presentations.

Our Presidency and the Organizing Committee, with the help from the International Advisory Board and Aleksandra Stojičić, the Conference Secretary, worked hard to put this meeting together. I would like to particularly thank our Vice-Presidents, Drs. Velimir Radmilović, Dejan Raković and Slobodan Milonjić, for their invaluable suggestions and an enthusiastic support, especially in promoting the MRS-Serbia and attracting scientists of an impressive background as plenary speakers.

On behalf of the MRS-Serbia officers, I wish this to be yet another splendid YUCOMAT conference filled with many refreshing and memorable moments.

Dragan Uskoković

MRS-Serbia

President: Dragan Uskoković

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

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Conference Secretary: Aleksandra Stojičić

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).

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Programme

**TWELFTH ANNUAL CONFERENCE
"YUCOMAT 2010"
Herceg Novi, September 6-10, 2010**

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 Composites
SYMPOSIUM E Biomaterials

GENERAL INFORMATION

DATE AND VENUE: The conference will be held on September 6-10, 2010, at the Plaža Hotel, in Herceg Novi, Montenegro. Participants will also be accommodated there. The conference will begin on Monday, September 6, at 09.00 and end on Friday, September 10th, 2010 at 12.00.

REGISTRATION: Registration, registration fee payment, conference materials distribution, etc. will take place at the conference desk (Conference Secretariat) open on Sunday, September 5, Monday, September 6, and Tuesday, September 7, from 8.00 to 19.00, on Wednesday and Thursday 8.00-13.00 and 19.00-20.00, and on Friday from 8.00 to 12.00. At registration, the participants are requested to submit a proof of their advance registration fee payment.

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

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

In POSTER SESSIONS, the authors are requested to display their papers minimum two hours before the session and to be present beside their posters during the session. Poster sessions are held in Business Club (next to the National Restaurant, looking at the beach) which is open Tuesday to Thursday 18.00-22.00.

PUBLICATION OF PAPERS: Abstracts will be included in a book of abstracts and distributed to each participant at registration. Only the papers presented at the Conference will be peer reviewed and, if positive, selected papers will be published in the International Journal of Modern Physics B (by World Scientific, IF 0.408, <http://ejournals.wspc.com.sg/ijmpb/mkt/guidelines.shtml>), on SCI list. Manuscripts prepared according to the guidelines for this journal, which are of good quality, comprehensible English language and with more than 50% references from the last 5 years, will have advantage. Detailed instructions for preparation of manuscripts are available on the website given above.

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

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

GENERAL CONFERENCE PROGRAMME

Sunday, September 5, 2010

08⁰⁰-19⁰⁰ **Registration**

Monday, September 6, 2010

08⁰⁰-09⁰⁰ **Registration**
09⁰⁰ **OPENING CEREMONY**
- Introduction and Welcome

10⁰⁰-13⁰⁰ **First Plenary Session**
13³⁰ **Photo Session**
15⁰⁰-19¹⁵ **Symposium A, Conference Hall**
15⁰⁰-19⁰⁰ **Symposium B, Press Hall**
19³⁰-21⁰⁰ **Cocktail Party**

Tuesday, September 7, 2010

09⁰⁰-13³⁰ **Second Plenary Session**
15⁰⁰-19⁰⁰ **Symposium C, Conference Hall**
15⁰⁰-19⁰⁰ **Symposium D, Press Hall**
20³⁰-22⁰⁰ **Poster Session I (Symposium A)**

Wednesday, September 8, 2010

09⁰⁰-13⁰⁰ **Third Plenary Session**
14⁰⁰-19⁰⁰ **Excursion to Dubrovnik, Croatia**
20³⁰-22⁰⁰ **Poster Session II (Symposium B)**

Thursday, September 9, 2010

09⁰⁰-12³⁰ **Fourth Plenary Session**
14⁰⁰-19⁰⁰ **Boat-trip around Boka Kotorska Bay**
20³⁰-22⁰⁰ **Poster Session III (Symposiums C, D and E)**

Friday, September 10, 2010

09⁰⁰-11³⁰ **Symposium E**
11³⁰-12⁰⁰ **Awards and Closing of the Conference**

SYMPOSIUM A: Advanced Methods in Synthesis
and Processing of Materials
SYMPOSIUM B: Advanced Materials for High-
Technology Application
SYMPOSIUM C: Nanostructured Materials
SYMPOSIUM D: Composites
SYMPOSIUM E: Biomaterials

FIRST PLENARY SESSION

Monday, September 6, 2010

Session I: 10⁰⁰-13⁰⁰

Chairpersons: R. Siegel, V. Radmilović and R. Sinclair

Conference Hall

10⁰⁰-10³⁰ **A LOOK AT NANOTECHNOLOGY: PAST, PRESENT, FUTURE**
R.W. Siegel
*Materials Science and Engineering Department, Rensselaer Nanotechnology Center,
Rensselaer Polytechnic Institute, Troy, New York, USA*

10³⁰-11⁰⁰ **THE IMPACT OF TRIPLE LINES ON MATERIALS SCIENCE AND
ENGINEERING**
A.H. King
The Ames Laboratory, Ames, IA, USA

11⁰⁰-11³⁰ **BIO-INSPIRED STRUCTURAL MATERIALS**
R.O. Ritchie
*Department of Materials Science & Engineering, University of California Berkeley,
and Materials Sciences Division, Lawrence Berkeley National Laboratory, CA, USA*

Break: 11³⁰-12⁰⁰

12⁰⁰-12³⁰ **RECENT ELECTRON MICROSCOPE STUDIES OF GOLD-BASED
NANOPARTICLES FOR MEDICAL APPLICATIONS**
R. Sinclair, P. Kempen, A.L. Koh
*Department of Materials Science and Engineering and Stanford,
Nanocharacterization Laboratory, Stanford University, Stanford, CA, USA*

12³⁰-13⁰⁰ **CONVERGING THEORY AND EXPERIMENT: NUCLEATION OF L₁₂
COMPLEX NANOSTRUCTURES**
V. Radmilović
*Lawrence Berkeley National Laboratory, University of California, Berkeley, CA,
USA*

Break: 13⁰⁰-15⁰⁰

**SYMPOSIUM A: ADVANCED METHODS IN SYNTHESIS AND PROCESSING OF
MATERIALS**

Monday, September 6, 2010

Session I: 15⁰⁰-19¹⁵

Chairmen: J. Kusinski and T. Shakhshneider

Conference Hall

- 15⁰⁰-15¹⁵ **INFLUENCE OF IRRADIATION DEFECTS ON THE STRENGTH OF
COPPER AT A NANOMETER SCALE**
D. Kiener^{1,2}, P. Hosemann^{3,4}, A.M. Minor^{2,4}
*¹Erich Schmid Institute of Materials Science, Austrian Academy of Sciences, Leoben,
Austria, ²National Center for Electron Microscopy, Lawrence Berkeley National
Laboratory, CA, USA, ³Materials Science & Technology, Los Alamos National
Laboratory, Los Alamos, NM, USA, ⁴University of California, Berkeley, CA, USA*
- 15¹⁵-15³⁰ **STRUCTURE PREDICTION FOR PbS AND ZnO AT DIFFERENT
PRESSURES AND VISUALIZATION OF THE ENERGY LANDSCAPES**
D. Zagorac, J.C. Schön, K. Doll, M. Jansen
Max Planck Institute for Solid State Research, Stuttgart, Germany
- 15³⁰-15⁴⁵ **HIGH-TEMPERATURE OPTICAL IN-SITU STUDIES OF REDOX
PROCESSES IN COMPLEX OXIDES**
J. Shi, S. Duglocz, K.-D. Becker
*Institute of Physical Chemistry, Technische Universität Braunschweig,
Braunschweig, Germany*
- 15⁴⁵-16⁰⁰ **MECHANOCHEMICAL PREPARATION OF ORGANIC-INORGANIC
HYBRID MATERIALS OF DRUGS WITH INORGANIC OXIDES**
T.P. Shakhshneider^{1,2}, S.A. Myz^{1,2}, M.A Dyakonova², V.V. Boldyrev^{1,2}, E.V.
Boldyreva^{1,2}, R. Kumar³
*¹Institute of Solid State Chemistry and Mechanochemistry, SB RAS, Novosibirsk,
Russia, ²Research and Education Centre "Molecular Design and Ecologically Safe
Technologies" at the Novosibirsk State University, Novosibirsk, Russia, ³National
Metallurgical Laboratory, Jamshedpur, India*

16⁰⁰-16¹⁵ **REGULARITIES OF FORMATION, STRUCTURE AND CHEMICAL PROPERTIES OF NANOSIZED MoO₃ AND Me/MoO₃ (Me=Al, Mg, Si) NANOCOMPOSITES, PREPARED BY MECHANOCHEMICAL METHOD**
A.N. Streletskii¹, I.V. Kolbanev¹, A.Ju. Dolgoborodov¹, V.V. Artemov², A.V. Leonov³, A.B. Borunova¹
¹*N.N.Semenov Institute of Chemical Physics RAS, Moscow, Russia*, ²*A.V.Shubnikov Institute of Crystallography RAS, Moscow, Russia*, ³*Moscow State University, Chemical Department, Leninskie gory, Moscow, Russia*

16¹⁵-16³⁰ **BULK AMORPHOUS CU- AND NI- BASED ALLOYS PROCESSED BY MECHANICAL ALLOYING AND POWDER COMPACTION**
D. Oleszak, T. Kulik
Faculty of Materials Science and Engineering, Warsaw University of Technology, Warsaw, Poland

16³⁰-16⁴⁵ **SYNTHESIS AND CHARACTERIZATION OF NiMn_xFe_{2-x}O₄ FERRITES**
S.M. Busurin, M.L. Busurina
Institute of Structural Macrokinetics and Materials Science RAS, Chernogolovka, Moscow region, Russia

16⁴⁵-17⁰⁰ **SINTERING OF DEFECT-FREE BTS2.5/BTS5/BTS7/BTS10 FUNCTIONALLY GRADED MATERIALS**
S. Marković¹, S.D. Škapin², D. Suvorov², D. Uskoković¹
¹*Institute of Technical Sciences of the Serbian Academy of Sciences and Arts, Belgrade, Serbia*, ²*Jožef Stefan Institute, Ljubljana, Slovenia*

Break: 17⁰⁰-17³⁰

17³⁰-17⁴⁵ **MICROWAVE ASSISTED SOLVENT FREE REACTIONS OF SOME INTERCALATIVE COMPOUNDS AND PHTHALOCYANINE DERIVATIVES**
A.N. Mikheev
Nikolayev Institute of Inorganic Chemistry SB RAS, Novosibirsk; Research and Educational Centre, Research and Educational Complex, Novosibirsk State University, Russia

- 17⁴⁵-18⁰⁰ **PREPARATION OF LiFePO₄/C COMPOSITES BY CO-PRECIPIATION IN THE PRESENCE OF STEARIC ACID**
D. Jugović¹, M. Jović¹, M. Mitrić², N. Cvjetičanin³, D. Uskoković¹
¹*Institute of Technical Sciences of the Serbian Academy of Sciences and Arts, Belgrade, Serbia,* ²*Vinča Institute of Nuclear Sciences, Belgrade, Serbia,* ³*Faculty of Physical Chemistry, University of Belgrade, Serbia*
- 18⁰⁰-18¹⁵ **PREPARATION AND SURFACE PROPERTIES OF CeO₂-Nb₂O₅ MIXED-OXIDE CATALYSTS**
D. Stošić¹, V. Rakić², S. Bennici¹, A. Auroux¹
¹*IRCELYON, UMR5256 CNRS- Université Lyon1, Villeurbanne, France,* ²*Faculty of Agriculture, Department of Chemistry, University of Belgrade, Zemun, Serbia*
- 18¹⁵-18³⁰ **PHOTOCATALYTIC ACTIVITY OF PHOSPHATED TiO₂ NANOPOWDERS**
V. Žunič, S.D. Škapin, M. Maček-Kržmanc, D. Suvorov
Jožef Stefan Institute, Advanced Materials Department, Ljubljana, Slovenia
- 18³⁰-18⁴⁵ **HIGH VELOCITY SUSPENSION FLAME SPRAYING (HVSFS); PROCESS DEVELOPMENT AND INDUSTRIAL APPLICATIONS**
A. Killinger, R. Gadow
Institute for Manufacturing Technologies of Ceramic Components and Composites (IMTCCC), University of Stuttgart, Stuttgart, Germany
- 18⁴⁵-19⁰⁰ **SUPERELASTIC BEHAVIOUR OF LASER WELDED JOINTS IN NiTi**
L. Alberty Vieira¹, F.M. Braz Fernandes², R.M. Miranda¹
¹*UNIDEMI, Departamento de Engenharia Mecânica e Industrial, Faculdade de Ciências e Tecnologia, Universidade Nova de Lisboa, Caparica, Portugal,* ²*CENIMAT/13N, Faculdade de Ciências e Tecnologia, Universidade Nova de Lisboa, Caparica, Portugal*
- 19⁰⁰-19¹⁵ **La_{1-x}Ca_xFeO₃ HOMOGENEOUS AND MICROHETEROGENEOUS PEROVSKITE-LIKE OXIDES: SYNTHESIS, MICROSTRUCTURE, STABILITY AND CATALYTIC ACTIVITY**
L.A. Isupova
Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia

SYMPOSIUM B: ADVANCED MATERIALS FOR HIGH-TECHNOLOGY APPLICATION

Monday, September 6, 2010

Session I: 15⁰⁰-19⁰⁰

Chairpersons: M. Spirkova and M. Zlatanović

Press Hall

15⁰⁰-15¹⁵ RETENTION OF COLLOIDAL CdS NANOCRYSTALS BY SILICON MOLECULAR FILTER DURING ELECTROPHORESIS

N.S. Filippov^{1,2}, N.V. Vandyшева¹, S.I. Romanov¹, S.S. Kosolobov¹, O.I. Semenova¹, R.O. Anarbaev², D.V. Pyshnyi², I.A. Pyshnaya²

¹*A.V. Rzhanov Institute of Semiconductor Physics of SB RAS, Novosibirsk, Russia,*

²*Institute of Chemical Biology and Fundamental Medicine of SB RAS, Novosibirsk, Russia*

15¹⁵-15³⁰ COMPOSITION, ATOMIC STRUCTURE AND ELECTRONIC PROPERTIES OF FLUORINE PASSIVATED InAs (111)A/ANODIC OXIDE INTERFACE

N.A. Valisheva¹, O.E. Tereshchenko^{1,2}, V.N. Kruchinin¹, S.V. Ereemeev^{3,4}, S.E. Kulkova^{3,4}, A.V. Kalinkin⁵

¹*Novosibirsk Institute of Semiconductor Physics, Novosibirsk, Russia,* ²*Novosibirsk State University, Novosibirsk, Russia,* ³*Institute of Strength Physics and Materials Science, Tomsk, Russia,* ⁴*Tomsk State University, Tomsk, Russia,* ⁵*Boreskov Institute of Catalysis, Novosibirsk, Russia*

15³⁰-15⁴⁵ NEW COMPOSITE CERAMIC MATERIALS FOR PVD TARGETS BASED ON Ti-Al-Si₃N₄-C SYSTEM PRODUCED BY COMBUSTION SYNTHESIS

Yu.S. Pogozhev, E.A. Levashov, D.V. Shtansky, Ph.V. Kiryukhantsev-Korneev
National University of Science and Technology "MISIS", Scientific-Educational Center of SHS, Moscow, Russia

15⁴⁵-16⁰⁰ THE STRUCTURAL ATOMIC MODELS OF W/Si INTERFACES AND PROCESSES OF SELF-ORGANIZATION OF INTERFACE REACTION ZONE IN CVD GROWTH OF TUNGSTEN THIN-FILMS ON SILICON SUBSTRATE

A.V. Andreeva, S.V. Plushcheva

Institute of Microelectronics Technology, Russian Academy of Sciences, Chernogolovka, Moscow Region, Russia

- 16⁰⁰-16¹⁵ **SHS METALLURGY OF CAST ALLOYS UNDER HIGH GRAVITY**
V. Sanin, D. Andreev, D. Ikornikov, V. Yukhvid
Institute of Structural Macrokinetics and Materials Science RAS, Chernogolovka, Moscow Region, Russia
- 16¹⁵-16³⁰ **Co-B CATALYSTS FOR HYDROLYSIS OF BORON-BASED COMPLEX HYDRIDES TO GENERATE PURE HYDROGEN FOR PEM FUEL CELL**
V.I. Simagina¹, O.V. Komova¹, A.M. Ozerova¹, O.V. Netskina¹, D.G. Kellerman², G.V. Odegova¹
¹*Boreskov Institute of Catalysis SB RAS, Novosibirsk, Russia*, ²*Institute of Solid State Chemistry UB RAS, Ekaterinburg, Russia*
- 16³⁰-16⁴⁵ **DEVELOPMENT OF NEW TOOL STEELS FOR FORGING DIES**
P. Šuchmann¹, J. Krejčík², P. Fila³, L. Jelen⁴, E. Psík⁵
¹*COMTES FHT, Dobruany, Czech Republic*, ²*SVÚM, Praha, Czech Republic*, ³*ŽDAS, Žďár nad Sázavou, Czech Republic*, ⁴*Vitkovice výzkum a vývoj, Vitkovice, Czech Republic*, ⁵*Kovárna VIVA Zlín, Zlín, Czech Republic*
- 16⁴⁵-17⁰⁰ **INFLUENCE OF CASTING PARAMETERS ON GLASS FORMING ABILITY AND MECHANICAL PROPERTIES OF Zr₄₈Cu₃₆Ag₈Al₈ BULK METALLIC GLASS**
J. Latuch, M. Suligowski, T. Kulik
Warsaw University of Technology, Faculty of Materials Science and Engineering, Warsaw, Poland
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- 17³⁰-17⁴⁵ **THERMAL MEMORY PROPERTIES AND DEPTH INHOMOGENITY OF POLYOLEFINES DETERMINED BY PHOTOACOUSTIC FREQUENCY METHOD**
S. Galović^{1,2}, D.D. Markushev³, M.D. Rabasović³, M. Popović¹, D. Miličević¹, E. Suljovrujić¹, D. Čevizović¹
¹*The "Vinca" Institute of Nuclear Sciences, University of Belgrade, Belgrade, Serbia*, ²*Faculty of Mechanical Engineering Kraljevo, Department of Applied Mechanics, Mathematics and Physics, University of Kragujevac, Kraljevo, Serbia*, ³*Institute of Physics, University of Belgrade, Belgrade-Zemun, Serbia*
- 17⁴⁵-18⁰⁰ **STABLE CRACK GROWTH IN AUTOMOTIVE STEEL SHEETS**
L. Pešek, Ľ Ambriško
Department of Materials Science, Faculty of Metallurgy, Technical University of Kosice, Kosice, Slovakia

- 18⁰⁰-18¹⁵ **CHANGES IN MICROSTRUCTURE OF AIR PLASMA SPRAYED MCrAlY COATINGS AFTER SHORT THERMAL EXPOSURE IN ARGON ATMOSPHERE**
L. Čelko¹, V. Řičánková¹, L. Klakurková¹, E. Dvořáček², T. Podrábský¹, J. Švejcar¹
¹*Institute of Materials Science and Engineering, Faculty of Mechanical Engineering, Brno University of Technology, Brno, Czech Republic,* ²*S.A.M. – Metallizing Company, Ltd., Brno, Czech Republic*
- 18¹⁵-18³⁰ **ADSORBATE – INDUCED DIGITAL ETCHING OF GaAs(001) WITH A MONOLAYER PRECISION CONTROLLED BY SURFACE RECONSTRUCTION**
O.E. Tereshchenko^{1,2}, V.L. Alperovich^{1,2}, A.V. Bakulin^{3,4}, S. V. Eremeev^{3,4}, S. E. Kulkova^{3,4}
¹*Institute of Semiconductor Physics, Novosibirsk, Russian Federation,* ²*Novosibirsk State University, Novosibirsk, Russian Federation,* ³*Institute of Strength Physics and Materials Science,* ⁴*Tomsk State University, Tomsk, Russian Federation*
- 18³⁰-18⁴⁵ **OVERALL MODEL OF PLASTICITY AND FAILURE OF METALS**
L.B. Zuev
Institute of Strength Physics and Materials Science, SB RAS, Tomsk, Russia
- 18⁴⁵-19⁰⁰ **NANO-COATING AS A METHOD TO IMPROVE PHYSICAL AND MECHANIC CHARACTERISTICS OF MATERIALS**
B.S. Semukhin, I.M. Goncharenko, N.N. Koval
Institute of Physics Strain and Material Science, Institute of High Current Electronics Siberian Branch, Russian Academy of Science Tomsk, Russia

SECOND PLENARY SESSION

Tuesday, September 7, 2010

Session II: 09⁰⁰-13³⁰

Chairmen: W. Jaeger, R. Webb and T. Kelly

Conference Hall

09⁰⁰-09³⁰ **ELECTRONICALLY TUNABLE NANOSTRUCTURES**

R. Kruk¹, S. Dasgupta¹, H. Hahn^{1,2}

¹Karlsruhe Institute of Technology (KIT), Institute for Nanotechnology, Karlsruhe, Germany, ²Joint Research Laboratory Nanomaterials, Technische Universität Darmstadt, Darmstadt, Germany

09³⁰-10⁰⁰ **MULTILAYER COATINGS FOR X-RAY OPTICS**

W. Jaeger

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

10⁰⁰-10³⁰ **POLAR OXIDE INTERFACES: STRUCTURE AND COMPOSITION ON THE ATOMIC SCALE**

M. Luysberg

Institute of Solid State Research and Ernst Ruska-Centre, Research Centre Jülich, Germany

10³⁰-11⁰⁰ **QUANTITATIVE NANOMECHANICAL TESTING IN A TEM**

A.M. Minor

Department of Materials Science and Engineering, University of California, Berkeley and National Center for Electron Microscopy, Lawrence Berkeley National Laboratory, Berkeley, CA, USA

Break: 11⁰⁰-11³⁰

11³⁰-12⁰⁰ **PRESENT STATUS AND IMPORTANT NEW TRENDS IN ATOM PROBE TOMOGRAPHY**

T.F. Kelly¹, D. Lawrence¹, C. Jones¹, R.M. Ulfing¹, T.J. Prosa¹, D.J. Larson¹

I. Martin², R. Benbalagh², L. Renaud², F. Horr ard²

¹CAMECA Madison, Madison, WI, USA, ²CAMECA France, Gennevilliers Cedex, France

12⁰⁰-12³⁰ **THE USE OF MeV IONS FOR SECONDARY ION MASS SPECTROMETRY WITH SIMULTANEOUS PIXE AND RBS**

B. Jones, V. Palitsin, M.J. Bailey, A.A. Karim, J. Mody, R. Webb
Surrey Ion Beam Centre, University of Surrey, Guildford, Surrey, United Kingdom

12³⁰-13⁰⁰ **FIRST-PRINCIPLES STUDIES ON TRADITIONAL AND EMERGING MATERIALS**

L. Tsetseris^{1,2}
¹*Department of Physics, National Technical University of Athens, Greece,*
²*Department of Physics and Astronomy, Vanderbilt University, USA*

13⁰⁰-13³⁰ **MECHANISMS OF DYNAMIC VOID GROWTH BY DISLOCATION EMISSION FOR NANO AND MICRON SIZE VOIDS**

V.A. Lubarda
Montenegrin Academy of Sciences and Arts, Podgorica, Montenegro, & Department of Mechanical and Aerospace Engineering, UCSD, La Jolla, CA, USA

Break: 13³⁰-15⁰⁰

SYMPOSIUM C: NANOSTRUCTURED MATERIALS

Session I: 15⁰⁰-19⁰⁰

Chairmen: J. Nedeljković and M. Damnjanović

Conference Hall

- 15⁰⁰-15¹⁵ **CHARACTERIZATION OF INTERFACES IN A MODEL CERAMIC-METAL SYSTEM**
M.K. Santala¹, V.R.Radmilovic², R.Giulian³, M.C. Ridgway³, R. Gronsky⁴, A.M. Glaeser⁴
¹*Condensed Matter & Materials Division, Lawrence Livermore National Laboratory, CA, USA,* ²*National Center for Electron Microscopy, Lawrence Berkeley National Laboratory, Berkeley, CA, USA,* ³*Department of Electronic Materials Engineering, Australian National University, Canberra, ACT, Australia,* ⁴*Department of Materials Science & Engineering, University of California, Berkeley, CA, USA*
- 15¹⁵-15³⁰ **SYNTHESIS OF ZnO-C NANOCOMPOSITE USING FUSED SALT ELECTROLYSIS**
A.R. Kamali, D.J. Fray
Department of Materials Science and Metallurgy, University of Cambridge, Cambridge, U.K.
- 15³⁰-15⁴⁵ **STRUCTURAL AND LUMINESCENCE STUDY OF In AND Fe DOPED ZnO NANOWIRES AND NANORIBBONS**
B. Alemán, P. Fernández, J. Piqueras
Dpt.Física de Materiales, Facultad de Ciencias Físicas, Universidad Complutense de Madrid, Madrid, Spain
- 15⁴⁵-16⁰⁰ **MICROSTRUCTURE AND CATALYTIC PROPERTIES OF OXIDE THIN FILMS DEPOSITED BY PLD TECHNIQUE**
J. Kusinski¹, A. Kopia¹, M. Chmielowska¹, J.R. Gavarrí²
¹*University of Science and Technology, AGH, Cracow, Poland,* ²*Université du Sud Toulon Var, IM2NP, UMR CNRS 6242, BP 20132, La Garde Cedex, France*
- 16⁰⁰-16¹⁵ **DIFFRACTION FROM MS2 NANOTUBES**
M. Damnjanović, I. Milošević
University of Belgrade, Faculty of Physics, NanoLab, Belgrade, Serbia
- 16¹⁵-16³⁰ **COILED SINGLE-WALL CARBON NANOTUBES**
I. Milošević, M. Damnjanović
University of Belgrade, Faculty of Physics, NanoLab, Belgrade, Serbia

- 16³⁰-16⁴⁵ **INTER-LANDAU LEVEL SCATTERING PROCESSES IN MAGNETIC FIELD ASSISTED THz QUANTUM CASCADE LASER**
J. Radovanović², A. Daničić², V. Milanović¹, D. Indjin³, Z. Ikonić³
¹*School of Electrical Engineering, University of Belgrade, Belgrade, Serbia,* ²*Vinča Institute of Nuclear Sciences, Belgrade, Serbia,* ³*Institute of Microwaves and Photonics, School of Electronic and Electrical Engineering, University of Leeds, Leeds, UK*
- 16⁴⁵-17⁰⁰ **INFLUENCE OF THE NANOSTRUCTURE ON THE SURFACE AND BULK PHYSICAL PROPERTIES OF MATERIALS**
N.V. Kamanina^{1,2}, N.A. Shurpo¹, P.Ya. Vasilyev¹, V.I. Studeonov¹, D.P. Uskokovic³
¹*Vavilov State Optical Institute, St. Petersburg, Russia,* ²*Electrotechnical University ("LETI"), St. Petersburg, Russia,* ³*Institute of Technical Sciences of the SASA, Belgrade, Serbia*
- Break: 17⁰⁰-17³⁰**
- 17³⁰-17⁴⁵ **ALUMINOPHOSPHATE-BASED CHABAZITE AS A NANO-OXIDE CARRIER**
N. Rajić¹, A. Rečnik²
¹*Faculty of Technology and Metallurgy, University of Belgrade, Belgrade, Serbia,* ²*Jožef Štefan Institute, Ljubljana, Slovenia*
- 17⁴⁵-18⁰⁰ **NOVEL POLYCARBONATE-BASED POLYURETHANE ELASTOMERS, PREPARATION AND CHARACTERIZATION**
M. Špírková¹, R.Poreba¹, A. Strachota¹, J. Pavličević², J. Budinski-Simendić²
¹*Institute of Macromolecular Chemistry ASCR, v.v.i. (IMC), Prague, Czech Republic,* ²*Faculty of Technology, Novi Sad, Serbia*
- 18⁰⁰-18¹⁵ **LASER ELECTRODISPERSION FABRICATION OF NANOPATTERNS FOR SER(R)S OPERANDO SPECTROSCOPY**
V. Sans¹, V. Kozhevin^{2,3}, D. Yavsin^{2,3}, I. Kuzmin², S. Gurevich^{2,3}, A. Lapkin¹
¹*School of Engineering, University of Warwick, United Kingdom,* ²*INCATTECH LLC, St. Petersburg, Russia,* ³*Ioffe Physical Technical Institute, Russian Academy of Sciences, Russia*

- 18¹⁵-18³⁰ **SYNTHESIS OF MESOPOROUS TITANIA FILMS TEMPLATED BY NOVEL AMPHIPHILIC TRIBLOCK COPOLYMER PEO-PB-PEO**
E. Ortel¹, L. Chuenchom^{1,2}, B. Smarsly², R. Kraehnert^{1,*}
¹*Technical University of Berlin, Department of Chemistry, Berlin, Germany,*
²*Justus-Liebig-Universität Gießen, Physikalisch-Chemisches Institut, Gießen, Germany*
- 18³⁰-18⁴⁵ **CHARGE MEMORY EFFECTS IN InN NANODOTS**
E. Sarantopoulou, Z. Kollia, A.C. Cefalas
National Hellenic Research Foundation, Theoretical and Physical Chemistry Institute, Athens, Greece
- 18⁴⁵-19⁰⁰ **NANOSIZE WO₃ FOR GAS SENSING AND PHOTOCATALYSIS**
B. Fórizs¹, I.M. Szilágyi², O. Rosseler³, J. Mizsei⁴, G. Tárkányi⁵, P. Király⁴, P. Németh⁴, K. Vargáné Josepovits¹, B. Vajna¹, A. Tóth⁵, Á. Szegedi⁴
¹*Department of Inorganic and Analytical Chemistry, Budapest University of Technology and Economics, Hungary,* ²*Materials Structure and Modeling Research Group of the Hungarian Academy of Sciences, Budapest University of Technology and Economics, Hungary,* ³*LMSPC, Strasbourg, French,* ⁴*Department of Electron Devices, Budapest University of Technology and Economics, Hungary,* ⁵*Chemical Research Center, Institute of Structural Chemistry, Hungarian Academy of Sciences, Budapest, Hungary*

SYMPOSIUM D: COMPOSITES

Tuesday, September 7, 2010

Session I: 15⁰⁰-19⁰⁰

Chairpersons: D. Nedelcu and S. Bošković

Press Hall

- 15⁰⁰-15¹⁵ **SOME ASPECTS OF PROCESSING AND PROPERTIES OF COMPOSITE MATERIAL WITH Si-C PARTICLES**
D. Nedelcu¹, I. Carcea², L. Tabacaru¹, C. Ciofu¹
¹"Gheorghe Asachi" Technical University of Iasi-Romania, Department of Machine Manufacturing Technology, Iasi, Romania, ²"Gheorghe Asachi" Technical University of Iasi-Romania, Department of Materials Processing Technologies and Equipments, Iasi, Romania
- 15¹⁵-15³⁰ **MICROSTRUCTURE –MECHANICAL PROPERTIES RELATIONS IN PRESURELESS SINTERED SiC-TiB₂ COMPOSITE**
D. Bučevac¹, B. Matović¹, S. Zec¹, S. Bošković¹, V. Krstić²
¹Institute of Nuclear Sciences Vinča, University of Belgrade, Belgrade, Serbia, ²Department of Mechanical and Materials Engineering, Queen's University, Kingston, Ontario, Canada
- 15³⁰-15⁴⁵ **STUDY OF FORMATION AND MESOSTRUCTURE OF YTTRIUM HYDROXOCARBONATE MONODISPERSE SPHERICAL PARTICLES**
A.S. Vanetsev¹, A.E. Barantchikov¹, G.P. Kopitsa², I.G. Chuvashova¹, A.S. Shaporev¹, V. Haramus³
¹Kurnakov Institute of General and Inorganic Chemistry RAS, Moscow, Russia, ²Petersburg Nuclear Physics Institute RAS, Gatchina, Russia, ³GKSS Research Centre, Geesthacht, Germany
- 15⁴⁵-16⁰⁰ **METAL-MATRIX COMPOSITES DISPERSION-STRENGTHENED BY NANOPARTICLES FOR DIAMOND TOOLS APPLICATION**
A. Zaitsev¹, E. Levashov¹, V. Kurbatkina¹, S. Rupasov¹, D. Sidorenko¹, V. Andreev²
¹National University of Science and Technology "MISIS", Moscow, Russia, ²Company "Kermet" Ltd., Moscow, Russia
- 16⁰⁰-16¹⁵ **TRIBOLOGICAL PROPERTIES OF Si₃N₄ + SiC AND Al₂O₃ + SiC NANOCOMPOSITES**
J. Dusza
Institute of Materials Research, SAS, Kosice, Slovakia

- 16¹⁵-16³⁰ **PROCESSING TECHNOLOGIES FOR DISCONTINUOUSLY REINFORCED LIGHT METALS**
M. Wenzelburger, R. Gadow
Universität Stuttgart, Institut für Fertigungstechnologie keramischer Bauteile (IFKB), (Institute for Manufacturing Technologies of Ceramic Components and Composites), Stuttgart, Germany
- 16³⁰-16⁴⁵ **MANUFACTURING OF CONTINUOUS FIBER REINFORCED LIGHT METAL MATRIX COMPOSITES BY THERMAL SPRAYING OF PREPREGS**
M. Silber, R. Gadow
Institute for Manufacturing Technologies of Ceramic Components and Composites, University of Stuttgart, Stuttgart, Germany
- 16⁴⁵-17⁰⁰ **LOCK-IN IR THERMOGRAPHY METHOD FOR EVALUATION OF LIGHT COMPOSITE ARMOURS**
W. Swiderski¹, M. Szudrowicz²
¹Military Institute of Armament Technology, Zielonka, Poland, ²Military Institute of Armour & Automotive Technology, Sulejowek, Poland
- Break: 17⁰⁰-17³⁰**
- 17³⁰-17⁴⁵ **SPIN-DEPENDENT MAGNETORESISTANCE AND MAGNETIZATION IN OXIDIZED FeCoZr-AL₂O₃ GRANULAR NANOCOMPOSITES WITH «CORE-SHELL» STRUCTURE**
J. Fedotova¹, J. Kasiuk¹, J. Przewoznik², C. Kapusta², J. Zukrowski²
¹National Centre for High Energy and Particle Physics, Belarusian State University, Minsk, Belarus, ²Faculty of Physics and Applied Computer Science, AGH University of Science and Technology, Cracow, Poland
- 17⁴⁵-18⁰⁰ **NANOCOMPOSITE MATERIALS BASED ON FLUORITE OXIDES AND Ni/YSZ: SYNTHESIS, PROPERTIES AND CATALYTIC PERFORMANCE IN STEAM REFORMING OF CH₄ AND BIOFUELS**
N. Mezentseva¹, G. Alikina¹, R. Bunina¹, J.R.H. Ross², V. Sadykov¹
¹Boriskov Institute of Catalysis, Novosibirsk Russia, ²Centre of Environmental Research, University of Limerick, Limerick, Ireland
- 18⁰⁰-18¹⁵ **A STUDY ON DELAMINATION-FREE DRILLING OF CARBON FIBRE REINFORCED PLASTICS**
C.M. Machado, J. Pamies Teixeira
UNIDEMI, Departamento de Engenharia Mecânica e Industrial, Faculdade de Ciências e Tecnologia, Universidade Nova de Lisboa, Caparica, Portugal

- 18¹⁵-18³⁰ **PREPARATION AND OPTIMALIZATION OF SILICON OXYCARBIDE COMPOSITES TOUGHENED BY INORGANIC FIBERS BY PYROLYSIS OF PRECURSOR COMPOSITES WITH SILOXANE MATRIX**
A. Strachota¹, M. Černý², P. Glogar², Z. Sucharda², Z. Chlup³, I. Dlouhý³, V. Kozák³
¹Institute of Macromolecular Chemistry, Academy of Sciences of the Czech Republic, v.v.i., Praha, Czech Republic, ²Institute of Rock Structure and Mechanics, Academy of Sciences of the Czech Republic, v.v.i., Praha, Czech Republic, ³Institute of Physics of Materials of the Academy of Sciences of the Czech Republic, v.v.i., Brno, Czech Republic
- 18³⁰-18⁴⁵ **PHASE RELATIONS AND ADVANCED MATERIALS IN THE CeO₂-Ln₂O₃ SYSTEMS**
E.R. Andrievskaya, O.A. Kornienko, A.V. Sameljuk
Institute of Materials Science Problems, National Ukrainian Academy of Sciences, Kiev, Ukraine
- 18⁴⁵-19⁰⁰ **PROCESSING OF INTEGRAL SKIN CELLULAR POLYMERIC COMPOSITES IN RAPID ROTATIONAL FOAM MOLDING**
R. Pop-Iliev
Faculty of Engineering and Applied Science, University of Ontario Institute of Technology, Oshawa, Ontario, Canada

THIRD PLENARY SESSION

Wednesday, September 8, 2010

Session III: 09⁰⁰-13⁰⁰

Chairmen: R. Ritchie, D. Raković and M. Senna

09⁰⁰-09³⁰ **CROSS-LINKING BEHAVIOR IN GELATIN – HYDROXYAPATITE NANOCOMPOSITE**

Y. Shirakura, M. Senna

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

09³⁰-10⁰⁰ **MIMICKING THE GENESIS OF TOOTH ENAMEL**

V. Uskoković, S. Habelitz

Division of Biomaterials and Bioengineering, University of California, San Francisco, CA, USA

10⁰⁰-10³⁰ **ELECTRON ENERGY-LOSS SPECTROSCOPY (EELS) FOR NANOPLASMONIC APPLICATIONS IN MATERIALS SCIENCE**

A.L. Koh

Department of Materials, Imperial College London, London, UK

10³⁰-11⁰⁰ **TAILORED IMPLANTS BY SELECTIVE ELECTRON BEAM MELTING**

C. Körner, P. Heinl

Universität Erlangen-Nürnberg, Lehrstuhl Werkstoffkunde und Technologie der Metalle WTM, Erlangen, Germany

Break: 11⁰⁰-11³⁰

11³⁰-12⁰⁰ **PLASMA TAILORED NANOSTRUCTURES AND THEIR ADVANCED APPLICATIONS**

U. Cvelbar

Plasma lab F4, Jozef Stefan Institute, Ljubljana, Slovenia

12⁰⁰-12³⁰ **NOVEL MECHANOCHEMICAL SYNTHESIS OF CARBON NANOMATERIALS BY A HIGH-SPEED BALL-MILLING PROCESS**

S. Ohara, Z. Tan, K. Sato, H. Abe

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

12³⁰-13⁰⁰ **NT-MDT.Co PRESENTATION**

I. Bykov

NT-MDT.Co

FORTH PLENARY SESSION

Thursday, September 9, 2010

Session IV: 09⁰⁰-12³⁰

Chairmen: D. Suvorov, S. Milonjić and A. Labarta

09⁰⁰-09³⁰ **FROM HIGH TO LOW PERMITTIVITY GLASS-FREE MATERIALS FOR LTCC TECHNOLOGY**

D. Suvorov, M. Maček Kržmanc

Advanced Materials Department, Jozef Stefan Institute, Ljubljana, Slovenia

09³⁰-10⁰⁰ **RECENT ADVANCES IN MAGNETIC NANOSTRUCTURES**

A. Labarta, N. Pérez, M. Kovylyina, M. García del Muro, O. Iglesias, X. Batlle

Departament de Física Fonamental and Institut de Nanociència i Nanotecnologia (IN2UB), Universitat de Barcelona, Barcelona, Spain

10⁰⁰-10³⁰ **CHARACTERIZATION OF MAGNETIC NANOCRYSTALS FORMED BY MAGNETOTACTIC BACTERIA**

M. Pósfai¹, T. Kasama², R E. Dunin-Borkowski²

¹Department of Earth and Environmental Sciences, University of Pannonia, Veszprém, Hungary, ²Center for Electron Nanoscopy, Technical University of Denmark, Kongens Lyngby, Denmark

10³⁰-11⁰⁰ **BONDED INTERMETALLIC POWDERS FOR THE APPLICATION IN MAGNETIC REFRIGERATION**

B. Podmiljšak, P.J. McGuinness, M. Soderžnik, S. Kobe

Jožef Stefan Institute, Ljubljana, Slovenia

Break: 11⁰⁰-11³⁰

11³⁰-12⁰⁰ **CRYSTAL STRUCTURE OF APATITE TYPE RARE-EARTH SILICATE SrLn₄Si₃O₁₃**

R. Ubić, D. Leu, S. Thomas, M. Sebastian

Boise State University, Boise, Idaho, USA, National Institute for Interdisciplinary Science and Technology, Trivandrum, India

12⁰⁰-12³⁰ **HYDROTHERMAL SYNTHESIS AND POST HEAT-TREATMENT OF (K,Na)NbO₃ PARTICLES**

J.-Ho. Jeon, B.-J. Shin, S.-Y. Choi, J.-B. Lim,

Korea Institute of Materials Science, Changwon, Korea

SYMPOSIUM E: BIOMATERIALS

Friday, September 4, 2009

Session I: 09⁰⁰-11³⁰

Chairmen: Dj. Koruga and N. Ignjatović

09⁰⁰-09¹⁵ **HIGH-VELOCITY SUSPENSION FLAME SPRAYED (HVSFS) BIOACTIVE HYDROXYAPATITE COATINGS**

N. Stiegler, A. Killinger, R. Gadow

Institute for Manufacturing Technologies of Ceramic Components and Composites (IMTCCC), University of Stuttgart, Stuttgart, Germany

09¹⁵-09³⁰ **NANO-BIORESORBABLE POLYMER SPHERES AS CARRIERS FOR TRANSDERMAL DELIVERY OF KETOPROFENE**

N. Ignjatović¹, S. Vučen², G. Vuleta³, D. Uskoković¹

¹Institute of Technical Sciences of the Serbian Academy of Sciences and Arts, Belgrade, Serbia, ²Faculty of Medicine, Department of Pharmacy, University of Banja Luka, Bosnia and Herzegovina, ³Department of the Pharmaceutical Technology and Cosmetology, Faculty of Pharmacy, University of Belgrade, Serbia

09³⁰-09⁴⁵ **PLGA NANOSPHERES AS DRUG CARRIERS FOR WATER- SOLUBLE VITAMINS: IN VITRO AND IN VIVO STUDIES**

M. Stevanović¹, T. Maksin², J. Petković³, M. Filipič³, D. Uskoković¹

¹Institute of Technical Sciences of the Serbian Academy of Sciences and Arts, Belgrade, Serbia, ²The Institute of Nuclear Sciences "Vinča", Belgrade, Serbia, ³National Institute of Biology, Ljubljana, Slovenia

09⁴⁵-10⁰⁰ **SONOCHEMICAL SYNTHESIS OF SILVER NANOPARTICLES AND SILVER/HYDROXYAPATITE NANOCOMPOSITES**

M. Vukomanović^{1,2}, I. Bračko¹, S.D. Škapin¹, D. Suvorov¹, D. Uskoković²

¹Advanced Materials Department, Jožef Stefan Institute, Ljubljana, Slovenia, ²Institute of Technical Sciences of the Serbian Academy of Sciences and Arts, Belgrade, Serbia

10⁰⁰-10¹⁵ **THE INVESTIGATION OF PERIODONTAL LIGAMENT CELL GROWTH ONTO WATER/O₂ PLASMA TREATED PCL SUBSTRATES**

H.T. Şaşmazel¹, S. Manolache², M. Gümüşderelioglu³

¹Atılım University, Department of Materials Engineering, Incek, Gölbaşı, Ankara, Turkey, ²Wisconsin/Madison University, Center for Plasma-Aided Manufacturing Unit (CPAM), Wisconsin, USA, ³Hacettepe University, Chemical Engineering and Bioengineering Departments, Beytepe, Ankara, Turkey

10¹⁵-10³⁰ **EPIDERMAL LAYERS CHARACTERISATION BY OPTO-MAGNETIC FINGERPRINT**

Dj. Koruga¹, J. Bandić³, G. Janjić¹, Č. Lalović¹, D. Dobrosavljević Vukojević²
¹NanoLab, Biomedical Engineering, Faculty of Mechanical Engineering, University of Belgrade, Belgrade, Serbia, ²Institute of Dermatovenerology, School of Medicine University of Belgrade, Belgrade, Serbia, ³ORS Hospital, Belgrade, Serbia

Break: 10³⁰-11⁰⁰

11⁰⁰-11¹⁵ **HYDROPHOBIC-HYDROPHILIC INTERACTIONS IN PROTEIN FOLDING, PROTEIN-PROTEIN ASSOCIATION AND MOLECULAR RECOGNITION**

A. Ben-Naim

Department of Physical Chemistry, The Hebrew University of Jerusalem, Jerusalem, Israel

11¹⁵-11³⁰ **LIQUID CRYSTALLINE WATER AND THE LIVING STATE**

M.-W. Ho

Institute of Science in Society, London, UK

11³⁰-12⁰⁰ **CLOSING CEREMONY**

POSTER SESSION I

Tuesday, September 7, 2010, 20³⁰-22⁰⁰

SYMPOSIUM A: ADVANCED METHODS IN SYNTHESIS AND PROCESSING OF MATERIALS

P.S.A.1. ALUMINIDE FORMATION BY SPARK ALLOYING OF METALLIC SUBSTRATE

M. Torkar, M. Godec, B. Šuštaršič, M. Jenko
Institute of Metals and Technology, Ljubljana, Slovenia

P.S.A.2. PREPARATION AND CHARACTERISATION OF MAGHEMITE-CM-DEXTRAN FERROFLUID FOR THE APPLICATION IN MAGNETIC HYPERTHERMIA

G. Ferik¹, M. Beković², D. Makovec³, M. Drofènik^{1,3}
¹*University of Maribor, Faculty of Chemistry and Chemical Engineering, Maribor, Slovenia,* ²*University of Maribor, Faculty of Electrical Engineering and Computer Science, Maribor, Slovenia,* ³*Department of Material Synthesis, Jožef Stefan Institute, Ljubljana, Slovenia*

P.S.A.3. SYNTHESIS OF COPPER-NICKEL NANOPARTICLES PREPARED BY MECHANICAL MILLING OR MICROEMULSION METHOD

I. Ban¹, J. Damiš¹, M. Drofènik^{1,2}, D. Makovec²
¹*University of Maribor, Faculty of Chemistry and Chemical Engineering, Maribor, Slovenia,* ²*Jožef Stefan Institute, Ljubljana, Slovenia*

P.S.A.4. SYNTHESIS AND CHARACTERIZATION OF Cu-Ni MAGNETIC NANOPARTICLES FOR HYPERTHERMIA APPLICATIONS

J. Damiš¹, I. Ban¹, M. Drofènik^{1,2}, D. Makovec²
¹*University of Maribor, Faculty of Chemistry and Chemical Engineering, Maribor, Slovenia,* ²*Jožef Stefan Institute, Ljubljana, Slovenia*

P.S.A.5. DEPENDENCE OF SURFACE AND ZETA POTENTIALS OF SILICA ON pH IN AQUEOUS ELECTROLYTE SOLUTIONS

S.K. Milonjić
The Vinča Institute of Nuclear Sciences, Belgrade, Serbia

- P.S.A.6. **NON-ISOTHERMAL THERMOGRAVIMETRIC STUDY OF CuO REDUCTION BY HYDROGEN**
D. Jelić¹, S. Mentus², M. Mališić³
¹Medicine Faculty, Pharmacy Department, University of Banja Luka, Bosnia and Herzegovina, ²Faculty of Physical Chemistry, University of Belgrade, Serbia, ³Public Educational Institution, Herceg Novi, Montenegro
- P.S.A.7. **MICROEMULSION-MEDIATED HYDROTHERMAL SYNTHESIS OF LiFePO₄ CATHODE MATERIAL**
M. Jović¹, D. Jugović¹, M. Mitrić², N. Cvjetičanin³, D. Uskoković¹
¹Institute of Technical Sciences of the Serbian Academy of Sciences and Arts, Belgrade, Serbia, ²The Vinca Institute, Condensed Matter Physics Laboratory, Belgrade, Serbia, ³Faculty of Physical Chemistry, University of Belgrade, Belgrade, Serbia
- P.S.A.8. **SAMARIUM-DOPED CERIA THIN FILMS ON FTO GLASS OBTAINED BY ELECTRODEPOSITION**
Lj.S. Živković^{1,2}, V. Lair¹, O. Lupan^{1,3}, M. Cassir¹, A. Ringuedé¹
¹Laboratoire d'Electrochimie, Chimie des Interfaces et Modélisation pour l'Energie, UMR 7575 CNRS- ENSCP - Chimie-Paristech, Paris, France, ²Vinča Institute of Nuclear Sciences, Serbia, ³Technical University of Moldova, Chisinau, Republic of Moldova
- P.S.A.9. **NANOCOMPOSITES Y₂O₃:RE@SiO₂ AND Gd₂O₃:RE@SiO₂: MICROWAVE SYNTHESIS AND LUMINESCENT PROPERTIES**
A.S. Vanetsev¹, E.A. Karpukhina¹, A.E. Barantchikov¹, Yu.V. Orlovskii², V.V. Osiko², O.M. Gaitko¹, I.G. Chuvashova¹
¹Kurnakov Institute of General and Inorganic Chemistry RAS, Moscow, Russia, ²Prokhorov General Physics Institute RAS, Moscow, Russia
- P.S.A.10. **PARTICLES FORMATION DURING PULSE PLASMA NITRIDING AND a-CN_x:H COATING DEPOSITION ON HOT WORK STEEL SAMPLES**
M. Zlatanović¹, N. Popović²
¹School of Electrical Engineering, Beograd, Serbia, ²Institute of Nuclear Sciences Vinča, Beograd, Serbia
- P.S.A.11. **THE INFLUENCE OF CHEMICAL TREATMENT OF CARBON MONOLITH ON SILVER DEPOSITION**
M. Vukčević¹, A. Kalijadis², Z. Jovanović², Z. Laušević², M. Laušević¹
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- P.S.A.12. **SURFACE COMPLEXES FORMATION ON BORON IRRADIATED AND BORON DOPED GLASSY CARBON**
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A.P. Malygin, D.V. Alexandrov, I.V. Alexandrova
Ural State University, Ekaterinburg, Russia
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L. Cieniek
AGH – University of Science and Technology, Krakow, Poland
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S. Kac
AGH-University of Science and Technology, Faculty of Metals Engineering and Computer Industrial Science, Krakow, Poland
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D. Peruško¹, M. Milosavljević¹, S. Petrović¹, M. Mitrić¹, V. Milinović¹, C. Jeynes², P. Panjan³
¹Vinča Institute of Nuclear Sciences, Belgrade, Serbia, ²University of Surrey, Ion Beam Centre, Guildford, UK, ³Jožef Stefan Institute, Ljubljana, Slovenia
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S. Dimitrijević¹, V. Trujić¹, M. Rajčić Vujasinović²
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Z. Baroš¹, B. Adnadjević²
¹Higher Education School of Professional Studies - Belgrade Polytechnic, Belgrade, Serbia, ²Faculty of Physical Chemistry, University of Belgrade, Belgrade, Serbia

- P.S.A.19. **PHASE RELATIONS IN THE TITANIUM AND STANNUM COMPLEX OXIDE SYSTEM PERFORMED BY SELF-PROPAGATING HIGH-TEMPERATURE SYNTHESIS**
M.L. Busurina, S.M. Busurin, M.V. Kuznetsov
Institute of Structural Macrokinetics and Materials Science RAS, Chernogolovka, Moscow region, Russia
- P.S.A.20. **INFLUENCE OF TPA⁺ CONTENT ON SILICALITE-1 CRYSTALLIZATION**
O.A. Kovačević¹, B.T. Kovačević¹, D. Arandjelović¹, L.L. Pezo¹, V. Dondur², Ž.Lj. Tešić³
¹*Institute of General and Physical Chemistry, Belgrade, Serbia*, ²*Faculty of Physical Chemistry, Belgrade, Serbia*, ³*Faculty of Chemistry, Belgrade, Serbia*
- P.S.A.21. **INFLUENCE OF Na⁺ CONTENT ON TPABr-Na₂O-SiO₂-H₂O SYSTEMS**
O.A. Kovačević¹, B.T. Kovačević¹, D. Arandjelović¹, L.L. Pezo¹, V. Dondur², Ž.Lj. Tešić³
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N. Številová¹, I. Filkova¹, K. Baltakys²
¹*Technical University of Kosice, Civil Engineering Faculty, Institute of Building and Environmental Engineering, Kosice, Slovak Republic*, ²*Kaunas University of Technology, Faculty of Chemical Technology, Department of Silicate Technology, Kaunas, Lithuania*
- P.S.A.23. **THE COULOMBIC CAPACITY AND CYCLE LIFE OF Li_{1.05}Cr_{0.10}Mn_{1.85}O₄ IN AQUEOUS LiNO₃ SOLUTION; THE EFFECT OF ADDITION OF VINYLENE CARBONATE**
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¹*University of Belgrade, Faculty of Physical Chemistry, Belgrade, Serbia*, ^{*}*Serbian Academy of Science and Arts, Belgrade, Serbia*
- P.S.A.24. **SYNTHESIS AND CHARACTERISATION OF Ni(II), Co(II) AND Zn(II) PERCHLORATE COMPLEXES WITH FORMAMIDINE LIGAND**
B. Holló¹, V.M. Leovac¹, V. Divjaković¹, Z. Tomić², K. Mészáros Szécsényi¹
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- P.S.A.25. **SYNTHESIS AND X-RAY ANALYSIS OF NOVEL Cd(II) COMPLEX WITH THE CONDENSATION PRODUCT OF 2-FORMYLPYRIDINE AND SELENOSEMICARBAZIDE**
D. Radanović¹, A. Bacchi², G. Pelizzi², T. Todorović³, K. Andjelković³
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- P.S.A.26. **SYNTHESIS AND CRYSTAL STRUCTURE OF 1,2,3,4-TETRAHYDRO-9-AMINOACRIDINE TETRACHLOROZINCATE(II) MONOHYDRATE**
K. Andjelković¹, G. Bogdanović², D. Jovanović³, D. Mitić¹, Dj. Miodragović¹
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- P.S.A.27. **INFLUENCE OF SOLVENT ON THE FORMATION OF MELOXICAM-CARBOXYLIC ACID CO-CRYSTALS**
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- P.S.A.28. **SYNTHESIS AND CURING OF HYPERBRANCHED RESINS MODIFIED WITH RICINOLEIC ACID**
M. Jovičić, R. Radičević
University of Novi Sad, Faculty of Technology, Novi Sad, Serbia
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J. Budinski-Simendić¹, N. Vukić¹, M. Špirkova², J. Pavličević¹, I. Krakovsky³, R. Radičević¹, K. Dušek²
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M.T. Šumar Ristović¹, K.K. Andjelković¹, D. Minić², D. Poleti³, Dj.U. Miodragović¹, Z. Miodragović¹
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A.M. Hatab¹, F.B. Abudaia², H.A. Saadawi³, M.E.M. Zorgani⁴
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V. Jašo, D. Stoiljković, R. Radičević
Faculty of Technology, University of Novi Sad, Novi Sad, Serbia
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E.T. Pecev, Z.M. Grahovac, S.S. Mitić, A.N. Pavlović
Faculty of Natural Sciences and Mathematics, Department of Chemistry, Niš, Serbia
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Lj. Veselinović¹, M. Mitrić², S. Marković¹, D. Uskoković¹
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Institute of Technical Sciences of the Serbian Academy of Sciences and Arts, Belgrade, Serbia

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A. Stanković¹, Z. Stojanović¹, S. Škapin², I. Bračko², D. Uskoković¹
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Z. Stojanović, Lj. Veselinović, S. Marković, D. Uskoković
Institute of Technical Sciences of the Serbian Academy of Sciences and Arts, Belgrade, Serbia
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I. Dugandžić¹, V. Lojpur¹, L. Mančić¹, M.E. Rabanal², O. Milošević¹
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Z.Ž. Lazarević¹, Č. Jovalekić², M.J. Romčević¹, M.B. Pavlović², N.Ž. Romčević¹
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- P.S.A.41. **ELOUTION RATE OF MONOMERS FROM RESIN-BASED COMPOSITES CURRED WITH A HALOGEN LIGHT-CURING UNIT**
D. Manojlović¹, M. Radišić², T. Vasiljević², S. Živković¹, M. Laušević², V. Miletić¹
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- P.S.A.42. **SKIN LAYERS CHARACTERISATION BY FRACTIONAL BIOIMPENDANCE**
Z. Vosika¹, Z. Mitrović¹, J. Bandić², J. Simić-Krstić¹, M. Lazarević¹, Dj. Koruga¹
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Y.-K. Chen¹, W.-E. Yang¹, P.-L. Chen², H.-H. Huang²
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- P.S.A.44. **MICROSTRUCTURE OF MELT SPUN Ni-Ti SHAPE MEMORY RIBBONS**
R. Rudolf^{1,2}, M. Brunčko^{1,3}, K. Mehrabi³, A.C. Kneissl³, M. Čolić⁴, N. Romčević⁵, I. Anžel¹
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N. Mitrović¹, M. Milošević¹, K. Čolić¹, I. Hut¹, I. Tanasić², A. Petrović³, A. Sedmak³
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K. Čolić¹, A. Sedmak², I. Hut¹
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D. Manojlović¹, V. Miletić¹, M. Milošević², N. Mitrović², E. Džindo², A. Sedmak³
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- P.S.A.48. **PREPARATION OF POLYURETHANE NANOCOMPOSITE MATERIALS BASED ON CASTOR OIL AND TITANIUM(IV)OXIDE**
I.S. Ristić¹, J.K. Budinski-Simendić¹, S.M. Cakić², M. Špirkova³, A. Strachota³, I. Krakovsky⁴
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- P.S.A.49. **SELF ASSEMBLING OF BIOMIMETIC HYDROXYAPATITE ON THE SURFACE OF DIFFERENT POLYMER THIN FILMS**
B. Čolović, V.Jokanović
Institute of Nuclear Sciences "Vinča", Laboratory of Radiation Chemistry and Physics, Belgrade, Serbia
- P.S.A.50. **THE EFFECT OF STRUCTURAL CHANGES ON FUNCTIONAL PROPERTIES OF METASTABLE ALLOY $\text{Fe}_{73.5}\text{Cu}_1\text{Nb}_3\text{Si}_{15.5}\text{B}_7$**
A. Kalezić-Glišović, A. Maričić, R. Simeunović, S. Randjić
Joint Laboratory for Advanced Materials of SASA, Section for Amorphous Systems, Technical Faculty Čačak, Čačak, Serbia
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O. Pešić¹, B. Jordović¹, A. Maričić¹, J. Stevanović², S. Djukić²
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- P.S.A.52. **THE EFFECT OF CHANGE IN ELECTRON STATE DENSITY AT FERMI LEVEL DURING THE MECHANICAL STRAIN ON SENSITIVITY COEFFICIENT OF THE RIBBON-SHAPED AMORPHOUS ALLOY $\text{Fe}_{81}\text{B}_{13}\text{Si}_4\text{C}_2$ AS FORCE SENSOR**
A. Maričić, M. Spasojević, A. Kalezić-Glišović, N. Mitrović, L. Ribić-Zelenović
Joint Laboratory for Advanced Materials of SASA, Section for Amorphous Alloys, Technical Faculty Čačak, Čačak, Serbia
- P.S.A.53. **CORRELATION BETWEEN HYDROGEN PRESSURE CHANGE AND RESISTIVITY CHANGE DURING HYDROGEN ABSORPTION ON NON PALLADIUM-COATED AND PALLADIUM-COATED COBALT POWDER**
D.M. Minić, A. Kalezić-Glišović, M. Spasojević, A.M. Maričić
Joint Laboratory for Advanced Materials of SASA, Section for Amorphous Alloys, Technical Faculty Čačak, Čačak, Serbia
- P.S.A.54. **MICROSTRUCTURAL AND MAGNETIC PROPERTIES OF ELECTROCHEMICALLY DEPOSITED $\text{Ni}_x\text{Fe}_y\text{W}_z$ ALLOY**
N. Mitrović¹, M. Spasojević², L. Ribić-Zelenović², A. Maričić¹
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SYMPOSIUM B: ADVANCED MATERIALS FOR HIGH-TECHNOLOGY APPLICATIONS

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T. Barudžija¹, V. Kusigerski¹, N. Cvjetičanin², V. Spasojević¹, M. Mitrić¹
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V. Djordjević, M. Nikolić, Ž. Antić, M. Mitrić, M.D. Dramićanin
Vinča Institute of Nuclear Sciences, University of Belgrade, Belgrade, Serbia

P.S.B.3. JUDD-OFELT ANALYSIS OF EMISSION FROM $Y_2O_3:Eu^{3+}$ TRANSLUCENT CERAMICS

M. Nikolić, V. Djordjević, Ž. Antić, R. Krsmanović, M.D. Dramićanin
Vinča Institute of Nuclear Sciences, University of Belgrade, Belgrade, Serbia

P.S.B.4. RAMAN SPECTROSCOPY STUDY OF $Bi_{12}SiO_{20}$ AND $Bi_{12}GeO_{20}$ SINGLE CRYSTALS PREPARED BY THE CZOCHRALSKI TECHNIQUE

Z.Ž. Lazarević, N.Ž. Romčević, M.J. Romčević, S. Kostić
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Ecomaterials and Renewable Energy Research Center (ERERC), Nanjing University, Nanjing, China

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N. Ivanović¹, I. Radisavljević¹, N. Novaković¹, M. Manasijević¹, D. Colognesi²
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- P.S.B.7. **5 NM STRUCTURES PRODUCED BY DIRECT LASER WRITING**
S. Jinga¹, E. Pavel², E. Andronescu¹, C. Jinga¹, B.S. Vasile¹
¹*Department of Science and Engineering of Oxide Materials, Faculty of Applied Chemistry and Materials Science, University "Politehnica" of Bucharest, Bucharest, Romania,* ²*Storex Technologies, Bucharest, Romania*
- P.S.B.8. **SYNTHESIS AND CHARACTERIZATION OF PURE AND DOPED Ba(Mg_{1/3}Ta_{2/3})O₃ NANOPOWDERS**
C. Jinga¹, E. Andronescu¹, C. Jinga¹, C. Matei¹, D. Berger¹, S. Jinga¹, A. Ioachim²
¹*University "Politehnica" of Bucharest, Bucharest, Romania,* ²*National Institute of Materials Physics, Bucharest-Magurele, Romania*
- P.S.B.9. **ROOM-TEMPERATURE FERROMAGNETISM IN Zn-Mn-O, X-RAY PHOTOEMISSION SURFACE STUDY**
D. Milivojević¹, B. Babić-Stojić¹, J. Blanuša¹, J. Kováč²
¹*Vinča Institute of Nuclear Sciences, University of Belgrade, Belgrade, Serbia,* ²*Jožef Stefan Institute, Ljubljana, Slovenia*
- P.S.B.10. **MAGNETIC PROPERTIES OF Mn-OXIDE NANOPARTICLES DISPERSED IN AN AMORPHOUS SiO₂ MATRIX**
D. Milivojević¹, B. Babić-Stojić¹, V. Jokanović¹, Z. Jagličić², D. Makovec³
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- P.S.B.11. **SEGMENTED THERMISTORS PRINTED USING NTC NANOMETRIC PASTE ON ALUMINA AND Sr-FERRITE SUBSTRATES**
T. Ivetić¹, B. Radojčić², M.V. Nikolić³, M. Luković², O. Aleksić³
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- P.S.B.12. **THE INFLUENCE OF THE ATMOSPHERE AND IMPULSE EFFECT OF EXTERNAL MAGNETIC FIELD ON THE MAGNETIC FEATURES OF MnZn-FERRITE DURING THE PROCESS OF SINTERING**
Z. Ristanović¹, M. Plazinić², D. Sretenović¹, J. Živanić²
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- P.S.B.13. **THE INFLUENCE OF THE PORE GEOMETRY ON THE MECHANICAL PROPERTIES OF POROUS HAP-BASED BIOCERAMICS**
Dj. Veljović¹, I. Balać², S. Putić¹, R. Jančić-Hajneman¹, B. Jokić¹, R. Petrović¹, Dj. Janačković¹
¹Faculty of Technology and Metallurgy, University of Belgrade, Belgrade, Serbia,
²Faculty of Mechanical Engineering, University of Belgrade, Belgrade, Serbia
- P.S.B.14. **HIGH TEMPERATURE OPTICAL SPECTROSCOPY OF REDUCED AND N-DOPED TiO₂**
J. Shi¹, J. Saatz¹, B. Bauer¹, D.-K. Lee², M. Senna¹, K.D. Becker¹
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- P.S.B.15. **LOW TEMPERATURE MAGNETIC PROPERTIES OF Pr_{0.7}(Ca,Sr)_{0.3}CoO₃ OXIDES**
I.G. Deac, A. Vladescu, I. Balasz, A. Tunyagi, R. Tetean
Babes-Bolyai University Cluj-Napoca, Faculty of Physics, Cluj-Napoca, Romania
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B. Gligorijević¹, H. Schmidt², M. Šćepanović³, M. Kutin¹, M. Davidović¹
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¹Vinča Institute of Nuclear Sciences, Belgrade, Serbia, ²Institute for Multidisciplinary Research, Belgrade, Serbia
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¹*Institute of Techniques, University of Pedagogy, Krakow, Poland,* ²*Institute of Technical Sciences of SASA, Belgrade, Serbia,* ³*Lviv National University by Ivan Franko, Lviv, Ukraine,* ⁴*University of Forestry and Wood Technology, Lviv, Ukraine*
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¹*University of Banja Luka, Faculty of Science, Banja Luka, Bosnia and Herzegovina*, ²*IChTM, University of Belgrade, Department of Catalysis and Chemical Engineering, Belgrade, Serbia*, ³*IChTM, University of Belgrade, Department of Chemistry, Belgrade, Serbia*
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¹Vinča Institute of Nuclear Sciences, Belgrade, Serbia, ²Faculty of Mechanical Engineering, Belgrade, Serbia, ³Institute for testing materials-IMS, Belgrade, Serbia, ⁴Faculty of Technology and Metallurgy, Belgrade, Serbia
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¹Kurnakov Institute of General and Inorganic Chemistry RAS, Moscow, Russia, ²Institute of Physics PAS, Warsaw, Poland, ³Department of Physics, Moscow State University, Moscow, Russia, ⁴Kursk State Technical University, Kursk, Russia
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¹UNO-LUX NS d. o. o., Belgrade, Serbia, ²Institute for Multidisciplinary Research, Belgrade, Serbia, ³The "Vinča" Institute of Nuclear Sciences, Belgrade, Serbia, ⁴Faculty of Mechanical Engineering Kraljevo, Department of Applied Mechanics, Mathematics and Physics, University of Kragujevac, Kraljevo, Serbia, ⁵Faculty of Electrical Engineering, University of Belgrade, Belgrade, Serbia

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¹*CENIMAT/I3N, Faculdade de Ciências e Tecnologia (FCT), UNL, Monte de Caparica, Portugal,* ²*"Politehnica" University of Timisoara, Timisoara, Romania*
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¹*University of Montenegro, Faculty of Metallurgy and Technology, Podgorica, Montenegro,* ²*Central School of Chemical Technology, Podgorica, Montenegro*

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D. Hauserova¹, Z. Novy¹, J. Dlouhy¹, B. Masek²

¹COMTES FHT, Dobruany, Czech Republic, ²FORTECH, Pilsen, Czech Republic

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¹Karlsruhe Institute of Technology, Karlsruhe, Germany, ²Slovak Academy of Sciences, Košice, Slovakia, ³Volkswagen AG, Wolfsburg, Germany, ⁴Leibniz University Hannover, Hannover, Germany, ⁵Braunschweig University of Technology, Braunschweig, Germany
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¹*Faculty of Physical Chemistry, Belgrade, Serbia,* ²*Faculty of Chemistry, Belgrade, Serbia*

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¹Faculty of Pharmacy, Belgrade, Serbia, ²Faculty of Physical Chemistry, Belgrade, Serbia
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¹Alumina factory „Birac“, Zvornik, Republic of Srpska, Bosnia and Hercegovina,
²Faculty of Technology, Zvornik, Republic of Srpska, Bosnia and Hercegovina,
³Department of Materials Engineering, Faculty of Technology, Novi Sad, Serbia
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¹Vavilov State Optical Institute, St. Petersburg, Russia, ²Electrotechnical University (“LETI”), St. Petersburg, Russia, ³Institute of Technical Sciences of the SASA, Belgrade, Serbia
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I.M.Frantsevych Institute for Problems in Material Science of NAS of Ukraine, Kyiv, Ukraine

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Lj.M. Vračar⁵, N.V. Krstajić⁵

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¹University of Banja Luka, Medical Faculty, Republic of Srpska – BiH, ²University of Banja Luka, Faculty of Technology, Republic of Srpska – BiH, ³University of East Sarajevo, Faculty of Technology, Republic of Srpska – BiH, ⁴University of Novi Sad, Faculty of Sciences, Department of Physics, Vojvodina – Serbia, [†]Academy of Sciences and Arts of the Republic of Srpska – BiH

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**P.S.D.2. POLYMER-ORGANOCLAY HYBRIDS BY EMULSION
POLYMERIZATION INTO MONTMORILLONITE-VINYL MONOMER
INTERLAYERS**

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AND MECHANICAL PROPERTIES OF EPDM VULCANIZATES**

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FORMALDEHYDE RESINS**

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E. Sotja, D. Sotja
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Z. Ajduković¹, J. Milićević¹, M.B. Petrović¹, N. Djordjević², N. Ignjatović³, V. Savić⁴, D. Uskoković³
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I. Savanović, M. Stevanović, Z. Stojanović, Lj. Veselinović, D. Uskoković
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D. Mamula Tartalja¹, Lj. Konstantinović², N. Ivanović³, V. Randjelović Ćirić⁴, V. Andrić³, U. Jovanović³, Lj. Vulićević⁴
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P. Mašković¹, M. Cvijović¹, S. Solujić², M. Radojković³
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- P.S.E.16. CERVICAL SAMPLES ANALYSIS BY STANDARD PAPANICOLAU TEST AND NOVEL OPTO-MAGNETIC FINGERPRINT METHOD**
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- P.S.E.17. A COMPARISON OF BRACKET DEBONDING FORCES BETWEEN THE TWO ADHESIVES: CON TEC LC AND CON TEC DUO**
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P.S.A.26.

SYNTHESIS AND CRYSTAL STRUCTURE OF 1,2,3,4-TETRAHYDRO-9-AMINOACRIDINE TETRACHLOROZINCATE(II) MONOHYDRATE

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In the reaction of ZnCl₂ with tacrine hydrochloride in water novel tetracoordinated (C₁₃H₁₅N₂)₂[ZnCl₄]H₂O complex has been obtained and characterized by elemental analysis, molar conductivity and X-ray analysis. The structure contains two crystallographically different molecules of protonated tacrine present as counter cations, [ZnCl₄]²⁻ complex anion and one water solvent molecule. The counter cations slightly differ in puckering of the cyclohexenyl ring. The molecules of protonated tacrine are involved in different intermolecular hydrogen bonds. The π-π stacking interactions between the rings of protonated tacrine have been evidenced in the crystal. The [ZnCl₄]²⁻ complex anion has distorted tetrahedral geometry. Three out of four Cl atoms are involved in intermolecular hydrogen bonds. Intermolecular H-bond interactions that involve Cl atoms affect the Zn-Cl bond lengths.

P.S.A.27.

INFLUENCE OF SOLVENT ON THE FORMATION OF MELOXICAM-CARBOXYLIC ACID CO-CRYSTALS

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Meloxicam is a non-steroidal anti-inflammatory drug poorly soluble in water and in most of the organic solvents. One of the methods which allows to improve the bioavailability of poorly soluble drug is its co-crystallization with a suitable co-former. Seventeen co-crystals of meloxicam with different carboxylic acids were obtained by solvent-drop grinding technique using an agate mortar and SPEX 8000 vibration ball mill. In order to understand how solvent influence on the co-crystal formation, different kinds of solvents have been tested. For comparison, the co-crystals were prepared by crystallization from solution, using the same solvents. It was shown that depending on the solvent the co-crystals could be obtained in different forms or could not be obtained at all. The structures of the crystals generated by grinding and from solution were identical.

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