WELCOME

We have the pleasure to invite you to the **6th International Conference on Materials Science and Technologies – RoMat 2016** which will be held in **Bucharest (Romania)** from **November 09th to November 12th, 2016.**

The conference continue the tradition of successful conferences organized every two years by the Faculty Materials Science and Engineering from University Politehnica of Bucharest with the support of national and international scientific community on materials science and engineering. The conference is going to be held in the Conference Center established into the University POLITEHNICA of Bucharest, Romania. The conference will include plenary keynotes and invited lectures, as well as oral and poster presentations. Keynotes and invited plenary speakers from all over the world will present their latest research into the field.

The participants will have the opportunity to follow the latest technological developments and related academic research as well as novel designs and products that will be presented by the companies.

In addition, a Young Scientist Forum on Materials Engineering (YSF-ME) will run during the conference. The YSF-MSE is an event, aimed at discussing Materials Science and Engineering education and training in Europe, emphasizing the existing and emerging career, as well as research opportunities in the field. The main goal is to promote interactions between young scientists in the pre-doctoral and early post-doctoral stages.

RoMAT 2016 is an opportunity for the worldwide materials science and engineering community to share their recent achievements and to provide a forum for academic scientists and industrial researchers to meet and exchange valuable experiences.

We look forward to see you all in Bucharest!

Yours sincerely,

Iulian Antoniac

On behalf of the ROMAT 2016 Steering Committee

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TOPICS

- **Metallurgy and Metallurgical Engineering**
- **Processing Technologies**
- **Special Materials, Nanomaterials & Nanotechnologies**
- **Materials for Healthcare (biomaterials & medical devices)**
- **Materials for Energy and Environmental Sustainability**
- **Advanced Materials for Transportation (aerospace, automotive, marine and rail applications)**
- **Advanced Materials for Special Industrial Applications (defense industry and electronics)**
- **Materials Characterization & Testing**
- **Surface Engineering & Coatings**
- **Powder Metallurgy, Process Modeling & Simulation**
- **Education, Management, Innovation & Technological Transfer in Materials Engineering**

CONFERENCE VENUE

The conference will hold at Central Library from University POLITEHNICA of Bucharest, Splaiul Independentei nr. 313, sector 6.

University POLITEHNICA of Bucharest is the largest and the oldest technical university in the country and among the most prestigious universities in Romania. The tradition of our institution, developed in over 190 years through the effort of the most important nation's schoolmasters and of the generations of students, is not the only convincing reason. Today, University POLITEHNICA of Bucharest is undergoing a continuous modernization process, being involved in a permanent dialogue with great universities in Europe and all over the world.

The mission of University POLITEHNICA of Bucharest has been thought over as a blend of education, research and innovation, which represents a key towards a knowledge-based society and economy. Creating knowledge mainly by scientific research, giving it out by education and professional training, disseminating it by information technologies, as well as the use of technological innovation are elements that define the university distinctive profile.

Bucharest is Romania's capital and largest city, as well as the most important industrial and commercial centre of the country. With more than 2.4 million in the urban area, Bucharest is one of the important cities in Europe and a booming city with many large infrastructure projects changing the old face of the city.

Known in the past as "The Little Paris," Bucharest has changed a lot lately, and today it has become a very interesting mix of old and new that has little to do with its initial reputation. Bucharest offers some excellent attractions. Also, it has cultivated a sophisticated, trendy, and modern sensibility that many have come to expect from a European capital.

Bucharest`s main attraction is its Historic Centre, also known as The Old Town.

Other interesting sights include:

The Palace of the Parliament

The Peasant and Village Museums

The Romanian Athenaeum

The National History Museum.

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PROGRAM OVERVIEW

Wednesday, November 9th, 2016

Time	Event	Location
18.00-20.00	**Registration Desk Open**	*2nd floor Lobby*
19.00-20.30	**Welcome Cocktail**	*2nd floor Lobby*

Thursday, November 10th, 2016

Time	Event	Location
07.30-17.00	**Registration Desk Open**	*2nd floor Hall*
08.00-08.30	**Opening Ceremony**	*Conference room 2.1.*
08.30-10.00	**Keynote Session K1**	*Conference room 2.1.*
10.00-10.30	**Break - Poster Session & Exhibitor Visits**	*2nd floor Hall*
10.30-13.00	**Scientific Sessions A1**	*Conference room 2.1.*
10.30-13.00	**Scientific Sessions B1**	*Conference room 2.2.*
13.00-14.00	**Lunch**	*2nd floor Lobby*
14.00-15.00	**Keynote Session K2**	*Conference room 2.1.*
15.00-15.30	**Break - Poster Session & Exhibitor Visits**	*2nd floor Hall*
15.30-18.00	**Scientific Sessions A2**	*Conference room 2.1.*
15.30-18.00	**Scientific Sessions B2**	*Conference room 2.2.*
18.00-19.00	**Seminar** **Pioneers in Metallurgy and Materials Engineering**	*Conference room 2.1.*
20.00-23.00	**Gala Dinner**	***Restaurant**** ***Hotel Marshall Garden***

**Transportation will be assured by bus for invited speakers and participants that are not from Bucharest.*

Friday, November 11th, 2016

Time	Event	Location
07.30-17.00	**Registration Desk Open**	*2nd floor Hall*
08.30-10.00	**Keynote Session K3**	*Conference room 2.1.*
10.00-10.30	**Break - Poster Session & Exhibitor Visits**	*2nd floor Hall*
10.30-13.00	**Scientific Session A3**	*Conference room 2.1.*
10.30-13.00	**Scientific Session B3**	*Conference room 2.2.*
13.00-14.00	**Lunch**	*2nd floor Lobby*
14.00-15.00	**Keynote Session K4**	*Conference room 2.1.*
15.00-15.30	**Break - Poster Session & Exhibitor Visits**	*2nd floor Hall*
15.30-18.00	**Scientific Session A4**	*Conference room 2.1.*
15.30-18.00	**Scientific Session B4**	*Conference room 2.2.*
18.00-19.30	**Seminar** **Management, Innovation & Technological Transfer in Materials Engineering**	*Conference room 2.1.*
20.00-23.00	**President Banquet** ***(only by nominal invitation)***	***Restaurant Hanul Călugărenilor****

**Transportation will be assured by bus for invited speakers and participants that are not from Bucharest.*

Saturday, November 12th, 2016

Time	Event	Location
09.00-10.00	**Seminar** **Education & Curricula in Metallurgy and Materials Engineering**	*Faculty Materials Science and Engineering JA 101*
10.00-13.00	**Young Scientist Forum in Metallurgy and Materials Engineering** - **Industry demand for young researchers** - **A carrer in the research institute** - **Collaborative programmes for students**	*Faculty Materials Science and Engineering JA 101*

PROGRAM

Keynote Sessions

Thursday, November 10th, 2016

08.30-10.00 Keynote Session K1 (Conference room 2.1., *Central Library-UPB*)

Chairmans: ANTONIAC Iulian (Romania), PETRESCU Mircea Ionut (Romania)

- 08.30-09.00 RIPOSAN Iulian (Romania)
  Contribution to the Graphite Formation Mechanism in Cast Irons Melted and Solidified in Industrial Conditions
- 09.00-09.30 RELLINGHAUS Bernd (Germany)
  The Relevance of Transmission Electron Microscopy for the Understanding of Novel Nanostructured Materials
- 09.30-10.00 RUSTICHELLI Franco (Italy)
  Advanced Synchrotron Radiation and Neutron Scattering Techniques for Microstructural Characterization in Industrial Research

14.00-15.00 Keynote Session K2 (Conference room 2.1., *Central Library-UPB*)

Chairmans: PALMERO Paola (Italy), GHIBAN Brandusa (Romania)

- 14.00-14.30 TABATA Yasuhiko (Japan)
  Biomaterials Technology Indispensable for Regenerative Medicine
- 14.30-15.00 GOLLER Gultekin (Turkey)
  New Generation Thermal Barrier Coatings

Friday, November 11th, 2016

08.30-10.00 Keynote Session K3 (Conference room 2.1., *Central Library-UPB*)

Chairmans: PICONI Corrado (Italy), BRANZEI Mihai (Romania)

- 08.30-09.00 ANTONIAC Iulian (Romania)
  Biodegradable Magnesium Alloys for Medical Applications
- 09.00-09.30 SCHAFER Rudolf (Germany)
  Magneto-Optical Domain Imaging
- 09.30-10.00 TAMPIERI Anna (Italy)
  Nature-inspired Innovative Processes to Generate Smart Materials for Nanomedicine

14.00-15.00 Keynote Session K4 (Conference room 2.1., *Central Library-UPB*)

Chairmans: RUSTICHELLI Franco (Italy), GEANTA Victor (Romania)

- 14.00-14.30 POKROY Boaz (Israel)
  Bio-Inspired Crystal Growth: From Band Gap Engineering to Single Crystalline Nano-porous Gold
- 14.30-15.00 PALMERO Paola (Italy)
  Design and Processing of Novel Ceramic Composite Structures for Use in Medical Surgery

Keynote Session K1

KEYNOTE SPEAKER

Iulian Riposan is Professor at University POLITEHNICA of Bucharest, Materials Science and Engineering Faculty, Metallic Materials Processing and Eco-Metallurgy Department; Major teaching and research area: Cast Irons. Technical Books: Compacted Graphite Iron; White Irons; Bainitic Irons [Ed. TEHNICA, Bucharest, Romania]; Modification and Inoculation of Cast Iron [Chapter, ASM Handbook, Vol. 1A: Cast Irons, 2017]. More than 300 journal and conference published papers [more than 150 in other 31 countries]; more than 100 papers and patents in ISI Web of Knowledge-ISI Thomson Reuters [35 Patents, 30-Indexed in Derwent Innovation Index). 21 Papers represented Romania at World Foundry Congresses / World Foundry Organization – WFO [Romania is a WFO member], 1974 – 2014. 14 Papers at the last 9 (from 10) International / World Symposium on Cast Irons, 1974-2014 (member of the Int. Organizing Committee, 1998 – present). 35 Papers included in American Foundry Society (AFS) and Ductile Iron Society (DIS) Congresses and Conferences, USA / Canada / Mexico [1985-2016]. Cast Iron European Meetings [2009-2015, yearly, founder]. Awards: *American Foundry Society [AFS] AWARD OF SCIENTIFIC MERIT-2012 ["for advancing the knowledge of the cast iron industry through extensive research and for generously sharing his knowledge and expertise with the industry". "This is the highest recognition the American Foundry Society and your peers can give to individuals who have served the industry honourably and well. In presenting this award, we are confident it will bring you the recognition you so well deserve. The spirit in which you have fulfilled AFS' mission of sharing knowledge has been one of the main considerations in making this award"]. *THE BEST PAPER AWARD-63rd World Foundry Congress, 1998, (DI and C/VGI Contributions). *THE BEST OPERATING PAPER AWARD-106th AFS Casting Congress, USA 2002, (C/VGI, S addition after Mg-treatment).*THE BEST PAPER AWARD –107th AFS Casting Congress, USA 2003, (Iron Melt Desulphurization). *"Aurel Vlaicu" Award of Romanian Academy (1985) for C/VGI contributions. *2 Romanian National Awards for scientific and technical Creativity in modifying iron area (1987 and 1989). *10 Awards at Romanian National Patent Exhibitions. *Honour Diploma of POLITEHNICA University of Bucharest for invention activity (1988). *"HONORARY PROFESSOR" of "Dunarea de Jos" University, Galati, Romania, 2012.

Contribution to the Graphite Formation Mechanism in Cast Irons Melted and Solidified in Industrial Conditions

Iulian Riposan (Romania)

Abstract. The paper reviews original data obtained by the authors, recently disconnected published, concerning the specific solidification pattern, as graphite nucleation and growth mechanism in industrial cast irons [grey iron versus ductile iron]. A three-stage model for the nucleation of graphite in grey [lamellar/flake graphite] irons has been proposed: (1) formation of small oxide based sites (usually, < 3.0 μm) in the melt; (2) precipitation of complex (Mn,X)S compounds (usually, < 5.0 μm) nucleated by stage 1 micro-inclusions; (3) graphite nucleates on the sides of the (Mn,X)S compounds, which have low crystallographic misfit with graphite. Three groups of elements are important to sustain this sequence for effective graphite nucleation: (1) strong deoxidising elements, such as Al and Zr, to form a high count of very small stage 1 micro-inclusions [0.005 – 0.01(0.015)wt. %Al/Zr]; (2) Mn and S to sustain MnS type sulphide formation [(%Mn) x (%S) = 0.03 – 0.06]; (3) inoculating elements [Ca, Sr, Ba, Ce, La etc], which act in the first stage and/or in the second stage of the graphite nucleation sequence. In inoculated irons, the (Mn,X)S compounds are more complex, at a lower Mn/S ratio and higher capability to nucleate graphite, especially when preconditioning / inoculating elements contribute with a high count of effective stage 1 particles. Resulphurization with special formulated FeS briquetted, preconditioning with strong oxide forming elements, more potent inoculants and inoculation enhancing with S, O and Oxy-sulphides forming elements were found as beneficial solutions especially in critical solidification conditions. Two main chemistry systems of micro-inclusions can be identified in ductile [nodular/spheroidal graphite] iron: Ca-S-X and Mg-Si-O-X with the majority of the inclusions regardless of treatment type and location being of the second type, silicates. Simple silicates were present in the matrix, while more complex silicates were present in conjunction with graphite, probably acting as graphite nucleation sites (elevated levels of Al, Ca, Ce and La were typical). Comparing micro-particles embedded in iron matrix and graphite nodules of iron treated with pure Mg-metal and iron treated with MgFeSi alloy showed a higher amount of complex silicates with elevated Al-levels in the iron treated with MgFeSi. Residual aluminium of 0.005 to 0.020 wt.% appears to be beneficial for improving ductile iron solidification characteristics without the incidence of pinholes. Controlled S-addition after Mg-treatment in conjunction with inoculating elements and inoculation capacity of conventional inoculants enhancing by S, O and oxy-sulphides forming elements complex alloys contribution were mainly considered to sustain nodular graphite nucleation.

Keynote Session K1

KEYNOTE SPEAKER

Bernd Rellinghaus has earned his PhD in physics from the University of Duisburg, Germany. Awarded with a Research Stipend of the German Science Foundation, he joined the IBM Almaden Research Center in San Jose, CA, USA, in 1996, where he worked on magnetic materials for data storage. In 1997 he returned to Duisburg as a research assistant. In 2004, he moved to Dresden, Germany, where he since then heads the Department for Metastable and Nanostructured Materials at the Leibniz Institute for Solid State and Materials Research Dresden e.V. (IFW Dresden). As of March, 2016, he also serves as the Acting Director of the Dresden Center for Nanoanalysis, DCN. Bernd Rellinghaus is an expert in metallic materials, magnetism, nanoparticles and aberration-corrected high resolution transmission electron microscopy. Exploring structure-property relations down to the atomic scale is at the heart of his scientific interest. He has published more than 130 papers in reputed scientific journals.

The relevance of transmission electron microscopy for the understanding of novel nanostructured materials

Bernd Rellinghaus (Germany)

Abstract. Besides their intrinsically nanoscopic sizes, it is frequently the strongly enhanced surface-to-volume ratio that lends nanoparticulate materials their unique properties, which may differ largely from those of their bulk counterparts. Accordingly, at small sizes, surface energies become increasingly relevant to the overall thermodynamic stability of the occurring phases. Here, they effectively compete with cohesive, strain, grain boundary and twinning energies and thus contribute significantly to the total energy balance of the particle. As a consequence, both the morphology and structure, e.g., of nanoparticles are strongly affected by their surfaces. Again due to their tiny size, the physical properties of nanoparticles are usually determined from measurements on particle ensembles, and consequently, a direct correlation of single particle properties with their individual morphology and structure remains inaccessible. While high resolution (scanning) transmission electron microscopy, HR-(S)TEM, has meanwhile proven an indispensable tool to explore the structural details of nanostructured materials, the talk will show, how the combination of HR-(S)TEM with additional in-situ (here: magnetic) characterization techniques and theoretical model calculations contributes to solving materials problems at the nanoscale.

Besides a short review of our work on segregation phenomena in alloy nanoparticles (FePt, CuAu, FeNi, AuFe, … [1-5]), it will be shown, how detailed knowledge of the atomically resolved structure helps to understand the performance of prototype data storage media for future heat assisted magnetic recording (HAMR) [6-8]. The added value that is gained, when a mere structural characterization is combined with the local determination of, e.g., magnetic properties at the identical nanoscale object, will be demonstrated [9]. Finally, it will be discussed, how energy loss magnetic chiral dichroism (EMCD) and the use of electron vortex beams may pave the way towards atomic resolution quantitative magnetic measurements [10,11].

Keynote Session K1

KEYNOTE SPEAKER

Professor Franco Rustichelli studied at Scuola Normale Superiore di Pisa and then at the University of Milano, where he got the degree in Physics in November 1962. In 1966 he got the degree of Specializzazione in Ingegneria Nucleare at the University of Bologna. In 1970 he got the "Libera Docenza" in Nuclear Reactor Physics. From 1962 to 1982 he was research physicist at EUROPEAN ATOMIC ENERGY COMMISSION, at Ispra Research Center. From 1968 to 1982 he carried out researches at the High Flux Reactor of the Institute LaueLangevin (Grenoble), France, by applying neutron scattering to Material Science and Biophysics. Since 1982 he is full Professor of Physics at the University of Ancona (Italy). He has developed a vast experience in fields like material science, biophysics, biomaterials and stem cells research.

Co-editor and co-author of the Book: F.Rustichelli-J.Skrzypek (Editors), "Innovative Technological Materials – Structural Properties by Neutron Scattering, Synchrotron Radiation and Modelling" – Springer (2010) – ISBN 978-3-642-12058-9

He presented several keynote and invited presentations at International Conferences, in particular RUSNANOFORUM (2008) and (2009) and especially in the in the fields of Nanotechnology and Stem Cells.

He has taken part to more than 40 EU Projects, in some of them as coordinator or task coordinator, exploiting his experience in experimental investigations using small angle scattering (SANS/SAXS), X-ray synchrotron radiation microtomography and other techniques available at European Large Scale Facilities. Since June 2011 he is the European Coordinator of the COST Action MP1005 "From nano to macro biomaterials (design, processing, characterization, modeling) and applications to stem cells regenerative orthopaedic and dental medicine (NAMABIO)" and since March 2011 he is the European Coordinator of the EU project "Immersion in Scientific Worlds through Arts (ISWA).

The current research activities are related to material science, biophysics, biomaterials and stem cells research. He published more than 290 papers on international journals in different fields. Since several years he is involved in researchers related to Regenerative Medicine in particular in the field of Bone Tissue Engineering, Muscular Dystrophy and more recently in Cardiology, by Synchrotron Radiation Techniques like X-Ray Computed Microtomography, X-Ray Holotomography (allowing visualization of blood vessels without using contrast agents).

Advanced Synchrotron Radiation and Neutron Scattering Techniques for Microstructural Characterization in Industrial Research

Franco Rustichelli (Italy)

Abstract.

Concept

The rapid development of new materials and their application in an extremely wide variety of research and technological fields has lead to the request of increasingly sophisticated characterisation methods. In particular residual stress measurements by X-ray synchrotron radiation and neutron diffraction,small angle scattering of these two types of radiation and 3D imaging techniques with spatial resolution at the micron or even sub-micron scale, like micro-and nano-computerized tomography, have gained a great relevance in recent years. Experimental beamlines are available to this end in several european countries. We mention only the italian one, namely Elettra in Trieste and the most powerful one, ESRF in Grenoble (France).

Motivations and Objectives

Residual stresses are auto balancing stresses existing in a free body not submitted to any external surface force. Several manufacturing processes and thermal and mechanical treatments leave residual stresses within the components. In alternative to more conventional methods to determine residual stresses, the Bragg diffraction of X-rays and neutrons can be used to determine in non destructive way the residual elastic strains, and by knowing the elastic constants of the material and by using the elasticity equations, it is possible to obtain the elastic residual stresses. Small Angle Scattering of neutrons or X-rays allow the determination of structural features, such as the volume fraction , specific surface and size distribution of inhomogeneities imbedded in a matrix, in a huge variety of materials of industrial interest. These non-destructive techniques are complementary to Transmission Electron Microscopy. The X-ray or neutron microtomography is similar to conventional Computed Tomography employed in Medicine, but with much higher spatial resolution reaching values below the micron. These techniques allow obtaining a 3D imaging of the investigated samples.

Results and Discussion

At first some results are presented concerning the determination of residual stresses in a material for the first wall of a fusion reactor submitted to thermal fatigue, which result in good agreement with theoretical predictions. Then results are presented of residual stresses determined in components consisting of metal matrix composites, of interest either for the aeronautical or for the automotive industry, and in a welded plate of an Al alloy delivered by ESA and used in space research. Results of applications of Small Angle Scattering are presented related to the microstructure investigation of precipitation in Al- Li and Mg-Y-Nd alloys and of the creep damage in AISI 304 stainless steel. Finally the results of imaging are presented, obtained by Microtomography, in the study of fracture of Metal Matrix Composites, in sintering of metallic powders and 3D structure of graded Al foams for multifunctional aerospace applications. All the presented results are discussed and very often compared to theoretical predictions.

Keynote Session K2

KEYNOTE SPEAKER

Dr. Yasuhiko Tabata is the Professor and Chairman of the Department of Biomaterials at the Institute for Frontier Medical Sciences, Kyoto University and a Professor of the Graduate School of Medicine, Osaka University, and a Professor of the School of Life Dentistry, Nippon Dental College, Japan and serves as visiting professors at Graduate School of Medicine, Dentistry, Pharmaceutical Sciences, and Engineering of 14 different universities. He received his BD in Polymer Chemistry (1981), Ph.D. (1988) in Polymer Science, D.Med.Sci. (2002) in Regenerative Medicine, and D.Pharm. (2003) in Pharmaceutical Sciences all at Kyoto University. He was a Visiting Scientist at the MIT (Professor Robert Langer) (1991-92). He has published 1300 scientific papers including 120 book chapters and review articles, and has 140 patents. He received the Young Investigator Award (1990), the Scientific Award from the Japanese Society for Biomaterials (2002), the Scientific Award from the Japan Society of Drug Delivery System (2011), Chandra P. Sharma Award of the International Society of Biomaterials & Artificial Organs (2011), the Scientific Award from the Japanese Society for Regenerative Medicine (2014), and several awards. He is an associate member of the Science Council of Japan, Cabinet Office and the New York Academy of Science and a fellow of American Institute for Medical and Biological Engineering (AIMBE) and American Institute for Medical and Biological Engineering. Also, he was elected the Founding Fellow for Tissue Engineering and Regenerative Medicine (FTERM).

Dr. Tabata is the Board Governor of the Tissue Engineering and Regenerative Medicine Society International, the Japanese Regenerative Medicine Society, the Japanese Society for Biomaterials, the Society for Hard Tissue Regenerative Medicine, the Japan Society of Drug Delivery System, and the Japanese Society of Inflammation and Regeneration or the Councilor of the Japanese Society of Wound Healing, the Japanese Artificial Organ Society, and the Editorial Board of Tissue Engineering, Journal of Tissue Engineering and Regenerative Medicine, Bioconjugate Chemistry, Journal of Biomaterial Sciences, Polymer Edition, and Journal of Biomedical Nanotechnology.

Dr. Tabata is a member of Tissue Engineering and Regenerative Medicine International Society and American Biomedical Engineering Society. He was the one of Founder Members of Asian Biomaterial Federation (ABF). He was a council member of Tissue Engineering Society International for 2001-2003 and 2012-present.

His research is very interdisciplinary in nature and brings together the fields of polymer chemistry, pharmaceutical science, biology, and basic and clinical medicines. His research focuses on the design and preparation of biodegradable or non- biodegradable biomaterials for their biological, medical, and pharmaceutical applications, while the keywords are biomaterials, drug delivery system (DDS), tissue engineering, regenerative medicine, stem cell technology, and medical diagnostics.

Biomaterials Technology Indispensable for Regenerative Medicine

Yasuhiko Tabata (Japan)

Abstract. As the third choice of advanced medical therapy following reconstruction surgery and organ transplantation, a new therapeutic trial based on the natural self-healing potential of body itself to induce tissues regeneration and repairing, has been recently expected. The healing potential is physiologically based on the ability of cells for proliferation and differentiation. To realize this tissue regeneration therapy, there are two practical approaches; cell therapy and tissue engineering. The cells with a high ability are transplanted into the tissue site to be regenerated, and tissue regeneration by cells transplanted is expected to achieve the site. The idea of tissue engineering is to artificially create a local environment for enhancement of cells proliferation and differentiation abilities, resulting in cell-induced tissue regeneration, by making use of biomaterials technology. The tissue engineering is one newly emerging field of biomaterials. For examples, biomaterials are being used as the cell scaffold and delivery carrier of biosignaling molecules (growth factor and gene). If a key growth factor is supplied to the right place at the right time period and concentration, it is no doubt that the body system will initiate to physiologically function, resulting in the natural induction of tissue regeneration. One practically possible way to enhance the in vivo therapeutic efficacy of growth factor with in vivo short half-life period is to make use of drug delivery system (DDS) technology.

We have explored biodegradable hydrogels for the controlled release of various growth factors and succeeded in the growth factor-induced regeneration and repairing of different tissues. Some tissue regeneration trials with biomaterials have been clinically started to demonstrate the good therapeutic efficacy. The release system can be combined with cells or/and the cell scaffold to promote the therapeutic efficacy of tissue regeneration. Combination with the biomaterials technology also enhances the therapeutic efficacy of cell transplantation. On the other hand, the hydrogel system is also applicable for the dual release of chemokine and growth factor in different time profiles. For example, a chemokine is release to enhance the in vivo recruitment of stem cells to a target site to be regenerated, followed by the release of growth factor to activate the cells recruited thereat, resulting in an enhanced cell-based tissue regeneration. In addition, the biomaterial technology is applicable to regenerative researches (the basic research of stem cells and drug discovery) which can scientifically support the regenerative therapy of next generation.

In this paper, several concrete examples of regenerative medicine with the cell scaffold and DDS-based regeneration are presented to emphasize scientific and clinical significance of biomaterials technology in regeneration therapy and regeneration research.

Keynote Session K2

KEYNOTE SPEAKER

Prof. Dr. Gultekin Goller is a materials science professor who graduated from Istanbul Technical University in 1989 with a B.S. in Metallurgical Engineering. In 1997, he received his Ph.D. in the field of Metallurgical and Materials Engineering from Istanbul Technical University. He attended to the Tribology Group of Cleveland State University in 1995 as a UNIDO fellow. He joined to the Metallurgical and Materials Engineering Department of ITU in 1999 as an assistant professor.

Professor Goller was promoted to associate professor in 2005 and became a full professor in 2010.

His professional and scientific activity comprises: papers, which are cited over 700 times, published in science citation index journals (85); papers published in international peer-review periodicals (7); the proceedings of international or national conferences (66); participating in different international or national research projects (47); author of international book chapter (1); member of the scientific committee of different meetings; head of the organizing committee for different international conferences; member of the International Editorial Board of some journals; and reviewer for different journals.

New Generation Thermal Barrier Coatings

Gultekin Goller (Turkey)

Abstract. In recent years, there are a lot of study concerning to develop alternative thermal barrier coating material having superior properties than YSZ [1-13]. It is understood from the literature [1-4, 12,13] that, one of the most promising alternative TBC material is GZ (Gd2Zr2O7) due to its high thermal stability and low thermal conductivity than YSZ, and another one is CYSZ (ceria–yttria stabilized zirconia) due to the its high coefficient of thermal expansion. However, low thermal cycling performance of GZ and high thermal conductivity of the CYSZ are big issues to use them as TBC material.

In this study, GZ (Gd2Zr2O7)/CYSZ (ceria–yttria stabilized zirconia) multilayered (MLed) and functionally graded (FGed) TBCs were produced by high-velocity oxy-fuel (for bond coat) and air plasma spraying processes (for ceramic top coats) in 2, 4, 8 and 12 layers. Main purposes of this study were to increase the thermal cycling and thermal shock performance of GZ-based TBC. The secondly to show superior properties (such as thermal conductivity, bonding strength and CMAS+hot corrosion resistance) of the GZ based MLed and FGed TBC than single layered YSZ and to determine the optimum laser surface modification parameters for GZ based TBC.

According to the results, good lamination between layers was achieved. Porosity level was increased with the increasing number of layers. This was mainly due to the fast cooling and shrinkage during discontinuous (layer by layer spraying) coating process. Thermal conductivity values showed a decrease with the increasing porosity level and number of layers. This situation was attributed to the interfaces and porosities acted as phonon scattering centers. Bonding strength values was decreased with the increasing porosity level. During thermal cycle performance test, which was carried out by using oxy-propane flame, the failure mode was dominantly edge spallation. There was no spallation or microstructural crack on the coating having functionally graded 8 layers after thermal cycle performance test after 300 cycles.

However big or small spallations were observed on the other coatings. Similarly, thermal shock lifetime of the coating having functionally graded 8 layers was superior than other single layered, MLed and FGed coatings. Thermal cycling performance and thermal shock lifetime of GZ single layered coating was improved especially with FGed designs. Because CYSZ layer having higher CTE than GZ balanced the large CTE difference between bond coat and GZ layer. Also, graded distribution of the two phases decreased the high thermal stress in the coating. CMAS+hot corrosion test showed that a reaction layer between CMAS+hot corrosion products and GZ based FGed coating prevented the further penetration of the reaction products.

On the other hand, optimum laser remelting parameters in terms of melting depth, cross-sectional damage, surface quality and distribution of the crack network for GZ based TBCs were determined.

Keynote Session K3

KEYNOTE SPEAKER

Iulian Antoniac obtained his M.E., Ph.D. and Postdoc degrees in Materials Science at University Politehnica of Bucharest. Since 2002, he has been associated with the Medical Engineering program in the Faculty Materials Science and Engineering, University Politehnica of Bucharest, which is focused on biomaterials obtaining and characterization, medical image processing and the development of new implants for medical applications. Dr. Iulian Antoniac is the leader of the Biomaterials Group, head of the Biomaterials & Interface Phenomenon Laboratory, full professor at Faculty Materials Science and Engineering.

He was appointed Vice Dean of Faculty Materials Science and Engineering and member of the Senate of University Politehnica of Bucharest in 2016.

Dr. Antoniac has published widely, with over 200 papers published in peer-reviewed journals and conference proceedings, 7 patents, several books (like Handbook of Bioceramics and Biocomposites) and many invited lectures at conferences focused on biomaterials, bioceramics and materials science. In 2005, he received the Daniel Bunea Award from the Romanian Society for Biomaterials. Dr. Antoniac is currently Vice President and Council Member of the Romanian Society for Biomaterials (SRB), Former President and permanent Member of Executive Committee of the International Society for Ceramics in Medicine (ISCM).

Dr. Antoniac's research interests include: metallic biomaterials for orthopedic and dental applications, bioceramic coatings, biocomposites, retrieval analysis of explants, microscopy techniques for materials characterization, bone regeneration, physical and chemical characterization of nano- and micro- particles for biomedical application. Present areas of research work: bioceramics, biocomposites, biodegradable metallic biomaterials, surface modification, interaction tissuebiomaterials, biointerfaces, bone regeneration, retrieval and failure analysis of orthopedic and dental implants.

Biodegradable magnesium alloys potentially used for medical applications

Iulian Antoniac
Materials Science and Engineering Faculty, University Politehnica of Bucharest, Romania

Abstract. Biodegradable metals and especially magnesium based alloys have been suggested as revolutionary biomaterials for medical applications due to their biodegradability, non-toxicity and their mechanical properties closer to hard tissue than other biodegradable materials like polymers or bioceramics. Metallic implants made by magnesium alloys looks to present several advantages over other implantable metals currently in use, such as eliminating the effects of stress shielding and the requirement of a second surgery for implant removal. Unfortunately, the fast degradation rates of these alloys impose some limitations. This necessitates development of implants with controlled degradation rates to match the kinetics of tissue healing. Application of biocompatible and biodegradable coatings able to delay the onset of magnesium corrosion appears to be a potential solution.

In this paper, the results obtained related to biodegradable magnesium alloys, the improvment of their properties after the use of different coatings methods and different bioceramics on the biodegradable magnesium alloys. Hydroxyapatite and bioactive glass was used as coating materials, deposited by radio frecvency magnetron sputtering. The morphology, composition, structure and adhesion of these coatings was evaluated by different techniques and corrosion properties and biocompatibility was evaluated.

This presentation will provide an overview on biodegradable magnesium alloys potentially used for medical applications and of current possibilities for deposition of different bioceramics on biodegradable magnesium alloys. The literature analysis and experimental results obtained revealed that biodegradable magnesium alloys are promising biomaterials for medical devices.

Keynote Session K3

KEYNOTE SPEAKER

Rudolf Schäfer received the diploma degree in Materials Science and the Ph.D. degree in Engineering from the University of Erlangen-Nürnberg (Germany) in 1985 and 1990, respectively. He then joined the IBM Research Center in Yorktown Heights (USA) and the Forschungszentrum Jülich (Germany) as a Postdoc in 1991 and 1992, respectively. In 1993 Rudolf Schäfer moved to the IFW Dresden (now Leibniz Institute for Solid State and Materials Research Dresden, Germany) where he became head of the department “Magnetic Microstructures” in 2002. In 2011, Dr. Schäfer was appointed adjunct professor for Magnetic Materials at the Institute for Materials Science at Technical University Dresden.
His areas of interest span magnetic materials with a focus on magnetic microstructures and domain imaging by Kerr microscopy.
He has published more than 150 technical articles in peer-reviewed journals, including book chapters. Together with Alex Hubert he has coauthored the textbook “Magnetic Domains“ (seehttp://www.springer.com/de/book/9783540641087). A more recent textbook (seehttp://www.springer.com/de/book/9783662445310) also includes an extended chapter on magneto-optical imaging.
Prof. Schäfer chaired the technical committee for “Magnetic Imaging” of the IEEE Society for 10 years and is currently member of the AdCom and CEC of the IEEE Magnetics Society.
In 2013 he was Distinguished Lecturer of the IEEE Magnetics Society.

Magneto-Optical Domain Imaging

Rudolf Schafer (Germany)

Abstract. The characterization of magnetic materials in research and development usually relies on the measurement of hysteresis curves. For the interpretation of such curves it is often helpful to study the magnetic domains and magnetization processes that are responsible for hysteresis effects. Magneto-optical microscopy, in particular Kerr microscopy, is just one among many techniques to image domains and processes, and it may be considered a „classical“ method (compared to „modern“ magnetic microscopy based, for instance, on circular X-ray dichroism or spin-polarized tunneling). Nevertheless, it is the most flexible and versatile technique and due to substantial technical progress in recent time magneto-optical domain imaging becomes very powerful again.

In this presentation, a review will be given on the possibilities and recent developments of magnetic domain imaging by wide-field magneto-optical microscopy. Besides some basics, this includes depth-sensitive and time-resolved domain imaging, a mathematical deconvolution method to enhance the lateral resolution, and on the other hand an overview imaging tool to maximize the field of view. Novel light-emitting diode (LED) lamps allow for contrast separation and -enhancement, vector magnetometry and in-situ quantitative Kerr microscopy of complete magnetization processes, as will be demonstrated on magnetic film and bulk materials.

By using magneto-optic indicator films (MOIF) with perpendicular or in-plane anisotropy, it is possible to image magnetic poles by Faraday microscopy. With the MOIF technique domain information can be obtained in cases where the sample surface is coated like on electrical steel. By using perpendicular MOIF films the domain contrast is even strong enough to allow for single-shot time-resolved imaging of coated transformer steel up to power.

Keynote Session K3

KEYNOTE SPEAKER

Anna Tampieri

Affiliation:
Institute of Science and Technology for Ceramics of the National Research Council (ISTEC-CNR)
Position:
Director and Head of the Department of Bio-ceramics and Bio-hybrid composites.
Research topics:
Nanomaterials for regenerative medicine and Theranostics

Anna Tampieri, Chemist, 30 years of experience in Material Science, particularly addressed to biomimetic materials and devices for regeneration of hard and soft tissues and organs. She authored more than 200 scientific papers published on peer-reviewed Journals and about 20 book chapters (H index =39 based on Scopus).
She is inventor of 16 National and International patents, several of which are licensed to companies acting in the biomedical fields and translated to 7 commercial products. She is Editor of a monography dealing with bio-inspired approaches in regenerative medicine, and Guest Editor of several international scientific journals.
Coordinator of 8 EC-funded projects belonging the 6^{th} and 7^{th} European Framework Programmed, and WP leader in 6-EC-funded projects. Coordinator of several national projects. Since 2009 she is member of the European technology Platform for Nanomedicine. She is Scientific Advisor for European Comission for funding scheme ERC-projects.
Organizer and Chair of several National and International Symposia, Schools and Conferences on Biomaterials.
Associated Professor in Medical Science and Applied Biotecnology, since 2014. Senior Affiliate Member at the Methodist Hospital Research Institute, Houston, U.S.A. Founder of the company FINCERAMICA Biomedical Solution S.p.A, she was the Idea-women, then President and today is the Head of the Scientific Advisory Board. Consultant for several chemical, biochemical and pharma companies (e.g.Johnson&Johnson, FINCERAMICA Biomedical Devices, Menarini Pharma). Former scientific advisor of the Italian Ministry of Economic Development and Industry, and of the Ministry of the French Industrial Research in 2011.
Awarded by the TIME Magazine for “from Wood to Bone” as the 30° research among the most important 50 researchers in 2009. Awarded from Massachusetts Institute of Technology Review for the project GreenBone (biomimetic bone implants).

Nature-inspired innovative processes to generate smart materials for nanomedicine

Anna Tampieri (Italy)

Abstract. Smart "fabrication" is based on bio-inspired processes where complex phenomena such us of assembly and mineralization are driven by information stored into the complex structure of organic macromolecules and transferred to the mineral component, thus exhibiting unprecedented features. These processes can be also used to generate hybrid composites and/or 3D constructs exhibiting hierarchical organization endowed with apparently antithetical features: mechanical resistance and high flexibility, elective specificity and high adaptable functionalities.

Nature adopts these processes to build nanocomposites having smart functions and improved sustain and protection, such as bone and shells. Indeed bone tissue is a typical example of hybrid composite whose formation is governed by self-assembling and organization of collagen molecules in a complex 3-D structure, which acts as a template for mineralization with nanocrystalline apatitic phase. In this process the physicochemical and ultrastructural constraints exerted by the collagen matrix force the ceramic phase to heterogeneous nucleation at specific sites and controlled crystal growth and orientation. These unique features are the source of the bioactivity of the ceramic phase, i.e. the active dialogue between cells and the hybrid composite that enable the cascade of events at the basis of the bone remodeling and repair.

The mineralization process has been applied and tailored to yield fibrous constructs with different extent of ceramic phase components and high mimicry with various mineralized and non-mineralized tissues, to be used as scaffolds for regeneration of multifunctional tissues such as osteochondral and periodontal regions.

Hybrid composites with different compositions and functionalities have been validated in silico and in vivo and finally cases applied to regenerative medicine will be presented.

The disordered structure of such hybrid devices well resemble all the features of immature bone tissues, however besides their higher regenerative potential, they are characterized by limited mechanical performance that prevent their application in load-bearing sites.

In order to respond to the still unmet clinical need of regenerating load-bearing segmental bones, nature is again the golden source of inspiration for material scientists, due to the possibility of using the amazing, hierarchically organized architecture of living structures such as woods. Biomorphic transformation processes have been developed to transfer the outstanding and unique performance of natural structures to synthetic materials. Results were recently achieved by applying a sequence of heterogeneous reactions at the interface between solids (woods) and gaseous reactants that enable controlled phase transformation of complex hierarchically organized structure into smart porous materials.

Such approach can be considered as a revolution in ceramic science, since it allows, at a very low temperature, the activation of simultaneous phenomena of crystals growth and grain interaction/consolidation, thus generating materials with unprecedented functional and mechanical performances.

Particularly, biomimetic scaffolds with improved bioactivity and biomechanical performance have been developed to substitute and regenerate load-bearing segmental bones.

In addition, to improve the healing in aged patients and/or in presence of degenerative diseases, it is mandatory to boost the regenerative potential of the innovative designed scaffolds. In this view a new approach has been proposed to avoid the use of biologics and their inherent drawbacks, consisting in the use of superparamagnetism induced by remote activation. A new superparamagnetic, bioactive and bioresorbable apatite nanophase (FeHA) was developed through controlled substitution of Ca^{2+} ions with Fe^{2+} and Fe^{3+} ions. Integration of the new magnetic bio-resorbable nano-phase was proposed in different tipology of biomimetic scaffolds

Thanks to the presented results and preliminary proofs of concept it can be envisaged that the development of new materials inspired by nature can open new horizons for developing innovative bio-devices representing a breakthrough in the wide field of nanomedicine.

Keynote Session K4

KEYNOTE SPEAKER

Boaz Pokroy is an associate professor in the Department of Materials Science and Engineering at the Technion–Israel Institute of Technology, where he earned all of his degrees. Previously, he was a postdoctoral fellow and Fulbright Scholar in the laboratory of Prof. Joanna Aizenberg at the School of Engineering and Applied Sciences at Harvard University and Bell Labs. Pokroy's research focuses on biomineralization and bio-inspired surface engineering. He studies the structure of biominerals on the atomic, nano-, and mesoscales using state-of-the-art high-resolution characterization techniques such as high-resolution synchrotron diffraction and aberration-corrected transmission electron microscopy. Based on the strategies that organisms use to produce natural materials, his lab also develops novel bio-inspired materials, such as semiconductors whose bandgap can be tuned by the incorporation of intracrystalline biological molecules; controlling the short-range order of nano-amorphous materials; and fabrication of superhydrophobic/superoleophobic surfaces for various applications.
Pokroy was awarded the 2010 Allon Fellowships for Outstanding Young Researchers and the prestigious ERC starting grant in 2013.

Bio-Inspired Crystal Growth: From band gap engineering to single crystalline nano-porous gold

Boaz Pokroy (Israel)

Abstract. In the course of biomineralization, organisms produce a large variety of functional biogenic crystals that exhibit fascinating mechanical, optical, magnetic and other characteristics. More specifically, when living organisms grow crystals they can effectively control polymorph selection as well as the crystal morphology, shape, and even atomic structure. Materials existing in nature have extraordinary and specific functions, yet the materials employed in nature are quite different from those engineers would select. I will show how one can emulate specific strategies used by organisms in forming structural biogenic crystals, and to apply these strategies biomimetically so as to form new structural materials with new properties and characteristics. The two main examples I will present are the formation of nano-hybrid composites with tuned electronic properties and the formation of curved and nano-porous single crystals of gold. Utilizing these biological strategies can indeed open new routes for the formation of new materials.

Keynote Session K4

KEYNOTE SPEAKER

Paola Palmero is Assistant Professor of Materials Science and Technology at Politecnico of Torino, Italy. From January 2002 she is involved in research activities at the Department of Applied Science and Technology of Politecnico, as Ph.D. student (January 2002-Dicember 2005), then as research fellow and finally, from April 2006, as Assistant Professor. In December 2014 she gained the Scientific Habilitation for Associate Professor in Material Science and Technology.

Her main research activities deal with the design, elaboration and characterization of monolithic and composite/nanocomposite ceramic materials for structural and functional applications. In particular way, she is involved in the development of ceramic materials for biomedical devices: bioactive ceramics and polymer-ceramic composites for bone substitutes and scaffolds, inert ceramics for orthopedic bearings, for spine implants and for dental devices. Most of her research activities in this field were carried out in the frame of National (PRIN 2006) or European (NANOKER, 6th FP; LONGLIFE, 7th FP) projects. She is currently the Vice-Chair of the Cost Action “New Generation Biomimetic and Customized Implants for Bone Engineering”, which involves the participation of 31 European countries and about 150 partners from academy and industry. She is member of the Advisory Board of the European project “SINTERCER”; she is Committee member of the International Confederation of Thermal Analysis and Calorimery (ICTAC) and of the Young Ceramic Researchers Network (YCN). Her scientific activities gave rise to about 75 papers, more than 50 indexed in Web of Science and Scopus databases. Due to the scientific production, she received different grants in the frame of Politecnico actions to young researchers. Her works were presented at numerous international conferences, many of them as invited talks. She is currently co-inventor of 5 patents (three Italian patents, one European Patent, one PCT).

Design and processing of novel ceramic composite structures for use in medical surgery

Paola Palmero (Italy)

Abstract. With the increase of life expectancy, the need for artificial biomedical devices having improved performance and durability is increasing as well. This implies new challenges for the materials used in these applications: improved mechanical properties and long-lasting biocompatibility. In this frame, zirconia-toughened alumina (ZTA) composites have demonstrated their effectiveness for orthopaedic applications and recently the first composite femoral heads have been developed and commercialised. On the other side, tetragonal zirconia polycrystals (TZP) and zirconia-based composites have shown their feasibility for spine and especially oral implants, as these ceramics match biocompatibility, mechanical specifications and aesthetic properties, as required for dental applications. However, the main issue in these materials is keeping a homogeneous microstructure and a fine zirconia grain size, necessary to produce reliable biomedical devices with the expected performances. Most ZTA and TZP-based composites are currently produced by mechanical mixing of the constituent phases. This route does not assure a completely homogeneous dispersion of the second phase particles inside the zirconia matrix, not even a rigorous tailoring of all the microstructural features of the sintered bodies. Therefore, it is here presented a novel approach concerning materials design and elaboration of nano-composite ceramics for orthopaedic and oral applications. This approach allows an effective tailoring of the powder characteristics, sintered microstructures and final properties, with the aim of fabricating biomedical devices characterized by a perfect reliability and a lifetime longer than 60 years. By this strategy, a careful control and optimisation of the main ceramic processing steps is carried out, leading to robust relationships among composition, architecture and performances in terms of mechanical behaviour and durability. In particular way, attention will be paid to the elaboration of alumina- and zirconia-based composite powders, by exploiting a simple but reliable powder coating method, able to assure the required microstructural features to the developed material. Sintering will be also optimized toward the fabrication of fully dense materials, in which a perfect tailoring of the microstructural parameters (grain size, distribution and morphology of secondary phases) will be achieved. By this strategy, new strong, tough and stable ceramics are successfully produced with evaluable applications for medical surgery.

PROGRAM

Scientific Sessions – Invited Lectures & Oral Presentations

Thursday, November 10th, 2016

Scientific Session A1

Metallurgy, Metallurgical Engineering and Processing Technologies

10.30-13.00 (Conference room 2.1., Central Library-UPB)

Chairmans:

Iulian Riposan (Romania), Onuralp Yucel (Turkey), Mihai Buzatu (Romania)

Invited Lectures

10.30-10.50 **Mario ROSSO (Italy)**
Development of innovative sequential casting FGM like of Al alloys
10.50-11.10 **Sveto CVETKOVSKI (Macedonia)**
Determination of heat input in TIG and laser welding of optim 960 QC structural steel using Adams' equation for 2-D heat distribution
11.10-11.30 **Victor GEANTA (Romania)**
Zirconium influence on the microstructure and micro hardness properties of FeCrAl alloys for nuclear power plant 4R generation

Oral Presentations (11.30-13.00)

Brazing behavior of Ag-Cu filler materials
Ionelia VOICULESCU, V. Geanta, H. Binchiciu, I.M. Vasile, R. Stefanoiu
CoCrFeNiMo high entropy alloy produced by solid state processing
Ioana CSÁKI, Sigrún Nana KARLSDOTTIR, Steluța SERGHIUȚĂ, Gabriela POPESCU, Mihai BUZATU, Laura Elena GEAMBAZU, Ciprian Alexandru MANEA
Toward ensuring total working safety of the metal products by testing them with automated PA and Cobra systems
Eugen PRUTEANU, Irina Camelia BALAN
Pressure Influence on the AlCrFeNiMn-Graphite High EntropyComposite Microhardness
Gabriela POPESCU**,** Mihai BRANZEI, Cristian Aurelian POPESCU, Alecs Andrei MATEI, Roxana Trusca, Ioana CSAKI
Researches Concerning the Modification of the AlloyAlSi12CuNiMg
Gabriel Valeriu GHICA, Mihai BUZATU, Ionuț Mircea PETRESCU, Gheorghe IACOB, Augustin SEMENESCU, Tünde Anna KOVACS-COSKUN
Debates

Thursday, November 10th, 2016

Scientific Session B1

Materials for Healthcare I

10.30-13.00 (Conference room 2.2., Central Library-UPB)

Chairmans:

Gultekin Goller (Turkey), Mircea Nicoara (Romania), Cosmin Cotrut (Romania)

Invited Lectures

10.30-10.50 **Florin MICULESCU (Romania)**
Sintering strategies for calcium phosphates derived from natural precursors
10.50-11.10 **Corrado PICONI (Italy)**
New materials in dental implantology
11.10-11.30 **Cosmin SINESCU (Romania)**
Evaluation of dental applications by Non-Invasive Methods
11.30-11.50 **Flaviu GOSTIN (U.K.)**
Characterisation of corrosion products of a Ti-based metallic glass in artificial pits by in situ synchrotron X-ray diffraction

Oral Presentations (11.50-13.00)

Sputtered hydroxyapatite coatings used for enhancing the titanium based alloy osseointegration
Alina VLADESCU, Irina TITORENCU, Viorel BRAIC, Adrian KISS and Mariana BRAIC
Structure and biocompatibility properties of hydroxiapatite coatings deposited by pulsed laser technique
Sorin CIUCA, Liviu DUTA, Andrei BERBECARU, Mihai BRANZEI, Ruxandra PAUNESCU – DUMITRESCU, Olivia DOBRICA, Ioana GHERGHESCU
An Improved SDAR-AES Approach for Estimation of the Detrimental Elemental Contents into an AISI 316L Grade
Ramona Nicoleta TURCU, Catalin Eugen SFAT, Mihai BRANZEI, Mihai Ovidiu COJOCARU and Ion PENCEA
Debates

Thursday, November 10th, 2016

Scientific Session A2

Materials Characterization & Testing I

15.30-18.00 (Conference room 2.1., Central Library-UPB)

Chairmans:

Ildiko Peter (Italy), Vasile Bratu (Romania), Ioana Csaki (Romania)

Invited Lectures

15.30-15.50 **Onuralp YUCEL (Turkey)**
Deposition and properties of hard, wear-resistent carbide and carbonitride thin films by physical vapor deposition
15.50-16.10 **Mihai BRANZEI (Romania)**
Thermophysical properties and phase stability of AISI 347H stainless steel
16.10-16.30 **Ismail TAVMAN (Turkey)**
Thermally and electrically conductive polymer nanocomposites for industrial use

Oral Presentations (16.30-18.00)

Effect of B_4C Addition on Oxidation Behavior of TZM Alloy Prepared by Spark Plasma Sintering Method
Baris YAVAS and Gultekin GOLLER

Thermal And Mechanical Characterization Of Thermally Conductive Carbon Based Polymer Composite Materials
Lutfiye ALTAY, Mehmet SARIKANAT, Yoldas SEKI, Ozay AKDEMIR, Kutlay SEVER, Gokhan GURLEK, Tugce UYSALMAN, Ibrahim SEN

Sensitive and Simple Simultaneous Determination of Caffeine and Vanillin using a Conducting Polymer Modified Electrochemical Sensor
Hayati FILIK, Asiye Aslıhan AVAN

Investigation of Mechanical Properties of Diatomite Filled Polypropylene Composites
Kutlay SEVER, Orhan AKYÜZ, Metehan ATAGÜR, Nusret KAYA, Yoldaş SEKI, and Mehmet SARIKANAT

Quantitative Analysis of the Basic Components of a Thermit Welding Kit
Dan GHEORGHE, Mihai Ovidiu COJOCARU, Tudor COMAN and Mihai BRANZEI

Microstructural Evolution and Chemical Redistribution in Fe-Cr-W-Y_2O_3 Powders Prepared by Mechanical Milling
Madalina STANCIULESCU, Marioara ABRUDEANU, Catalin DUCU, Gabriela PLAIASU

Debates

Thursday, November 10th, 2016

Scientific Session B2

Materials for Healthcare II

15.30-18.00 (Conference room 2.2., Central Library-UPB)

Chairmans:

Yasuhiko Tabata (Japan), Marius Niculescu (Romania), Florin Miculescu (Romania)

Invited Lectures

15.30-15.50 **Petrica VIZUREANU (Romania)**
Microstructures and mechanical properties of Ti-Mo-Zr-Ta alloys for medical **a***pplications*
15.50-16.10 **Olivera LUPESCU (Romania)**
Indications of orthopedic biomaterials in treating bone infections
16.10-16.30 **Marius NICULESCU (Romania)**
Current trends and controversial issues in hip prosthesis type metal-metal

Oral Presentations (16.30-18.00)

Obtaining of fe-base biodegradable metallic alloy
Florin SĂNDULACHE, Sergiu STANCIU, Nicanor CIMPOEȘU, Ramona CIMPOEȘU, Teodor STANCIU
Effect of Cu substitution with Ag upon microstructure of Ti-based bulk metallic glass
Mircea NICOARA
Toward Qualification the Niobium Stabilized Austenitic Stainless SteelGrade AISI 347H as Biomaterial for Orthopedic Implants
Catalin Eugen SFAT, Ion PENCEA, Mihai BRANZEI and Ramona-Nicoleta TURCU
Evaluation of surface treatment effect on roughness through in vitro bioactivity test in simulated body fluid
Diana M. VRÂNCEANU, AlinaVLĂDESCU, Mihai TÂRCOLEA, Cosmin M. COTRUȚ
Debates

Friday, November 11th, 2016

Scientific Session A3

Materials Characterization & Testing II

10.30-13.00 (Conference room 2.1., Central Library-UPB)

Chairmans:

Mario Rosso (Italy), Ismail Tavman (Turkey), Mihai Branzei (Romania)

Invited Lectures

10.30-10.50 **Brandusa GHIBAN (Romania)**
Fractographic evaluation of the metallic materials for medical applications
10.50-11.10 **Ildiko PETER (Italy)**
Investigations on the corrosion resistance of Al based alloys exposed to ionic liquid environment
11.10-11.30 **Virgil DUMA (Romania)**
Optical Coherence Tomography in metallic materials characterization

Oral Presentations (11.30-13.00)

Microstructure and corrosion properties of homogenized Mg-4Zn-1La magnesium alloy
Huseyin ZENGIN, Yunus TUREN, Hayrettin AHLATCI, Yavuz SUN, Ismail Hakki KARA,
Microstructure and corrosion properties of homogenized AZ31 magnesium alloy containing 1wt% La
Hayrettin AHLATCI, Ismail Hakki KARA, Yunus TUREN, Yavuz SUN, Huseyin ZENGIN,
Effect of Sn addition on corrosion properties of as-cast and hot-rolled AZ31 magnesium alloys
Yunus TUREN, Didem GUZEL, Huseyin ZENGIN, Yavuz SUN, Hayrettin AHLATCI
Dynamic Analysis of Axisymmetric Circular Laminated Glass Plate
Utku UZUN , Hamza ERDOGAN and Mehmet YETMEZ
Ferrofluid plug actuation for micro pumping systems
Serkan DOGANY, Alpasan TURGUT, Levent CETIN
Effect of Ti addition on corrosion properties of as-cast and hot-rolled AM60 magnesium alloys
Yavuz SUN, Nazif Ugur AYDIN, Yunus TUREN, Hayrettin AHLATCI, Huseyin ZENGIN
Corrosion Behaviors, Microstructure and Mechanical Properties of 5Al1Ti Magnesium Alloys with Zn Addition
Harun CUG, Hayrettin AHLATCI, Yunus TUREN and Yavuz SUN
Stainless Steels as Erosion Resistant Materials for Hydraulic Machines
Brandusa GHIBAN, Carmen Anca SAFTA, Vlad MOTOIU
Structural Aspects Revealed by X-ray Diffraction for Aluminum Alloys 2024 Type
Florina Violeta ANGHELINA, Nicoleta POPESCU, Vasile BRATU, E.STOIAN, D.UNGUREANU
Debates

Friday, November 11th, 2016

Scientific Session B3

Surface Engineering & Coatings

10.30-13.00 (Conference room 2.2., Central Library-UPB)

Chairmans:

Ioan Carcea (Romania), Sorin Ciuca (Romania), Dan Gheorghe (Romania)

Invited Lectures

10.30-10.50 **Julietta RAU (Italy)**

Bioactive nanostructured coatings for bone implant applications

10.50-11.10 **Cosmin COTRUT (Romania)**

Functionalization of dental alloys in order to enhance the adherence of the ceramics used for prosthetic restoration

Oral Presentations (11.10-13.00)

The Properties and Structure of Ni-Cu-Fe-Mn Arc Plasma Protective Coating Tested in Geothermal Condition

A. BUZAIANU, Ioana CSAKI, V. MOTOIU, G. POPESCU, S. SERGHIUȚĂ, K. LEOSSON, K. RAGNARSTOTTIR, A. ARNBJORNSSON, S. GUÐLAUGSSON, D.GUÐMUNDSSON, P. MOȚOIU

Design and Processing of FGCM Materials for Applications Subjected to Intensive Abrasive Wear

Ion BADOI, Dan M. CONSTANTINESCU and Daniel VLASCEANU

Phase Stability of the New Lead-Free Solder Alloys used in Automotive Industry

Ioan PLOTOG, Ion PENCEA, Alecs Andrei MATEI, Gaudentiu VARZARUI, Traian CUCU and Mihai BRANZEI

Influence of Proposed Hardening Process on Hardness and Toughness of Martensitic Stainless Steel

Charnnarong SAIKAEW, Worakarn SAWATWOR

Debates

Friday, November 11th, 2016

Scientific Session A4

Materials for Energy and Environmental Sustainability, Managerial Sciences

15.30-18.00 (Conference room 2.1., Central Library-UPB)

Chairmans:

Nicolae Avram (Romania), Nouredine Fenineche (France), Cristian Predescu (Romania)

Invited Lectures

15.30-15.50 **Nouredine FENINECHE (France)**

Electrochemical study of $TiFe_{0.95-x}Mn_x$ hydrogen storage alloys

15.50-16.10 **Lucian C. STAICU (France)**

Industrial selenium pollution: environmental significance and treatment technologies

Oral Presentations (16.10-18.00)

Technological process of iron recovery from mining and metallurgical industry effluents

A.G. MOISE, T. VELEA, C. PREDESCU, L. MARA, A. CHIREA, V. PREDICA, L. GHERGHE, C. RUSTI, V. DRAGUT

Removal of some heavy metals using ion exchange resin as sustainable material

Claudia DRAGAN, Andra PREDESCU, Maria RAPA, Andrei BERBECARU, Cristian PREDESCU, Ecaterina MATEI and Lidia FAVIER

Comparative measurements for validating the results obtained for the characterization of nanostructured materials

Cristian PANTILIMON, Claudia DRAGAN, Catalin GRADINARU, Andrei BERBECARU, Andra PREDESCU and Cristian PREDESCU

Properties analysis of Dextrane magnetic carrier compounds released in wastewaters

Andra Mihaela PREDESCU, Ecaterina MATEI, Andrei Constantin BERBECARU, Cristian PANTILIMON, Claudia DRĂGAN, Cristian PREDESCU

Retail Optimization in Romanian Metallurgical Industry by Applying of Fuzzy Networks Concept

Adrian IOANA, Augustin SEMENESCU, Mihnea COSTOIU, Massimo POLLIFRONI, Dragos MARCU

Comparative analysis of CO2 emissions allocated and verified under EU-ETS or the Romanian iron and steel sector

Mihaela BALANESCU, Mirela SOHACIU, Claudia DRAGAN, Catalin GRADINARU

Microwave-Assisted Leaching of Chalcopyrite Concentrate in Ferric Sulphate Media

A. CHIREA, T. VELEA , C. PREDESCU, I. CALINESCU, L. MARA, V. PREDICA, G. MOISE, L. GHERGHE, M. GHITA, V. DRAGUT

Recovery of Active Cathode Material Containing Co and Li From Waste Li-Ion Batteries

TOMA Cristina-Mădălina, GHICA Valeriu-Gabriel, BUZATU Mihai, PETRESCU Mircea-Ionuț, Iacob Gheorghe, ANTONIAC Vasile Iulian, COTRUȚ Mihai Cosmin, VEGLIO Francesco

Debates

Friday, November 11th, 2016

Scientific Session B4

Special Materials, Nanomaterials & Nanotechnologies

15.30-18.00 (Conference room 2.2., Central Library-UPB)

Chairmans:

Rudolf Schäfer (Germany), Simeon Agathopoulos (Greece), Radu Stefanoiu (Romania)

Invited Lectures

15.30-15.50 **Ruxandra VIDU (USA)**
Template synthesis of multifunctional nanostructures
15.50-16.10 **Simeon AGATHOPOULOS (Greece)**
Nano-wires and nano-composites of carbon nano-tubes (CNT)
16.10-16.30 **Rodica Mariana ION (Romania)**
Calcium oxalate on limestone surface of heritage buildings

Oral Presentations (16.30-18.00)

Alternative Bond Coat Materials Obtained via Different Processing Routes
Amalia SOARE, Ioana CSAKI, Mirela SOHACIU, Cristina OPREA, Sorin SOARE, Mircea Ionut PETRESCU, Ioan COSTINA

Evaluating Thermal Conductivity and Viscosity of CuO-Nanolubricants
Merve KORUK, Alpaslan TURGUT, Abdulkareem ALASLI

Fabrication and Characterization of Carbon Fiber Reinforced Polypropylene Composite Materials
Mehmet SARIKANAT, Lutfiye ALTAY, Yoldas SEKI, Kutlay SEVER, Ibrahim SEN ,Tugce UYSALMAN

Ionic liquid incorporated acrylic polymer for better electrical conductivity properties
Y. SEKI, N. YILDIZ, M. İNCE, O. ERGÜL, K. SEVER, M. SARIKANAT

Investigation of the Effect of Adding Reflector Material to Am-Be Source Configuration on Thermal Neutron Flux Using MCNPX Code
Hamid BASIRI, Hossein TAVAKOLI-ANBARA

Debates

INVITED SPEAKERS

Mario Rosso (Italy)

Dr., Eng., PhD, DHC, Prof. Mario Rosso, born in 1949, got a Master degree in Chemical Engineering, with specialization in Electrochemistry and Metallurgy at the Politecnico di Torino in January 1974. After the Military Service, since April 1975 he was researcher at the Politecnico di Torino, then Associate Professor in 1982, finally in 2000 he was in nominated full Professor of "Metallurgy" at the Department of Applied Science and Technology of Politecnico di Torino. Up to last year he had in charge the courses: "Manufacturing Technologies", "Technology of Metallic Materials" and "Metallurgical Plants", while since 2015/15 he is teaching a basic course on "Metallic Materials" and a fully new course: "Engineering of High Performance Alloys". The scientific work of Mario Rosso, is beard out by more than 400 papers concerning surface engineering of steels and of sintered alloys, heat treatments, high performances coatings through thermal spray and PVD processes, surface layers properties, corrosion and wear resistance, Hard Metals, Powder Metallurgy and MIM, formability of alloys and steels, performances of dies for die-casting, hot and cold working tools, heat checking and thermal fatigue resistance; properties of light alloys, influence of casting processes, as well as contribution to the development of innovative casting technologies. Mario Rosso has the scientific responsibility of many R&D national and European research projects, recently he collected different international scientific awards at the Silesian University of Technology of Gliwice (Poland), at the Institute of materials Research of the Slovak Academy of Sciences, Kosice, Slovakia and Doctor Honoris Causa at the University of Craiova (Romania). Moreover, he is a member of editorial board, as well as of scientific committees for some international journals and for International Conferences. Chairman of the 7th International Tooling Conference, Torino May 2nd-5th, 2006. Coordinator and responsible of the post degree Master course of "Jewellery Engineering" at the Alessandria campus of Politecnico di Torino.

Sveto Cvetkovski (Macedonia)

Dr Sveto Cvetkovski is Full Prof at the Faculty of Technology and Metallurgy in Skopje, Republic of Macedonia. Prof Cvetkovski graduated at the Faculty of Technology and Metallurgy in Skopje. He earned MSc degree at the Faculty of Technology and Meta Cvetkovski llurgy in Belgrade (Serbia) and defended his PhD thesis at the Faculty of Technology and Metalurgy in Skopje.
He is lecturing the following subjects: Metallurgical furnaces, Examination of metals and alloys and Welding Technology and Welding Metallurgy. Main research interest of Prof Cvetkovski are: Welding technology and metallurgy of constructive and stainless steels, Examination of metals and alloys, Influence of Microstructure to the properties of metals and alloys and Qualty in welding. Prof Cvetkovski posses many profesional Diplomaas and Certificates like: Diploma of International welding engineer (IWE), NDT Certificates Level III in penetrant testing (PT), Level III in magnetic powder testing (MT) and Levet II in Ultrasiound testing (UT).

He is President of Macedonian Union of Metallurgists and member of of the Executive Board of Balkan Union of Metalurgists. He is member of Technical comitee 35 Welding and nondestractive testing and president of Technical Comitee 37 Materials and Metallyrgy at Institute for standardisation of Republic of Macedonia too.
He has permanent colaboration with eminent Scientific and research institutions in Europethe like Institute of Material Science and Welding (TU Graz, Austria and Labaratory for Materials Engineering, University of Oulu Finland). Besides he realized short visits at many eminent universities. He atended many international congreses and conferences as a plenary or invited lecturer. He is participant and leader of many research project in Macedonia and abroad. Prof Cvetkovski is autor of more than 120 scientifc and technical paper prezented at conferences and published in journals. From 2008 until now Prof Cvetkovski organized three times International Metallurgical Congress (Metallurgy, Materials, and Environment). Prof Cvetkovski collaborate with metalprocessing and welding companies companies in Macedonia in field of certification of companies and personel in the field of welding. Failure analyzes is area to which proffesor Cvetkovski pay special attention.

Victor Geanta (Romania)

Prof. Dr. Eng. Victor GEANTA graduated from the Faculty of Metallurgy of POLITEHNICA University of Bucharest, Extractive Metallurgy specialization in 1981. Since 1983 works as Assistent Professor, Lecturer, Associate Professor and full Professor (2000) in Department of Engineering and Management of Metallic Materials Obtaining, Faculty of Materials Science and Engineering. In 1999 he obtained PhD Diploma in Engineering, Materials Science Specialization with Thesis “Methods and technologies for obtaining high purity steels by treatment outside the furnace” in the same University. The teaching and research activities are conducted in the field of Obtainment, Refining and Characterization of Metallic Materials with the main subjects: Engineering of Steel Production, Steel Refining Technologies, Fundamentals of Metals and Alloys Obtaining, Processing of Biocompatible Materials etc. His professional and scientific activity comprises: papers published in science citation index journals (30); patents (15); papers published in national and international peer-reviewed periodicals (50); proceedings of international or national conferences (90); participation in different international (8) or national research projects (86); member of the scientific committee of different meetings; head of the organizing committee for different international conferences; member of the International Editorial Board of some journals; reviewer for different journals and conferences.

Florin Miculescu (Romania)

Florin Miculescu is Full Professor in the Metallic Materials Science and Physical Metallurgy Department at the Politehnica University from Bucharest, Chief of the Electron Microscopy & Microanalysis and Materials Analysis & Characterisation Methods Laboratories within his department and President of the Romanian Society for Biomaterials (SRB). He received his PhD degree in Materials Engineering in 2006 and the Habilitation title in 2014, at Politehnica University from Bucharest.

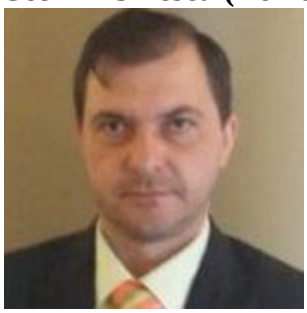
He has participated in five postdoctoral stages in Europe and USA and applied his expertise in various research projects related to materials science, engineering, and technology (manager of 6 national and over 50 projects for private companies in the last 15 years). His research activities in the fields of biomaterials, nanomaterials and materials characterization are also presented in over 70 peer-reviewed research articles, 5 books and 6 book chapters.

He constantly supervises a heterogeneous team of PhD, MSc and BSc students and he is teaching materials science & engineering, biomaterials characterization methods and electron microscopy & microanalysis courses.

Corrado Piconi (Italy)

After his studies in Roma he joined the Ceramics Technology Laboratory in the Casaccia Research Centre of the National Committee for Nuclear Energy (now ENEA), where he was involved in the characterization of the out-of-pile and in-pile behaviour of oxides used as nuclear fuels in close cooperation with the French Commissariat à l'Energie Atomique (CEA) and of AGIP Nucleare SpA. In 1989, due to moratorium in nuclear reactor development in Italy, he transferred the know-how and technologies of his research group to the development of ceramics for clinical applications, with special emphasis on zirconia and on calcium phosphates. From 2000 to 2005 he was R&D Project Manager in Tecnobiomedica SpA where he was involved in the development of orthopaedic prosthetic devices, on cardiovascular applications of tissue engineering and on the development of an implantable ventricular assistance device (VAD). On 1997 he was appointed as Lecturer in Biomaterials by School of Orthopedics, Faculty of Medicine of the Catholic University of the Sacred Heart in Rome, where he is still teaching. He has been Scientific Coordinator of R&D Research Project funded by the European Union (Brite-Euram Programme Grants BE4635 and BE5172, as well Head of Joint Research Unit 063 in the framework of the Research Project Materials for Advanced Technologies II (MAST II) of National Research Council. He and his team are the winners of the BIOLOX Award 2002, for research on the wear of ceramic bearings for total hip replacements. He is Scientific Consultant of the Medical Products Division of CeramTec GmbH. He is author of more than 100 papers on biomaterials published in national and international journals, congress proceedings and book chapters.

Cosmin Sinescu (Romania)



Professor Cosmin Sinescu is full professor at the Victor Babeş" University of Medicine and Pharmacy Timişoara, Faculty of Dentistry, Prostheses Technology and Dental Materials Department. The Habilitation Thesis (2015) was focused on new methods of diagnostic and forecast in dentistry. His main research interests and competences include invasive and noninvasive, destructive and nondestructive methods of investigations in dentistry, dental materials, bioengineering, biocompatibility, optoelectronics, imagistic investigations in dentistry – optical coherence tomography, management of scientific research projects in medicine and pharmacy; principles and applications of optical coherence tomography; modern optical testing – field guide to interferometric optical testing; structural adhesives for optical bonding; principles of diffraction, interferometry, holography and difractive optical elements, synchrotron investigation. He was part of the research group that developed the first Time Domain Optical Coherence Tomography and the first Spectral Domain Optical Coherence Tomography Systems dedicated to dentistry in the east of Europe. Since 2005 he is a Visiting Senior Research Fellow in the Applied Optics Group at the University of Kent at Canterbury, UK. He is member in the research team of 14 grants – by 4 of them as project manager. He published many papers in ISI refereed journals and conference proceedings. The address of the researcherid.com profile is: http://www.researcherid.com/rid/G-1528-2011. He is a member of SRLS, SSB, SRB, IEEE, OSA and SPIE.

Flaviu Gostin (U.K.)

Dr Petre-Flaviu Gostin is currently a Marie Curie Fellow at the University of Birmingham where he is conducting research on the corrosion behaviour of Ti-based metallic glasses for biomedical applications. He has developed considerable expertise in glass formation and corrosion of metallic materials, carrying out pioneering research on the corrosion behaviour of Fe-based bulk metallic glasses and was recognised for his major contribution to the understanding of active dissolution mechanisms of metalloid-containing glasses. He was able to demonstrate for the first time that carbon can control corrosion evolution in Fe-based glasses, which led to substantial industrial and academic interest. His research has been published in top international peer-reviewed journals including Corrosion Science and Acta Materialia, and has established international collaborations with groups in Germany, UK and Romania. He has presented his work at more than 20 international conferences in both materials science and corrosion.

Lucian C. Staicu (France)

Dr. Lucian Staicu is a Biotechnologist working on biogenic nanoparticles and Environmental Chemistry. His current affiliations include University Politehnica of Bucharest, Faculty of Applied Chemistry and Materials Science (Romania) and University Blaise Pascal, Institut de Chimie de Clermont-Ferrand (France). Among the research topics explored during recent years, Lucian focused on (i) biogenic nanoparticles resulted from the microbial metabolism of chalcogen elements, (ii) colloidal systems associated with biogenic nanoparticles, and (iii) the biological (i.e., bioremediation) and the physical-chemical treatment of industrial effluents generated by the mining sector (Teck Resources and General Electric, Canada) and by coal-fired power facilities (Electric Power Research Institute, USA). Another research direction investigated is the biological recovery of valuable metals and metalloids present in industrial wastewater matrices. His research activity was conducted at University Paris Est (France), UNESCO-IHE (the Netherlands), Colorado State University (USA), University Politehnica of Bucharest (Romania), University of Franche-Comté (France), and University Blaise Pascal (France). Dr. Lucian Staicu is a reviewer for several international journals such as Journal of Hazardous Materials, Environmental Microbiology, and Microbial Ecology.

Nouredine Fenineche (France)

Dr. Nouredine FENINECHE has obtained his PhD Thesis in Mechanical Engineering and Materials from the University of Technology of Compiègne (UTC), France. His scientific production more than 120 papers in international reviews journals (refereed Journals), 110 international conferences reviewed and proceedings and 27 international conferences with personal invitation. His main Research activities and expertise are focused on: Elaboration and modelling Nanomaterials for IT-SOFC Fuel Cells, Metal hydrides for hydrogen storage using Ab initio calculations and ball milling elaboration. Magnetic thin films obtained by R.F. Sputtering (PVD) and electrodeposition for magnetic Sensors and actuators, DMS materials for spintronic applications, Amorphous and Nanocrystalline coatings intended for magnetic shielding using HVOF and cold spraying , Nanomagnetic powders processed by selective laser melting SLM.

Petrica Vizureanu (Romania)

Born on the October 17th, 1967 in Bârlad, România.
Degrees: M.Sc. in Heating Equipment, „Gh. Asachi" Technical University of Iasi (1992), Ph.D., „Gh. Asachi" Technical University of Iasi (1999).
Positions: Assistant (1993-1999), Lecturer (1999-2002), Associated Professor (2002-2009), Professor/Scientific Adviser (2009-today) at The „Gheorghe Asachi" Technical University of Iasi, Romania, Visiting Professor (2011-today) at National Taiwan University of Science and Technology and Universiti Perlis Malaysia (2015-today).
Research Activity: Expert System for Heating System Programming, Heat Transfer, Computer Assisted Design for Heating Equipment, Heating Equipment for Materials Processing, Biomaterials Obtaining and Characterization.
Publications: Over 80 papers in international journals and conferences (ISI proceedings), 20 books, Hirsch index – 8.

Olivera Lupescu (Romania)

Assoc. Prof. Dr Olivera Lupescu, MD, PhD, Consultant Orthopedic Surgeon, has been working in the Orthopedic and Trauma Clinic of Bucharest Clinical Emergency Hospital since 1989. Since 1991 she also teaches at the University of Medicine and Pharmacy Bucharest "Carol Davila" Bucharest, now Assoc Prof. being involved in educational activities addressed to students, as well as to residents and young specialists. As a surgeon, Assoc. Prof. Dr. Lupescu approached a wide spectrum of orthopedic and trauma pathology, with a special interest in complex trauma, open fractures, mangled extremity, bone infections, as well as polytrauma and damage control . As member of the research team of the Clinic, she has been involved for almost 10 years in national research grants as well as in international clinical trials studying modern aspects of orthopedic practice, such as substances enhancing bone healing, or novel thromboprophylactic molecules, all these completing the observational research activity based on the numerous clinical cases operated in the Clinic. The most significant aspects derived from this sustained practice were published or presented in more than 100 papers accepted in national and international medical conferences. Assoc. Prof. Dr. Lupescu authored and co-authored articles and books reflecting the interest for challenging issues in orthopedic surgery, including biomaterials, endoprosthesis, bone substitutes, as these represent current methods used by the team she works with. She has been invited speaker in national and international congresses, especially in the field of orthopedic trauma, and, as AO Faculty, in basic and advanced courses of this prestigious orthopedic organization. As member of several orthopedic associations, Assoc. Prof.Dr. Lupescu is focused on making more visible the experience of Romanian orthopedists, as well as on stimulating the young trainees to improve their knowledge according to the international guidelines and standards.

Marius Niculescu (Romania)

Associate professor Dr. Marius Niculescu, MD, PhD is a consultant Orthopaedic and Trauma Surgeon and Head of the Orthopaedics and Traumatology I Department of the Colentina Clinical Hospital. He received his PhD degree in 2006 – the topic of his thesis was focused on unicompartmental knee replacement. Since 2009 he is Associate Professor of Orthopaedics and Traumatology, Paediatric Orthopaedics and Traumatology, and Orthopaedic and Trauma Nursing at the Titu Maiorescu University, Faculty of Medicine. His clinical work involves all aspects of orthopaedic and trauma surgery, with a special interest in large joint arthroplasty, especially hip and knee replacement. He has led and participated in many research projects, both national and international, as well as clinical studies. Dr. Niculescu is a member of 10 scientific societies, including SOROT, SICOT, and EFORT. He has also been engaged in numerous managerial activities at the Titu Maiorescu University, and has coordinated National Health Care programs at the Colentina Clinical Hospital. An active participant to congresses, conferences and courses in his speciality, he was also a member of the organising committee/ section chairman of many national scientific events. He has authored and co-authored over 100 publications, including books and peer-reviewed articles, and is a reviewer and associate editor of specialty journals in Orthopaedics and Traumatology and biomaterials. His current research interests are in hip resurfacing and biomaterials engineering for joint replacement.

Ismail Tavman (Turkey)

Ismail H. TAVMAN is Professor of the Mechanical Engineering Department of Dokuz Eylul University, Izmir – Turkey, and Head of Energy Section in the same department. He received his PhD degree from "Ecole Nationale Superieure d'Arts et Métiers", Paris-France in 1987. Presently his fields of research are: Thermal and mechanical properties of conductive polymer Nanocomposites; Nanofluids-Characterization; 3-omega method for measuring thermal diffusivity and conductivity; Measurement of thermal diffusivity by Laser Flash Technique; Thermal analysis of TFT-LCD TV Panels. He has the author of 45 papers publications in SCI indexed journals with 935 citations, 10 papers in other international revived journals; 12 book chapters, 90 papers published in the proceedings of international conferences and 80 papers published in the proceedings of national conferences.

Mihai Branzei (Romania)

Mihai Branzei received the diploma degree in Metallurgy (1985) and the Ph.D. degree in Materials Science and Engineering (2001) from the University POLITEHNICA of Bucharest (Romania). Since 1991 he became Assistant Professor at the same university, and in present is Associate Professor in the Department of Metallic Materials Science, Physical Metallurgy. From 2003 until 2008 he gain post-doctoral fellowships and specializations in BUEHLER / IFW Dresden / TU Dresden (Germany), ANTER Corporation (USA), Universidade Nova de Lisboa (Portugal).

His areas of interest are quantitative microscopy and thermophysical properties of materials. The technical activities consists in: specific expertise for different beneficiaries; the accomplishing of the following research and didactic laboratories: "Metallography Sample Preparation Lab.", "Quantitative Light Microscopy Lab.", "Material Thermophysical Testing Center" (whose director is also currently). He has published 7 books as a co-author, 5 patents and more than 27 indexed papers in the last 5 years. He is member of the boarding/scientific/steering committee of different meetings, head of the organizing committee for different international conferences, and reviewer for different journals.

Ildiko Peter (Italy)

Ildiko Peter received the M.S. degree in Bio-chemistry (1993) and has obtained her PhD degree (2006) in Material Science and Engineering from Università degli Studi di Torino and Politecnico di Torino, Italy, respectively. Since 1999 she has continuously been with the Department of Applied Science and Technology of the Politecnico di Torino where she has been appointed as Technical Researcher in 2009. In 2014, Ildiko Peter has acquired the "Abilità per Professore Associato (mandatory licence required for appointment as Associate Professor in Italy)".

Her main research interest is oriented to the development and characterization of different metallic alloys for automotive/aeronautical industries and biomedical applications, the development, optimization and characterization of thin and thick coatings on metallic substrates, the study of metal based alloy nanoparticles for oxygen reduction reaction, the development and characterization of metals containing humidity sensors for environmental monitoring, the synthesis and characterization of materials for advanced electromagnetic applications, She has co-authored more than 100 publications and holds two patents. In 2010 she has been a Visiting Researcher at Macquarie University, Sydney, NSW, Australia. She has participated in various European and National projects. She is acting as reviewer for several Journals and since 2015 she serves as Associated Editor of the IEEE Access.

Onuralp Yucel (Turkey)

Onuralp Yücel was born in 1961 in Diyarbakir, Turkey; Onuralp completed his technical education with a PhD in Metallurgical Engineering from Istanbul Technical University (ITU) where he is currently holding the post of Professor since 2002. He was a Visiting Scientist in Berlin Technical University between 1987 and 1988. He carried out Post Doctoral Studies at New Mexico Institute of Mining and Technology, Socorro, USA between 1993 and 1994. Prof. Yücel has as many as 300 publications/presentations to his credit, which include topics like, technological developments in the production of wide range of metals, ferroalloys, advanced ceramic powders and application of carbothermic and metalothermic processes among others. He was the vice chairman of ITU, Metallurgical and Materials Engineering Department between 2004 and 2007. He has been a director of ITU, Applied Research Center of Material Science & Production Technologies between 2006 and 2012. Area of Interest: Pyrometallurgy: Smelting and reduction of slags, production ferroalloys, alloys and metals carbothermic and metalothermic processes in EAF or in ladle (copper, cobalt, vanadium, chromium, ferroboron, cobaltboron, nicelboron, ferromanganese, silicomanganese, ferrovanadium, ferrotungsten, ferrochromium and aluminum-titanium-boron alloys), Ceramic Powder Production and Processing: Production of carbide, nitride, boride powders and their processing by explosive consolidation or sintering techniques. Beneficiation of Industrial Wastes: Production of metals and compounds from galvanizing ash, brass production wastes and vanadium sludges produced aluminum production. Grit production from aluminum, copper and steel slags.

Brandusa Ghiban (Romania)

Prof. Dr. Brandusa Ghiban is a materials science engineer who obtained her Bachelors degree and Ph.D. from University Politehnica of Bucharest. As a researcher after a period of about seven years in Metallurgical Research Institute in Bucharest the activity was focused in the field of corrosion testing of ferrous alloys, she is now at the Biomaterials Group (BIOMAT) from Materials Science and Physical Metallurgy Department, Faculty Materials Science end Engineering, University Politehnica of Bucharest. As professor, Dr. Ghiban is holding courses and laboratory works on Faculty Materials Science end Engineering: " Quality Assurance implants", Biochemistry, " Advanced methods for materials processing and Good Manufacturing Practice standards", " Electric and Magnetic Testing ", "Processes at the tissue - implant interface ", „Corrosion and Protection of Metallic Materials”,„Physical Metallurgy”, „Properties of Materials”, „Metallic Biomaterials”. As SOCRATES-ERASMUS coordinator of activities in the faculty SIM, more than 40 students were sent as ambassadors of UPB ERASMUS, and over 20 teachers participated in the bilateral agreements to support public lectures. Prof. Dr. Ghiban was visiting professor for lectures in the field of Materials Science and Biomaterials at prestigious universities from Europe: Politecnico di Torino, Italia (2000-2012), University of Patras, Greece (2003, 2004, 2005, 2007, 2009), La Sapienza University, Rome, Italy (2005), Ecole Nationale des engeneours, Tarbes, France (2009). Her professional and scientific activity comprises: three books and five scientific guidance for the preparation of students; Five theoretical chapters, total over 80 pages on "Treaty of Materials Science and Engineering" Volume 1 (2008), and volume 3 (2009); three specialty

books for: preparing students for the studies, master, but researchers in the field of metallurgy and plastic deformations beings, and a book for biomaterials engineering; electronic courses "Physical Metallurgy", "Metallic Biomaterials", "Properties of Materials" and "Quality Assurance implants", Biochemistry, Electric and Magnetic testing, Technical work consisted of implementation: five inventions with industrial applicability; three technical expertise judicial , 49 ISI scientific papers, 14 papers in international journals, 36 papers in national journals recognized by CNCSIS, 83 articles published in international recognized events volumes, 48 articles published in the proceedings of national scientific events. She was awarded at different international scientific salons: Gold Medals at International Inventions Salon from Geneva in 2007, 2009 and 2010; Gold Medal at Inventika International Salon form Bucharest in 2009, 2011; Silver Medal at Inventika International Salon in 2009; Mention from Romanian Society of Metallurgy at 2005; Big Award from Romanian Society of Metallurgy in 2004..

Virgil Duma (Romania)

Virgil-Florin Duma is Professor at the Aurel Vlaicu University of Arad, Romania, head & founder of the 3OM Group (http://3om-group-optomechatronics.ro/). He received his PhD cum laude in 2001 from the Polytechnic University of Timisoara (UPT), Romania, where he graduated in Fine Mechanics & Optics, valedictorian, in 1991. He was a Fulbright Senior Research Fellow at The Institute of Optics, UoRochester, USA (2009-2010), where he currently holds a Visiting Scientist position. He is also Visiting Senior Research Fellow in the Applied Optics Group, at the University of Kent, Canterbury, UK, as well as Adjunct Professor at the West University of Timisoara and at UPT (at the latter, as PhD Advisor). Prof. Duma defended his Habilitation at the Polytechnic University of Bucharest, in 2013. He is author of over 200 papers in peer-reviewed journals & conferences, 15 books & book chapters, and holds 1 patent. He is also reviewer of more than 20 journals indexed in ISI Web of Science, as well as for national and international grant programs, and member of the scientific committee of several conferences. His main research interests are in Optomechatronics & Biomedical Imaging. He is currently PI of a Partnership and of a Bridge Project, as well as WP Responsible for a POC and a PTE grant of the Romanian Authority for Scientific Research. In the last ten years Prof. Duma has thus secured funds in excess of 2M Euro for his group. He is a member of OSA, a Senior Member of SPIE, and a Life Member of the Fulbright Association.

Cosmin Cotrut (Romania)

Dr. Cosmin M. Cotrut is Associate Professor at the University Politehnica of Bucharest, Romania and Invited Professor at the Tomsk Polytechnic University, Russia. His work is defined by research and development in the fields of surface engineering, corrosion science and biomaterials. Dr. Cotrut published over 50 papers in International Journals and presented over 90 papers at International Conferences. He is a member of Editorial Board of Heliyon Journal, Guest Editor for Frontiers in Materials Journal, reviewer for the following International Journals: Corrosion Science, Materials Chemistry and Physics, Materials Science and Engineering B and also editor or reviewer for international conferences proceedings. In the present he is Head of Electrochemistry and Surface Functionalization Laboratory and his work is focus on biofunctionalization techniques, deposition of calcium phosphates and biomaterials degradation.

Julietta Rau (Italy)

Julietta V. Rau is the Researcher and the Head of the Laboratory and Group at the Institute of the Structure of Matter of the Italian National Research Council (Rome, Italy). She is the author of more than 110 publications in International Journals and about 130 presentations at International Conferences. Dr. Rau received several international awards for her research achievements. She is the Member of the International Scientific Committee of various International Conferences in the field of Materials Science, Nanoscience, Biomaterials and Medical devices and Organizer and Co-Chair of the biennial BioMaH "Biomaterials for Healthcare" International Biomaterials Conference. She is the Member of the Editorial Board of the Bioactive Materials journal and the Member of the FRONTIES Editorial Board: Journal of Tissue Engineering and Regenerative Medicine. She is the Lead Guest Editor of the Special Issue «Bioactive Ceramic and Glass Systems for Bone Tissue Engineering» in BioMed Research International journal and the Guest Editor of the Special Issue "Exploring Challenges Ahead of Nanotechnology for Biomedicine" in Bioactive Materials journal. Her present research interests regard biomaterials for regenerative medicine, and namely calcium phosphates and glass-ceramics based materials for tissue engineering applications. Her recent publications are dedicated to bioactive nanostructured coatings of innovative composition for orthopaedic and dental implant applications and biocements for bones, cranial-facial surgery and odontoiatric applications. She is also involved in research projects dedicated to Raman spectroscopy application and novel imaging approaches for cancer diagnostics.

Simeon Agathopoulos (Greece)

Dr. Simeon Agathopoulos (50) is Associate Professor of Ceramics Technology in the Department of Materials Science and Engineering in the University of Ioannina, in Greece, and member of the Laboratory of Ceramics and Composite Materials (CCL). He has Diploma in Chemistry (1988) and Ph.D. of Chemical Engineering on Bioceramics (1994) both from the University of Patras, Greece. He had being working as Post-Doctoral Researcher in the Joint Research Centre (JRC) of the European Commission in the Netherlands (1994-1996), with a Marie Currie individual fellowship, in the Department of Ceramics and Glass Engineering in the University of Aveiro in Portugal (1999-2006), and in the Department of Materials Science and Engineering in the University of Ioannina in Greece (2006-2008), also with a fellowship of the European Commission. He was elected Assistant Professor in 2008 and Associate Professor in 2012. His scientific performance is briefly outlined in more than 180 scientific articles in international journals and more than 250 presentations in international and national scientific conferences and lectures, which have been cited more than 2.200 times (h-index = 26). He is reviewer of more than 35 scientific journals and member of many scientific societies (international and national) of ceramics and biomaterials. He was president and currently is secretary of the Greek Society of Biomechanics. In May 2015 he was elected president of the International Scientific Committee of the High Temperature Capillarity. He is member of many international and national scientific societies as well as scientific committees and organizing committees in several conferences. He has organized the 6th international conference on High Temperature Capillarity "HTC-2009" (Athens, May 2009), the 4th national conference of the Greek Society of Biomechanics (Ioannina, June 2010) and many scientific meetings, workshops and sessions in the University of Ioannina. Moreover, he will actively participate in the forthcoming international conferences EuroMat and ESB-2017, which will be held in Greece in September 2017. His research focuses on bioceramics of all types (calcium phosphates, alumina-zirconia-titania-silica, glasses and glass-ceramics), in all forms (bulk, porous, composites and coatings), and at all stages (production, characterization, application). He has produced novel biomaterials, specifically hydrothermally transformed shells and cuttlefish-bones, mica-based glass-ceramics, and novel lithium disilicates, produced with no nucleating agents. Now, he is developing novel hydrogel-ceramic composites for potential use in orthopaedic applications as well as for drug delivery and tissue engineering constructs for remodeling damaged tissues of myocardium after heart infarction, and novel protocols for preparing strong interfaces between dentin and ceramics (e.g. Empress and Imax) in dental applications. He supervises 5 Ph.D. students and the Theses of many Masters and undergraduate students. He is the Erasmus departmental coordinator in his department.

Rodica Mariana Ion (Romania)

Full Professor of Nanomaterials, Ph.D. Supervisor at Valahia University, Targoviste and Senior Scientist at ICECHIM – Bucharest, Head of Nanomedicine Research Group. 34 years experience in analytical investigations, photochemistry (laboratory / clinical photodynamic therapy of cancer with lasers, lamps and LED sources), regulatory aspects of chemicals and nanomaterials (chemical safety and environmental protection), analysis of soils, water and depollution methods. Evaluator/reviewer for UE projects (Marie Curie). Director of the Centre for Nanomaterials for micromechanical systems from 2010. Is internationally known for her work on functional and bioactive compounds, characterisation of engineered surfaces through physical, chemical and biological modifications, as well as via the use of advanced micro/nanofabrication technologies to create biocompatible and biofunctional materials for application in nanomedicine and regenerative medicine; extensive experience in materials science, analytical techniques (XRD, EDXRF, ICP-AES, FTIR, Raman, UV-Vis, thermal analysis, chromatography, etc). Project manager, author of more than 160 peer-reviewed papers in her field, over 75 invited lectures, 270 conference communications, 200 non-ISI published papers, 6 books and 14 book chapters, 1300 citations, HIRSCH index: 20 (SCHOLAR GOOGLE); 16 (SCOPUS), 14 (ISI WEB OF KNOWLEDGE). Good background on international projects (FP6 – DEVELONUTRI Project, 2007-2010; Management Committee of EU Actions: COST D8 (2001), D18 (2001-2006), D20 (2004-2007) and COST D39(2006-2011), Principal Coordinator at WG 0012/02 of COST D20, Expert of INTAS Program) and in national project as well. 23 national projects and 10 international projects. She received 57 national and international awards. 15 national patents; 1 european patent EPO.

Ruxandra Vidu (USA)

Dr. Ruxandra Vidu is an Adjunct Professor at University of California Davis, and a published nanotechnology expert with over 25 years experience in chemical engineering and materials science. She has expertise in extremely thin-film and nanostructure fabrication for various applications including energy and water. Since 1996, Ruxandra has worked with leading universities in Japan, United States and Romania, and consulted for Mitsubishi and BP Solar in solar energy and energy storage related projects. Her work emphasizes the use of nanoscience and nanotechnology in the development of new materials and processes, with a special focus on ultra-thin film systems for solar cells. She has published over 80 papers, co-authored four books and has 12 patents licensed, pending, or in process. She earned a PhD in Materials Engineering and Processing from Osaka University, Japan.

Massimo Pollifroni (Italy)

Massimo Pollifroni is Associate Professor (with acquired qualification to full professor) in Business Economics at the Department of Management of the University of Turin (Italy), where he got the Degree in Business Economics in 1989. At the present, he is President of the Degree Course in "Management in Information and Corporate Communication" at the School of Business Administration (SAA) of the University of Turin

(Italy). He is operative as expertise of evaluation in "Teaching" and in "Third Mission" at the Italian Agency for the Evaluation of the University and the Research Systems (ANVUR) of the Italian Ministry of Education, Universities and Research (MIUR). The international activity carried out by prof. Pollifroni concerns: visiting professor at several universities (such as Laurea University of Applied Sciences of Espo, Finland; University of Applied Sciences Wiener Neustadt of Wien, Austria; Universitat Autònoma of Barcelona, Spain; University of Economics of Bratislava, Slovak Republic; Canterbury Christ Church University Business School of Canterbury, United Kingdom; Østfold University College of Halden, Norway; "Lucian Blaga" University of Sibiu, Romania; University Politehnica of Bucharest, Romania); member of the scientific committee of different international meetings/conferences; auditor for the evaluation of the European Research Programs and enrolled at ECAS (European Commission Authentication Service) portal; member of the International Editorial Board of journals and reviewer for different international journals; member in the Scientific Board of Doctoral Schools, coordinator of national and international research projects. In his scientific activity Pollifroni has published more than one hundred publications (as author or as coauthor) including books (8), chapter of books (44), articles in international peer-review journals (29), proceedings of international and domestic conferences (20): from these last activities he has won two "Best Paper Awards" at the "Risk Management International Conference – 1st Edition" (University of Turin, Italy, 2016) and at the "Innovative Manufacturing Engineering Conference, IManE 2015 – 19th Edition" (University of Iaşi, Romania, 2015).
The current research areas are related to Business Economics, Business Ethics, Corporate Social Responsibility, Diversity Management, Eco-Management, Financial Accounting, History of Business Economics, Lean Management, Product Management, Public Management and Public Sector Accounting.

Marin Alexandru (Romania)

Prof. Alexandru Marin – Manager of the Technology Transfer Office from UPB. He is an EU IPR Helpdesk Ambassador – https://www.iprhelpdesk.eu/ambassadorsteam#Romania, fostering a network of regional IP focal points in cooperation with the Enterprise Europe Network, providing on-site training events in the different European countries, by participating in local awareness raising events, and by developing and disseminating a broad range of useful publications such as guidelines, checklists and fact sheets that deal with different aspects of IP – in business or in collaborative research. He is Project manager for an EU programme for the Competitiveness of Enterprises and Small and Medium-sized Enterprises (SMEs) – acronym PROSME – Services in support of business and innovation – http://www.enterprise-europe-network-romania.ro/prosme, in the frame of Enterprise Europe Network – http://een.ec.europa.eu/about/branches/ro00580 offering information and assistance services regarding European economic environment, helping the enterprises, mainly SME's, in developing the businesses at European Level, increasing their own competiveness, accessing European funding and programs.

PROGRAM
POSTER SESSION

P1 Comparative Study on AlMg10-SiCp Type Cellular Superlight Composite Metal Materials Obtained By Different Methods
O.RUSU, I.CSAKI, I.RUSU

P2 Comparative Studies Using NAA and SDAR-OES Analysis Techniques for Compositional Analysis of Potentially Biocompatible Stainless Steels
Florina Violeta ANGHELINA**,** Maria Cristiana ENESCU, IvonaPETRE, Alexis NEGREA and Carmen POPA

P3 Optical Coherence Tomography for Non-Contact Roughness Measurements
G.HUTIU, V.F. DUMA, A.DIMB, D.DEMIAN, A.BRADU, A.Gh. PODOLEANU

P4 Evaluation of heat treatment parameters effects upon the material characteristics of bovine bone-derived calcium phosphates
A. MAIDANIUC, G.E. STAN, M. MICULESCU, S.I. VOICU, A. CÎMPEAN, V. MITRAN, D. BATALU, F. MICULESCU

P5 Conversion procedure and preliminary characterization of *Mytilus galloprovincialis* seashell-derived ceramics as bone substitute
A.C.MOCANU, S.I.VOICU, A. MAIDANIUC, M. MICULESCU, L.T. CIOCAN, C.A. DASCĂLU, A. BERBECARU, F. MICULESCU

P6 Modification of Fatigue Properties in Shape Memory Ni-Ti Alloys on Heating
M.VASILESCU**,** M.DOBRESCU

P7 Determination of sprayed coatings adherence by destructive testing
R.A. GHEȚA, L. BICHIR, M. GORAN, A.E. BUȘARU, G.M. DUMITRU

P8 Study of sustainable materials using the ecological paradigm
A.NICOLAE**,** C.PREDESCU, A.M.PREDESCU, A.C.BERBECARU, M.NICOLAE

P9 Comparison of the Corrosion Behavior of Zr and Cr Nitride and Oxynitride Coated 304 Steel Mesh in (pH=2) Acidic Water Solution
M. DINU**,** R. MISSENGUE**,** A. C. PARAU**,** L. PETRIK**,** M. BRAIC**,** A. VLADESCU

P10 Effect of TIG-welded and Manual Metal Arc welding on mechanical properties of AISI 304,316L austenitic stainless steel sheets
A.A.HARB**,** I.CIUCA**,** R.CIOCOIU**,** M.VASILE**,** A.BIBIS**,** B.RAHALI and I.HAWAMDA

P11 Characterization of Degradation Processes of Ceramic Materials and Products Used in Continuous Casting of Steel
A.M.ILIE**,** A.C. BERBECARU, M.G. ANTON, A.IOANA, M.NICOLAE

P12 Experimental study on the degradation of a blood lipid regulator molecule with nano-sized catalyst and UV irradiation
L.FAVIER,, E.MATEI, A.I. SIMION, Y.KADMI, L.RUSU, A.M. PREDESCU, R.VIDU

P13 Development of Ti-Mo-Zr-Ta alloys for biomedical applications: microstructures and mechanical properties
M.S. BĂLȚATU, P. VIZUREANU, M. BENCHEA, M.G. MINCIUNĂ, D.C. ACHIȚEI, B. ISTRATE

P14 Surface morphology dependence on layer thickness in nanostructured multilayers with GMR effect
A. PURCARU, C. POP, M. MICULESCU, C.P. LUNGU, I. JEPU, F. MICULESCU
P15 Functionalization of Ti6Al4V alloy by hydroxyapatite coatings prepared by electrochemical deposition techniques
D.M. VRÂNCEANU, A.VLĂDESCU, E.UNGUREANU, V. NEGOIESCU, A. BERBECARU, C.M. COTRUT
P16 Effect of the bioceramic coatings on biodegradable magnesium alloys from hydrogen release point of view
E. PLOPEANU, L. DRAGOMIR, I. STEFAN, C. MILEA, A. TAPOSU, A. ANTONIAC, I. ANTONIAC
P17 Corrosion behavior of weld repairs for water turbine blades
R. CIOCOIU, R. COMAN, O. TRANTE, M. VASILE, I. CIUCA
P18 In-vivo testing of the biodegradable magnesium pins: biomechanical approach and biological effects
R.ADAM, I.ANTONIAC, M.NICULESCU, I.STEFAN, E.PLOPEANU, L.DRAGOMIR, A.BARBILIAN
P19 In-vitro characterization of some hydroxyapatite based composites for medical applications
C. TECU, G.VITIOANU, A. ANTONIAC, M.GUVEN GOK, G.GOLLER, A. TAPOSU, L. DRAGOMIR, I. STEFAN, C. MILEA, I. ANTONIAC
P.20 Improvement of structural characteristics for CuZn alloy by heat treatments
D.C. ACHIŢEI, P. VIZUREANU, M.G. MINCIUNĂ, N.CIMPOEŞU, B.ISTRATE
P.21 Damping capacity of metallic materials for automotive industry
R.C, CRĂCIUN, S.STANCIU, N.CIMPOEŞU, R.CIMPOEŞU, V.MANOLE
P.22 Analysis of thin films obtained by plasma jet method on a stainless steel used in turbine blades construction
C.A. TUGUI, P.VIZUREANU, M.C. PERJU, C.NEJNERU, B.ISTRATE, A.SAVIN
P.23. Obtaining and surface characterization of original CoCrMo alloys
M.G. MINCIUNĂ, P.VIZUREANU, I.ANTONIAC
P.24. Corrosion potentials of the aluminium alloys
B.GHIBAN, C.A.NATRA, G.POPESCU
P.25. Evaluation of some Romanian artefacts by SEM
B.GHIBAN, I.V.DRAGOIESCU
P.26. New High Entropy Alloy for Biomedical Applications
B.GHIBAN, G.POPESCU, D.DUMITRESCU, V.SOARE
P.27. Recycled polypropyleneimproved withthermoplastic elastomers
E.MATEI, M.RÂPĂ, A.M.PREDESCU, Á.A.ANDRÁS, A.BERBECARU, A.PICA, C.PREDESCU
P.28. Removal of Cr(VI) from aqueous solution using activated charcoal
C.DRAGAN, C.PANTILIMON, A.PREDESCU, G.COMAN, E.MATEI, L.FAVIER
P.29. Studies and Research Regarding the Influence of Carbon and Chrome Content for Obtaining the Superior on Mechanical Properties of Steel 16CD4
E.V. STOIAN, M.C. ENESCU, I.PETRE, P.C.FLUIERARU
P.30. IDT Based Polymers with Tunable Hues for Electrochromic Applications
C.M.CHO, H.YAN, J.XU

P. 31. Determination of organic elements in wheat grain using ED(P)-XRFS technique
R.A. STOIAN**,** A.A. MATEI
P.32. Calculation of thermal neutron flux in Am-Be neutron source in different moderating materials using MCNP Monte Carlo code
H.BASIRI**,** H.TAVAKOLI-ANBARA
P33. Dental restorations of Co-Cr using Direct Metal Laser Sintering Process
Diana-Irinel BĂILĂ, Cristian-Ioan TARBĂ, Elena-Cristina JUGĂNARU
P34. New metallic alloys used for dental implants manufacturing
Diana-Irinel BĂILĂ, Cristian-Ioan TARBĂ, Elena-Cristina JUGĂNARU
P35. Conformal design of PDMS mold for arbitrary skin surface with 3D printing
Suk-Hee Park, Hanbit Lee, Nak-Gyu Lee, Jonghun Yoon
P.36 Ultrasonic spectroscopy characterization of iron oxide nanoparticles suspensions
M. SOARE, A.C. MOCANU, M.V. PREDOI, D. PREDOI, C.S. CIOBANU
P.37 Parametric design and structural performance of a light metallic structure
VLAD ANDREI RĂDUCANU, LAURENȚIU MOLDOVAN, DOINA RĂDUCANU, MARIANA LUCIA ANGELESCU, ION CINCA, VASILE DĂNUȚ COJOCARU, ANNA NOCIVIN
P.38 Study on wear resistance FeNiCrMnAl high entropy alloy. Mechanical properties.
GHEORGHE BULUC, ROMEU CHELARIU, GABRIELA POPESCU, IOAN CARCEA
P.39 Study Regarding the Degrations Systes of the Interior Fire-Arm Surfaces
IVONA PETRE**,**VASILE BRATU, MARIA CRISTIANA ENESCU, ELENA VALENTINA STOIAN, FLORINA VIOLETA ANGHELINA
P.40 The analysis and management of energy consumptions in the case of the roller hearth furnace from forge section in Doosan IMGB
BEATRICE ADRIANA CÂRLAN**,** DAN CONSTANTINESCU, NICOLAE CONSTANTIN
P.41 The analysis of deformed materials resulted from balistic tests and used in forensic expertise
TUDOR VIOREL TIGANESCU, OVIDIU IORGA, ANDREEA VOICU, EUGEN TRANA

PROGRAM

SEMINARS

Thursday, November 10th, 2016

Seminar

Pioneers in Metallurgy and Materials Engineering

18.00-19.00 (Conference room 2.1., Central Library-UPB)

Chair: Ionuț PETRESCU (Romania)

- Materials Science and Engineering Faculty – past, present and future.
- Award ceremony for the pioneers in metallurgy and materials engineering.

Friday, November 11th, 2016

Seminar

Management, Innovation & Technological Transfer in Materials Engineering

18.00-19.30 (Conference room 2.1., Central Library-UPB)

Chair: Augustin SEMENESCU (Romania)

Diversity as Richness: the new Perspectives related to the Managerial Sciences
Massimo POLLIFRONI, Department of Management, University of Turin, Italy

- **Business Models for Increasing Technological Transfer Effectiveness**
  Alexandru MARIN, University Politehnica of Bucharest, Romania
- **NMP-REG Delivering Nanotechnologies, advanced Materials and Production to REGional manufacturing**
  Iulian ANTONIAC, University Politehnica of Bucharest, Romania
- **Management Elements about Applying KIBS Concept in Romanian Metallurgical Industry**
  Adrian IOANA, Augustin SEMENESCU, Mihnea COSTOIU, Massimo POLLIFRONI, Dragos MARCU

Saturday, November 12th, 2016

Seminar

Education in Metallurgy and Materials Engineering

09.00-10.00 (Faculty Materials Science and Engineering JA 101)

Chairs: Radu ȘTEFĂNOIU (Romania), Mirela SOHACIU (Romania)

- Education in metallurgy and materials engineering
- Quality assurance in education

Young Scientist Forum in Metallurgy and Materials Engineering

10.00-13.00 (Faculty Materials Science and Engineering JA 101)

Chairs: Ion CINCA (Romania), Iulian ANTONIAC (Romania)

- Industry demand for young researchers
- A carrer in the research institute
- Collaborative programmes for students

PROGRAM

Social Program

Thursday, November 10th, 2016		
Time	**Event**	**Location**
20.00-23.00	**Gala Dinner**	***Restaurant Hotel Marshall Garden****

**Transportation will be assured by bus for invited speakers and participants that are not from Bucharest.*

Located on the 6th floor of Hotel Marshall Garden*****, the restaurant surprises, first of all, by it extraordinary location, which offers an amazing view of the city. The beauty of the location is enhanced by the pleasure produced by the exquisite dishes and by the impeccable services.
The restaurant has a special atmosphere, created by the bold combination of lights and colors. Being inspired by well-known paintings and exploring the valences of the glass, unique stained glass details have been created especially for this place.

For ROMAT 2016 Gala Dinner, the well-known **DJ Vivel** will complete the atmosphere in order to improve the temporary disposition of the participants.

Ansamblul Folcloric Doinita will made a show of traditional Romanian dances, at the beginning of Gala Dinner, and different folklore dance styles from areas of Romania will be performed.

Gala Dinner will be a perfect moment for the participants in order to relax and taste the delicious Romanian dishes.

Friday, November 11th, 2016

Time	Event	Location
20.00-23.00	**President Banquet** ***(only by nominal invitation)***	***Restaurant Hanul Călugărenilor****

**Transportation will be assured by bus for invited speakers and participants that are not from Bucharest.*

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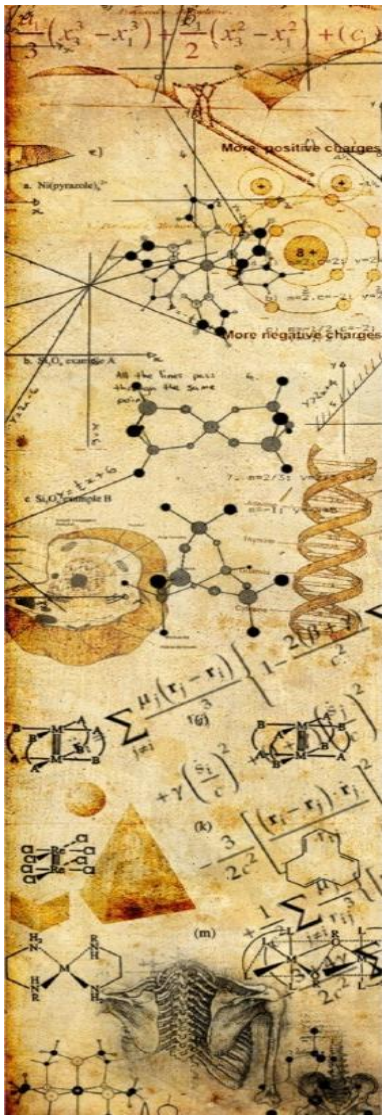

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