



**Serbian Ceramic Society Conference
ADVANCED CERAMICS AND APPLICATION III
New Frontiers in Multifunctional Material Science and Processing**

**Serbian Ceramic Society
Institute of Technical Sciences of SASA
Institute of Chemistry Technology and Metallurgy
Institute of Physics
Institute for Technology of Nuclear and Other Raw Mineral Materials
Institute for Testing of Materials
Archeological Institute of SASA**

PROGRAM AND THE BOOK OF ABSTRACTS

**Serbian Academy of Sciences and Arts, Knez Mihailova 35
Serbia, Belgrade, 29th September-1st October, 2014.**

PS2-9

Annealing Effects on Luminescent Properties of Eu³⁺ Doped Gd₂Zr₂O₇ Nanopowders

M. S. Rabasovic¹, D. Sevic¹, J. Krizan², M. D. Rabasovic¹ and N. Romcevic¹

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In this report presented are structure, morphology and luminescence properties of nanopowders based on gadolinium zirconium oxide (Gd₂Zr₂O₇) doped by europium ions (Eu³⁺). The nanopowders were prepared using a flame combustion method, the most frequently used process due to the simplicity and low cost of the synthesis procedures and also due to the possibility of tailoring the size and morphology of particles. The produced material is suitable for various optical devices. The structure of prepared materials has been confirmed and characterized using X-ray powder diffraction (XRD), scanning electron microscope (SEM) and photoluminescence (PL) techniques. The luminescence properties of synthesized nanopowders were characterized by emission spectra and luminescence lifetimes obtained by using the streak camera system. Moreover, emission spectra were obtained and compared for powders as-obtained and after additional annealing at 1200 °C. Luminescence emission spectra clearly show peaks characteristic for the strong emission lines at 611 nm and 630 nm corresponding to the ⁵D₀ → ⁷F₂ long lived transition.

The Third Serbian Ceramic Society Conference »Advanced Ceramics and Application«
September 29-October 1, 2014, Serbian Academy of Sciences and Arts, Knez Mihailova 35,
Belgrade, Serbia

ACA III 2014

**The Third Serbian Ceramic Society Conference
»Advanced Ceramics and Application«**

Programme

**Belgrade, Serbia
September, 29-October, 1, 2014.**

**Advanced Ceramics and Applications III:
New Frontiers in Multifunctional Material Science and Processing**

29th September-1st October, 2014, Serbia, Belgrade

Aims and Scope

Advanced Ceramics play an important role in the European Unions prioritized materials to enable the transition towards to a knowledge-based low carbon, cost competitive and efficient societies. This ACA III Conference will gather the researchers, engineers, academy staff and PhD students trying to emphasize the key advanced materials research, processing and innovation activities.

Serbian Ceramic Society has been initiated in 1995/1996 and fully registered in 1997 as Yugoslav Ceramic Society, being strongly supported by American Ceramic Society. Since 2009. continued as Serbian Ceramic Society in accordance to the Serbian law procedure. Serbian Ceramic Society is almost the only one Ceramic Society in the South-East Europe, with members from more than 20 Institutes and Universities, active in 16 sessions, by program and the frames which are defined by the American Ceramic Society activities.

Conference co-chairmen:

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Venue: Serbian Academy of Sciences and Arts, Great Hall (second floor) and Halls (first floor), Knez Mihailova 35, Belgrade, Serbia.

Conference fee: Standard fee: 6000 RSD; Members of SCS, Invited lecturers, Key-note speakers and PhD Students: 50% reduced fee; plenary lectures and last year winners for oral and poster presentations: free of charge.

Invoice and bank details for Conference fee payment: Banka Intesa ad Beograd, Count No. 160-380150-55, notification: Conference fee – participant name.

Abstracts and papers publication: Abstract should be submitted via e-mail as attached documents. It should be sent to: nina.obradovic@itn.sanu.ac.rs **no longer than June 15th 2014**, with the subject: 3SCSC-first name and surname of the first author. Abstracts should be prepared using the following instructions: paper size: A4; length: up to 200 words; language: English; font: Times New Roman; title: 14 pt, bold; author's names: 12 pt, regular; affiliation and address: 12 pt, regular; body text: 12 pt; margins: top, bottom, inside, outside: 2 cm. Abstracts should contain the aim, methods and the conclusion of a research and should be without images and references. The authors should provide contact details (e-mail and phone), as well as their title (BSc, MSc, PhD) on a separate sheet. The official language of the conference is English. Conference abstracts will be published in the Book of Abstracts Conference. Papers presented at the conference can be submitted for publishing in Science of Sintering or Journal of Ceramic Science and Technology.

Type of presentation: Visuals for oral presentations should be in Microsoft PowerPoint, versions up to 2007 (.ppt or .pptx, or Adobe Acrobat Reader 9 (.pdf)). Any animation or video files must be compatible with Windows 7 and Windows Media Player. Please bring your presentation to the reception desk at the beginning of the Conference on flash memory. Posters should be prepared in dimension: 70x100 cm. The official language of the conference is English.

Additional Conference information

Phone: +381-11-2027247 or 2185-437 or 2637-239, E-mail: nina.obradovic@itn.sanu.ac.rs

Programme Overview

Date	Time	Programme		Floor, Room	
September, 29, Monday	08-09	Registration Poster Session 1 Installation		2 nd Floor, Hall	
	09-09.55	Opening Ceremony		2 nd Floor, Great Hall	
	09.55-10.00	Short Break		2 nd Floor, Hall	
	10.00-12.00	Plenary Session 1		2 nd Floor, Great Hall	
	12.00-12.20	Coffee Break		2 nd Floor, Hall	
	12.20-14.20	Plenary Session 2		2 nd Floor, Great Hall	
	14.30-15.30	Buffet Lunch		1 st floor, Club SASA, Mezzanine Hall	
	15.30-17.30	Plenary Session 3		2 nd Floor, Great Hall	
	17.30-18.30	Coffee Break & Poster Session 1		2 nd Floor, Hall	
	19.30	Conference Dinner		Hotel Royal, Kralja Petra street 56	
September, 30, Tuesday	08-09	Registration Poster Session 2 Installation		1st Floor, Hall	
	09.00-13.00		Session 1 Nanostructures & Functional Materials, Blue Hall 2	Session 3 Basic & Sintering, Red Hall 1	1st Floor
		11.05 – 11.25	Coffee break		
			Session 1 Nanostructures & Functional Materials, Blue Hall 2	Session 3 Basic & Sintering Red Hall 1	
	13.00 – 14.00	Buffet Lunch		1 st floor, Club SASA, Mezzanine Hall	
	14.00-16.00	Session 2 Basic & Multifunctional, Blue Hall 2	Session 4 Traditional & Bio & Heritage, Red Hall 1	1st Floor	
	16.00-17.00	Coffee break & Poster Session 2		1st Floor, Hall	
	17.30	Sightseeing or Commercial Visit			
	October, 1, Wednesday	09.00-09.30	Round Table 1		1st Floor, Blue Hall
09.30-10.00		Round Table 2			
10.00-10.30		Coffee break			
10.30-11.45		Session 5			
11.45-12.15		Closing Ceremony			

Monday, September 29th, 2014

08.00 – 09.00 Registration

Poster Session 1 Installation

Hall, 2nd floor

Great Hall, 2nd floor

**09.00 – 09.55 Opening Ceremony of The Third Serbian Ceramic Society
Conference »Advanced Ceramics and Application«**

Prof. Dr. Vojislav Mitić, President of the Serbian Ceramic Society

**Prof. Dr. Olivera Milošević, President of the General Assembly of the
Serbian Ceramic Society**

**Prof. Dr. Felix Ungar, President of European Academy of Sciences & Arts
Representatives of SASA, Ministry of Science & Serbian Government**

09.55-10.00 Short Break

10.00-12.00 Plenary Session 1

Chairperson: Sheldon M. Wiederhorn & Makio Naito

10.00-10.30 PL1 Structural Ceramics for Extreme Environments

Bill Lee

*Dept. of Materials and Centre for Advanced Structural Ceramics (CASC), Imperial College
London*

10.30 – 11.00 PL2 2D Atomic Layers from Layered Ceramics

Minoru Osada

*International Center for Materials Nanoarchitectonics (WPI-MANA),
National Institute for Materials Science (NIMS), Tsukuba, Japan*

**11.00-11.30 PL3 Nonclassical Materials: Single Crystalline BaTiO₃ Nanocube, Supra
Crystal and Their Properties**

**K. Kato¹, K. Mimura¹, Q. Ma¹, F. Dang¹, H. Imai², S. Wada³, M. Osada⁴,
H. Hajime⁴, M. Kuwabara⁵**

¹*National Institute of Advanced Industrial Science and Technology, 2266-98 Anagahora,
Shimoshidami, Moriyama, Nagoya, Japan*

²*Keio University, 3-14-1 Hiyoshi, Kohoku-ku, Yokohama, Japan*

³*University of Yamanashi, 4-3-11, Takeda, Kofu, Japan*

⁴*National Institute for Materials Science, 1-1 Namiki, Tsukuba, Japan*

⁵*Kyushu University, 6-1 Kasuga-kouen Kasuga, Fukuoka, Japan*

11.30 – 12.00 PL4 Advanced Ceramics from Preceramic Polymers and Fillers

Paolo Colombo^{1,2,3}, Enrico Bernardo⁴

¹*Department of Industrial Engineering, University of Padova, Italy*

²*Adjunct Professor of Materials Science and Engineering, Department of Materials Science and Engineering, The Pennsylvania State University, USA*

³*Visiting Professor, Department of Mechanical Engineering, University College London, UK*

⁴*Department of Industrial Engineering, University of Padova, Italy*

12.00 – 12.20 Coffee break

12.20 – 14.20 Plenary Session 2

Chairperson: Rainer Gadow & Jose Manuel Torralba

12.20 – 12.50 PL5 The Birth of Fracture Mechanics: A Perspective on Toughness

Sheldon M. Wiederhorn

National Institute of Standards and Technology, Gaithersburg, MD, 20899-8500

12.50 – 13.20 PL6 One-step Mechanical Method to Create Nanocomposite Structure and its Applications for Advanced Materials

Makio Naito, Akira Kondo, Takahiro Kozawa JWRI,

Osaka University, 11-1, Mihogaoka, Ibaraki city, Osaka 567-0047, Japan

13.20 – 13.50 PL7 Tailoring Ceramic Nanostructures for Nanodevice Applications

Branislav Vlahovic, Igor Filikhin, and Serge Matinian,

Department of Physics, North Carolina Central University, 1801 Fayetteville Street, Durham, NC 27707, USA

13.50 – 14.20 PL8 FAMA – facility for Modification and Analysis of Materials with Ion Beams

N. Nešković

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

14.30 – 15.30 Buffet Lunch

**Club SASA,
Mezzanine Hall, 1st floor**

15.30 – 17.30 Plenary Session 3

Chairperson: Paolo Colombo & William Bill Lee

15.30 – 16.00 PL9 Electrical Discharge Machining (EDM) of High Performance Ceramics–Materials and Process Development for Wear Resistant Precision Tools with High Geometrical Complexity

Rainer Gadow, Richard Landfried and Frank Kern

Institute for manufacturing technologies of ceramic components and composites, IMTCCC, University of Stuttgart, Allmandring 7b, D-70569 Stuttgart, Germany

16.00 – 16.30 PL10 Development of Zircon by Powder Injection Moulding

José M. Torralba^{1,2}, Carolina Abajo¹, Javier Hidalgo¹, Antonia Jiménez-Morales¹

¹*Department of Materials Science and Engineering, Universidad Carlos III Madrid, Spain*

²*IMDEA Materials Institute, Madrid, Spain*

16.30 – 17.00 PL11 Aqueous Processing of Water Sensitive Powders.

How to Overcome the Hurdles?

José M.F. Ferreira

Department of Materials and Ceramics Engineering (DEMaC), CICECO, University of Aveiro, 3810-193, Aveiro-Portugal

17.00-17.30 PL12 Ozone Decay on the Metal Oxides Ceramics

S. Rakovsky, T. Batakliiev, V. Georgiev, M. Anachkov, G. Zaikov¹

Institute of Catalysis, Bulgarian Academy of Sciences, Sofia, Bulgaria

¹*Institute of Biochemical Physics – Russian Academy of Sciences, Moscow, Russia*

17.30 – 18.30 Coffee break and Poster Session 1

Hall, 2st floor

19.30 Conference Dinner , Hotel Royal, Kralja Petra street 56

Tuesday, September 30th, 2014

**08.00 – 09.00 Registration
Poster Session 2 Installation**

Hall, 1st floor

09.00 – 13.00 1st Session – Nanostructures & Functional Materials
Chairpersons: Minoru Osada & Kazumi Kato

Blue Hall 2, 1st floor

09.00 – 09.30 PL13 Chemical Nanotechnologies: From Molecules to Functional Nanostructures for Energy and Health Applications

Sanjay Mathur

Inorganic and Materials Chemistry Dpt., University of Cologne, Germany

09.30 – 09.55 KN1 – Multifunctional Self-organized Nanowires and Nanowire Arrays

Srdjan Milenkovic¹, Achim Walter Hassel²

¹*IMDEA Materials Institute, Eric Kandel 2, 28906, Getafe, Spain;* ²*Institute for Chemical Technology of Inorganic Materials, Johannes Kepler University Linz, Altenberger Str. 69, A-4040 Linz, Austria*

09.55-10.20 KN2 - Magnetic and Structural Properties of ZrO₂(Fe, Mn) and CdO(Fe) Nanoparticles

I. Kuryliszyn-Kudelska¹, M. Arciszewska¹, A. Małolepszy², M. Mazurkiewicz², L. Stobinski³, R. Minikayev¹, W. Paszkowicz¹, N. Nedelko¹, A. Grabias⁴, M. Kopcewicz⁴, W. Dobrowolski¹

¹*Institute of Physics, Polish Academy of Sciences, Al. Lotników 32/46, 02-668 Warsaw, Poland;* ²*Warsaw University of Technology, Faculty of Materials Science and Engineering, 02-507 Warsaw, Wołoska 141, Poland;* ³*Institute of Physical Chemistry, Polish Academy of Sciences, Kasprzaka 44/52, 01-224 Warsaw, Poland;* ⁴*Institute of Electronic Materials Technology, Wolczyńska 133, 01-919 Warsaw, Poland*

10.20-10.45 KN3 NanoTools for Ultrafast DNA Sequencing

Radomir Zikic

Institute of Physics, Pregrevica 118 Belgrade, Serbia

10.45-11.05 INV1- Synthesis and Characterization of Magnesium Hydroxide Nanoparticles via Hydrothermal Method

A. Sierra-Fernandez^{1,2}, G. Flores-Carrasco³, L.S.Gomez-Villalba¹, O.Milosevic⁴, R. Fort¹, M.E.Rabanal²

¹ Instituto de Geociencias (CSIC, UCM), C/ José Antonio Novais 2, 28040 Madrid, Spain;

² University Carlos III of Madrid and IAAB, Department of Materials Science and Engineering and Chemical Engineering, Avda.Universidad 30, 28911 Leganes, Madrid, Spain; ³CIDS-ICUAP Benemérita Universidad Autónoma de Puebla, Av. San Claudio y 14 sur, Edif. 103C C.U., Col. San Manuel, Puebla 72570, México; ⁴Institute of Technical Sciences of the Serbian Academy of Sciences and Arts, Knez Mihailova 35/IV, 11000 Belgrade, Serbia.

11.05 – 11.25 Coffee break

Blue Hall 2, 1st floor

11.25–11.50 KN4 Transport Properties of Electron-doped Sr_{1-x}La_xCu₂O_δ Superconducting Thin Films

V. P. Jovanović¹, Z. Z. Li² and H. Raffy²

¹ Institute of Physics, University of Belgrade, Pregrevica 118, 11000 Belgrade, Serbia;

²Laboratoire de Physique des Solides, UMR 8502-CNRS, Université Paris-Sud, 91405 Orsay, France

11.50-12.10 INV2 Electrical and Dielectric Characterization of Nanostructural Ceramic Materials by Complex Impedance Spectroscopy

D. L. Sekulić¹, Z. Ž. Lazarević², N. Ž. Romčević²

¹Faculty of Technical Sciences, University of Novi Sad, Novi Sad, Serbia, ²Institute of Physics, University of Belgrade, Belgrade, Serbia

12.10-12.25 OR1- Synthesis and Characterization of Nanostructured Hybrid Systems of Ag&ZnO Obtained by Solvothermal Method for Photocatalytic Applications

L. Muñoz¹, A. Sierra-Fernandez^{1,2}, L.S.Gomez-Villalba², O.Milosevic³, M.E.Rabanal¹

¹University Carlos III of Madrid and IAAB, Department of Materials Science and Engineering & Chemical Engineering, Avda.Universidad 30, 28911 Leganes, Madrid, Spain; ²Instituto de Geociencias (CSIC, UCM), C/ José Antonio Novais 2, 28040 Madrid, Spain; ³Institute of Technical Sciences of the Serbian Academy of Sciences and Arts, Knez Mihailova 35/IV, 11000 Belgrade, Serbia.

12.25-12.40 OR2 Ultrasonic Processing of Hierarchically Organized TiO₂ Functional Nanomaterials

Ivan M. Dugandzic¹, Dragana J. Jovanovic², Lidija T. Mancic¹, Zoran V. Saponjic², Jovan M. Nedeljkovic², Olivera B. Milosevic¹

¹Institute of Technical Sciences of SASA, Knez Mihailova 35/IV, 11000, Belgrade, Serbia,

²Vinča Institute of Nuclear Sciences, University of Belgrade, 11001 Belgrade, Serbia

13.00 – 14.00 Buffet Lunch

**Club SASA,
Mezzanine Hall, 1st floor**

Blue Hall 2, 1st floor

14.00–16.00 2st Session – Basic & Multifunctional

Chairpersons: Branislav Vlahovic & Karel Maca

14.00 – 14.25 KN5 Towards Electronic Materials Fractal Theory

Ljubiša M. Kocić¹ and Vojislav V. Mitić²

¹University of Niš, Faculty of Electronic Engineering, Niš, Serbia; ²Institute of Technical Sciences of SASA, Belgrade, Serbia

14.25 – 14.50 KN6 Magnetic Interactions and Magnetotransport in Ge_{1-x}TM_xTe Diluted Magnetic Semiconductors

L. Kilanski¹, R. Szymczak¹, E. Dynowska¹, M. Gorska¹, A. Podgorni¹, W. Dobrowolski¹,
M. Romcevic², V. E. Slynko³ and E. I. Slynko³

¹Institute of Physics, Polish Academy of Sciences, al. Lotnikow 32/46, 02-668 Warsaw, Poland; ²Institute of physics, University of Belgrade, 11080 Belgrade, Republic of Serbia; ³Institute of Materials Science Problems, Ukrainian Academy of sciences, Chernovtsy, Ukraine

14.50-15.10 INV3 A- and B-site Substitutions Effect on the Dynamic Relaxation Processes in Tetragonal Tungsten Bronzes

Andrei Rotaru^{1,2,3} and Finlay D. Morrison³

¹University of Craiova, Faculty of Mathematics and Natural Sciences, Department of Chemistry, A.I. Cuza 13, Craiova, Romania; ²INFLPR-National Institute for Laser, Plasma and Radiation Physics, Laser Department, Bvd. Atomistilor, Nr. 409, Magurele (Ilfov), Bucharest, Romania; ³University of St Andrews, EaStCHEM, School of Chemistry, North Haugh, KY169ST, St Andrews, Fife, Scotland, United Kingdom

15.10 – 15.30 INV4 The Influence of Temperature on Microstructure Contact Surfaces on BaTiO₃ –ceramics Doped with Ho₂O₃

S. Janković¹, V. V. Mitić^{2,3*}, Lj. Kocić², V. Paunović², M. Miljković⁴

¹Mathematical Institute, SASA, Knez Mihailova 35, 11000 Belgrade, ²University of Niš, Faculty of Electronic Engineering, Aleksandra Medvedeva 14, 18000 Niš, Serbia, ³Institute of Technical Sciences, SASA, Knez Mihailova 35, 11000 Belgrade, Serbia, ⁴University of Niš, SEM Laboratory, 18000 Niš, Serbia

15.30-15.45 OR3 The research of the physical and chemical mechanism and kinetics of reactionary SPS-sintering of TiB₂ – TiN composition

Petukhov O.¹, Khobta I.¹, Herrmann M.², Rathel J.², Ragulya A.¹

¹Frantsevich Institute for Problems of Materials Science of National Academy of Sciences of Ukraine. 03680, Kiev -142, 3, Krzhyzhanovsky St., Ukraine; ²Fraunhofer IKTS, Winterbergstrasse 28, 01277, Dresden, Germany

16.00 – 17.00 Coffee break and Poster session 2

17.30 Sightseeing or Commercial Visit

Red Hall 1, 1st floor

09.00 – 13.00 3rd Session -Basic & Sintering

Chairpersons: Nina Obradovic & Slavcho Rakovsky

09.00-09.25 KN7 Characterizing Griffith Cracks in Glass: a Measurement Problem

S. M. Wiederhorn

National Institute of Standards and Technology, Gaithersburg, MD, 20899-8500

09.25-09.50 KN8 – Computer Simulation of Grain Coarsening Due to Diffusion and Deformation in Liquid Bridge

Zoran S. Nikolic¹ and Kazunari Shinagawa²

¹*University of Niš, Faculty of Electronic Engineering, Serbia;* ²*Kagawa University, Faculty of Engineering, Japan*

09.50-10.15 KN9 Recycling of the Advanced Ceramic Materials

Srecko Stopic, Bernd Friedrich,

IME Process Metallurgy and Metal Recycling,

RWTH Aachen University, Germany

10.15-10.35 INV5- The Sintering Activation Energy of Various Advanced Ceramics and Composites

Karel Maca

Dept. of Ceramics and Polymers, Brno University of Technology, Technicka 2, 616 69

Brno, Czech Republic, CEITEC BUT, Brno University of Technology, Technicka 10, 616 00

Brno, Czech Republic

10.35--10.55 INV6 Application of Integral Characteristics in Thermodynamics and Quantum Mechanics

Dimitrije Stefanović¹, Janja Nedović¹, Časlav Stefanović²

¹*Faculty of Electronic Engineering 18000 Niš, Serbia;* ²*Faculty of Mathematics and Natural Science, Kosovska Mitrovica, Serbia*

11.05-11.25 Coffee break

11.25-11.40 OR4 FTIR/DRIFT Contactless Measurement of Salt Crystallization Phenomena

D. Čjepa¹, S. Vučetić¹, O. Rudić¹, S. Pašalić², S. Vujović³, J. Ranogajec¹

¹Faculty of Technology, University of Novi Sad, 21000, Novi Sad, Serbia; ²Serbian Ministry of Education, Science and Technological Development, Nemanjina 22-24, 11000 Belgrade, Serbia; ³Provincial Institute for the Protection of Cultural Monuments, 21000, Novi Sad, Serbia

11.40-11.55 OR5 Magnetic Characterization of PIM MnZn Ferrite for Power Electronic Application

Nebojša Mitrović, Elvis Gašanin, Aleksandra Kalezić -Glišović, Borivoje Nedeljković, Maja Kićanović

Joint Laboratory for Advanced Materials of SASA, Section for Amorphous Systems, Faculty of Technical Sciences Čačak, University of Kragujevac, Serbia,

11.55-12.10 OR6 Selection of the Most Suitable Non-conventional Machining Processes for Ceramic Processing by Using MCDMs

Dušan Petković, Miloš Madić, Goran Radenković

University of Niš, Faculty of Mechanical Engineering, Aleksandra Medvedeva 14, Niš, Serbia

12.10-12.30 JEOL Electron Microscopes-news

S. Zizek

SCAN d.o.o. Predvor, Nazorjeva 3, Kranj, Slovenia

13.00 – 14.00 Buffet Lunch

**Club SASA,
Mezzanine Hall, 1st floor**

Red Hall 1, 1st floor

14.00 – 16.00 4th Session – Traditional & Bio&Heritage

Chairpersons: Maria Eugenia Rabanal & Ljubica Pavlovic

14.00 – 14.25 KN10 Ni-Al Layered Double Hydroxides as Precursors of Ceramic Pigments

Margarita Gabrovska¹, Dorel Crişan², Nicolae Stănică², Dimitrinka Nikolova¹, Maya Shopska¹, Lyubima Bilyarska¹, Maria Crişan², Rumeana Edreva-Kardjieva¹

¹Institute of Catalysis, Bulgarian Academy of Sciences, Acad. G. Bonchev Str. Bl. 11, 1113 Sofia, Bulgaria; ²“Ilie Murgulescu” Institute of Physical Chemistry, Romanian Academy, 202 Splaiul Independentei Str., 060021 Bucharest-12, Romania

14.25 - 14.50 KN11 What we know and what we would like to know – new developments in characterisation of pharmaceutical materials

Milan D. Antonijević

School of Science, Faculty of Engineering and Science, University of Greenwich (Medway Campus), Chatham Maritime, Kent ME4 4TB, UK

14.50 - 15.15 KN12 Objective Measurement Method to Detect Hip Bone affected by Osteoarthritis

Francesco Lamonaca¹, Monica Vasile², Alfonso Nastro³

¹ Dept. of Informatics, Models, Electronic and Systems, University of Calabria, Ponte Pietro Bucci, 87040 Rende (CS), Italy; ²Medical School, Ovidius University of Costanta, Bd.Mamaia 124, 900527, Costanta, Romania; ³ Department of Chemistry and Chemical Technology, , University of Calabria, Ponte Pietro Bucci, 87040 Rende (CS), Italy.

15.15-15.35 INV 7 Biodegradable Composite Materials

Dumitru Nedelcu

“Gheorghe Asachi” Technical University of Iasi, Romania, Blvd. Mangeron, No. 59A, 700050 Iasi, Romania

15.35-15.50 INV 8 Where is Archaeology Without Physical and Chemical Analysis in the Ceramic Technology Studies?

Biljana Djordjević,

National Museum in Belgrade, Serbia

15.50-16.00 OR7 Sculptural Concretes: Use in Restoration

Rajko Blažić

High School-Academy for Arts and Conservation, Serbian Orthodox Church, Belgrade, Serbia

16.00 – 17.00 Coffee break and Poster Session 2

17.30 Sightseeing or Commercial Visit

**Blue Hall 2, 1st floor
October, 1st, 2014**

**09-09.30 Round Table 1: The Establishment of ModTech Branch in
Belgrade**

By invitation only

**09.30-10.00 Round Table 2: Enhancing Scientific Cooperation between
Serbia and Italy**

10.00-10.30 Coffee break

**Blue Hall 2, 1st floor
October, 1st, 2014**

10.30-11.45 5th Session: Advanced Materials, Ceramics & Processing
Chairpersons: Vladimir Pavlovic&Dumitru Nedelcu

**10.30-11.00 PL 14 A Novel, Highly Efficient Material for Photovoltaic Conversion: the
CH₃NH₃PbI₃ Perovskite**

László Forró

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

**11.00.-11.30 PL 15 The Bavarian Porcelain Industry Facing Global Competition -
Changes, Chances and Challenges 1989 to 2014**

Wilhelm Siemen

Deutsches Porzellanmuseum, Hohenberg, Germany

**11.30-11.45 The application of PRIZMA's Ultrasound Atomizers and Electrostatical
Precipitators in the Advanced Materials Processing,**

Miroslav Ravlić

Prizma, Kragujevac

11.45-12.15 Closing Ceremony

Poster Session 1: PS1 Art & Traditional & Heritage

Hall, 2st floor
Monday, 29, 09, 2014.
17.30-18.30 h

PS1-1 Characterization of Material as a Supply Source for Heritage Aqueduct Construction in FYR Macedonia

Zagorka Radojević¹, Ivana Delić Nikolić¹, Anja Terzić¹
¹*Institute for Materials Testing, Belgrade, Serbia*

PS1-2 Corundum and Bauxite Refractory Shotcretes Based on Activated Waste Coal Ash: Investigation of Thermally Induced Properties Change

Anja Terzić¹, Zagorka Radojević¹, Ljiljana Miličić¹, Nina Obradović², Ljubiša Andrić³
¹*Institute for Materials Testing, Belgrade, Serbia*, ²*Institute of Technical Sciences of Serbian Academy of Sciences and Arts, Belgrade, Serbia*, ³*Institute for Technology of Nuclear and Other Raw Mineral Materials, Belgrade, Serbia*

PS1-3 Self Sensing Concrete

Gordana Topličić-Čurčić, Dušan Grdić, Nenad Ristić, Zoran Grdić
University of Nis, The Faculty of Civil Engineering and Architecture, Serbia

PS1-4 The Use of Different Analytical Techniques in the Proces of Investigated Ceramic Materials

A.Radosavljević-Mihajlović,
ITNMS, Bulevar Franske d'Epere 86, Belgrade, Serbia

PS1-5 The Use of X-ray Powder Analysis for Investigation of Ceramic Materials

Ana S. Radosavljevic-Mihajlovic¹, Jovica Stojanovic¹, Anja M. Dosen²
¹ *ITNMS Bulevar Franche d'Epere , 11000 Belgrade, Serbia*, ²*Faculty of Mining and Geology, Department of Crystallography, University of Belgrade, Đušina 7, 11000 Belgrade, Serbia*

PS1-6 The Synthesis and Crystal Structures of Diphylloaluminosilicates Phase Doped with Ca²⁺ and Gd³⁺

Ana S. Radosavljevic-Mihajlovic¹, Jovica Stojanovic¹, Anja M. Dosen²
¹ *University of Belgrade - Vinca Institute of Nuclear Sciences, P.O. Box 522, 11001 Belgrade, Serbia*, ²*Faculty of Mining and Geology, Department of Crystallography, University of Belgrade, Đušina 7, 11000 Belgrade, Serbia*

PS1-7 Combining Fresh and Ripe Sculptural Concretes

Rajko Blažić
High School-Academy for Arts and Conservation, Serbian Orthodox Church, Belgrade, Serbia

PS1-8 Gold and Silver Plating Concretes

Rajko Blažić,
High School-Academy for Arts and Conservation, Serbian Orthodox Church, Belgrade, Serbia

PS1-9 Sculptural Concretes: Unusual Montages

Rajko Blažić

High School-Academy for Arts and Conservation, Serbian Orthodox Church, Belgrade, Serbia

PS1-10 Sculptural Concretes: Stone Immitation

Rajko Blažić

High School-Academy for Arts and Conservation, Serbian Orthodox Church, Belgrade, Serbia

PS1-11 The Mirrors

Zvonko Petković

High School-Academy for Arts and Conservation, Serbian Orthodox Church, Belgrade, Serbia

PS1-12 Natural carbonate fillers

Ljubiša Andrić¹, Anja Terzić², Marko Pavlović³, Milan Petrov¹, Ljubica Pavlović¹, Zagorka Aćimović³

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²Institute for Materials Testing, Belgrade, Serbia, ³University of Belgrade, Faculty of Technology and Metallurgy, Belgrade, Serbia

PS1-13 Calcium carbonate fillers prepared by means of micronized milling with application in coatings

Marko Pavlović¹, Anja Terzić², Ljubiša Andrić³, Milan Petrov³, Ljubica Pavlović³, Zagorka Aćimović¹

¹University of Belgrade, Faculty of Technology and Metallurgy, Belgrade, Serbia, ²Institute for Materials Testing, Belgrade, Serbia, ³Institute for Technology of Nuclear and Other Raw Mineral Materials, Belgrade, Serbia

Poster Session 2: PS2 Nanostructures & Amorphous & Functional & Sintering

Hall, 1st floor
Tuesday, 30, 09, 2014.
16-17h

PS2-1 Properties of Zig-zag Nickel Nanostructures Obtained by GLAD Technique

J. Potočnik¹, M. Nenadović¹, M. Popović¹, B. Jokić² and Z. Rakočević¹

¹University of Belgrade, INS Vinča, Laboratory of Atomic Physics, Mike Alasa 12-14, 11001 Belgrade, Serbia, ¹University of Belgrade, Faculty of Technology and Metallurgy, Karnegijeva 4, 11000 Belgrade, Serbia

PS2-2 Argon Irradiation Effects on the Structural and Optical Properties of Reactively Sputtered CrN Films

M. Novaković, M. Popović and N. Bibić

VINČA Institute of Nuclear Sciences, University of Belgrade, 11001 Belgrade, Serbia

PS2-3 Annealing Effects on the Properties of TiN Thin Films

M. Popović, M. Novaković and N. Bibić

VINČA Institute of Nuclear Sciences, University of Belgrade, 11001 Belgrade, Serbia

PS2-4 Raman Spectroscopy of Optical Properties in CdS Thin Films

J. Trajčić¹, M. Gilić¹, N. Romčević¹, M. Romčević¹, G. Stanišić¹, B. Hadžić¹, Y.S. Yahia²

¹Institute of Physics, P.O. Box 68, University of Belgrade, 11080 Belgrade, Serbia, ²Nano–Science & Semiconductor Labs., Department of Physics, Faculty of Education, Ain Shams University, Roxy, Cairo, Egypt

PS2-5 Raman and IR Spectroscopic Study of Nanostructured Ni_{0.5}Zn_{0.5}Fe₂O₄ Prepared by Soft Mechanochemical Synthesis

Z. Ž. Lazarević¹, Č. Jovalekić², A. Milutinović¹, M. Romčević¹, G. Stanišić¹, M. Gilić¹, N. Ž. Romčević¹

¹Institute of Physics, University of Belgrade, Pregrevica 118, Zemun, Belgrade, Serbia, ²The Institute for Multidisciplinary Research, University of Belgrade, Serbia

PS2-6 Surfactants assisted hydrothermal synthesis of NaYF₄ co-doped Yb³⁺/Er³⁺ up-conversion nanoparticles

Ivana Z. Dinic¹, Ivan M. Dugandzic¹, Lidija T. Mandcic¹, Maria Eugenia Rabanal², Olivera B. Milosevic¹

¹Institute of Technical Sciences of SASA, 11000 Belgrade, Serbia, ²Materials Science and Engineering Department and IAAB, Universidad Carlos III de Madrid, Avda de la Universidad 30, 28911 Leganes, Spain

PS2-7 Growth, Structural and Optical Studies of Neodymium Doped Yttrium Aluminum Garnet

S. Kostić¹, Z. Ž. Lazarević¹, M. Romčević¹, A. Milutinović¹, V. Radojević², M. Petrović-Damjanović¹, N. Ž. Romčević¹

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PS2-8 Influence of Er³⁺/Yb³⁺ Concentration Ratio on the Down-conversion and Up-conversion Luminescence and Lifetime in GdVO₄: Er³⁺/Yb³⁺ Microcrystals

Tamara V. Gavrilović,¹ Dragana J. Jovanović,¹ Vesna Lojpur,¹ Aleksandar Nikolić² and Miroslav D. Dramićanin¹

¹*Laboratory for Radiation Chemistry and Physics, Vinča Institute of Nuclear Sciences, University of Belgrade, P.O. Box 522, 11001 Belgrade, Serbia,* ²*Faculty of Chemistry, University of Belgrade, Studentski trg 12-16, Belgrade*

PS2-9 Annealing Effects on Luminescent Properties of Eu³⁺ Doped Gd₂Zr₂O₇ Nanopowders

M. S. Rabasović¹, D. Sević¹, J. Krizan², M. D. Rabasović¹ and N. Romčević¹

¹*Institute of Physics, University of Belgrade, Serbia,* ²*AMI d.o.o, Trstenjakova 5, 2250 Ptuj, Slovenia*

PS2-10 The morphological characterization of mechanically activated ZnO powder

A. Peleš¹, S. Filipović¹, N. Obradović¹, J. Krstić², V. Pavlović¹

¹*Institute of Technical Sciences of SASA, Knez Mihailova 35/IV 11000 Belgrade, Serbia,* ²*Institute of Chemistry, Technology and Metallurgy, University of Belgrade, Njegoševa 12, 11000 Belgrade, Serbia*

PS2-11 Strontium Containing Polyphosphate Glass for Fabrication of 3D-scaffold for Biomedical Application

V. D. Živanović¹, S. D. Matijašević¹, J. D. Nikolić¹, Grujić², S. V. Smiljanić², S. N. Zildžović¹, V.S. Topalović¹

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PS2-12 Reduction of doubtful detection of micro-nucleus in human lymphocyte

Francesco Lamonaca¹, Domenico Grimaldi², Alfonso Nastro³

¹*Dept. of Informatics, Models, Electronic and Systems, University of Calabria, Ponte Pietro Bucci, 87040 Rende (CS), Italy.(e-mail: flamonaca@deis.unical.it)*

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³*Department of Chemistry and Chemical Technology, University of Calabria, Ponte Pietro Bucci, 87040 Rende (CS), Italy*

PS2-13 Nanometric oxide films obtained by applying pulsed electric discharges

Topala Pavel, Thighineanu Ion

Academy of Science of Moldova, Moldova

PS2-14 Thermally Induced Structural Transformations of $\text{Fe}_{73.5}\text{Cu}_1\text{Nb}_3\text{Si}_{15.5}\text{B}_7$ Amorphous Alloy

Dragica M. Minić¹, Milica Vasić¹, Dušan M. Minić², Bohumil David³, Vladimir A. Blagojević¹, Tomáš Žák³

¹Faculty of Physical Chemistry, University of Belgrade, Serbia, ²Military Technical Institute, Belgrade, Serbia, ³CEITEC IPM, Institute of Physics of Materials AS CR, Brno, Czech Republic

PS2-15 The Correlation of the Electric Resistance Change and Density of the Fermi Level Electron States of the Amorphous Alloy NiFeWCu

¹Z. Vukovic, ¹M. Plazinic, ¹J. Zivanic, ²M. Spasojevic, ¹A. Maricic

¹ Faculty of Technical Sciences, Cacak, Serbia, ² Faculty of Agriculture, Cacak, Serbia

PS2-16 Development of Cu-C Composite Microstructure

Rebeka Rudolf^{1,2}, Nebojša Romčević³

¹ University of Maribor, Faculty of Mechanical Engineering, Slovenia, ² Zlatarna Celje d.d. Slovenia, ³ University of Belgrade, Institute of Physics, Belgrade, Serbia

PS2-17 The Influence of the Mechanochemical Activation and Heat Effect on the Magnetic Properties of the Powder System $\text{BaTiO}_3 - \text{Fe}_x\text{O}_y$

¹Z. Ristanovic, ²S. Djukic, ²A. Plazinic, ¹D. Sretenovic, ²A. Maricic

¹ Higher Education School of Technical Specialized Studies, Cacak, Serbia, ² Faculty of Technical Sciences, Cacak, Serbia

PS2-18 Problems of Thermodynamically Equilibrium and Integral Characteristics of Entropy

Stanislav Veljković¹, Ivan Stefanović¹, Časlav Stefanović²

¹Faculty of Electronic Engineering 18000 Niš, Serbia, ²Faculty of Mathematics and Natural Science, Kosovska Mitrovica, Serbia

PS2-19 The Ho_2O_3 Concentration Influence on BaTiO_3 – ceramics Fractal Structures

D. Sirmić¹, M.Cvetanović¹, F. Bastić¹, V. Mitić^{1,2}, Lj. Kocić¹, S. Janković³, V. Paunović¹, M. Miljković⁴

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PS2-20 The Sintering Temperature Influence on BaTiO_3 – ceramics Microstructure Fractal Nature

F. Bastić¹, D. Sirmić¹, M.Cvetanović¹, S. Janković², V. Mitić^{1,3}, Lj. Kocić¹, V. Paunović¹, B. Jordović⁴

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PS2-21 The Fractal Nature Grains Shape Reconstruction on the way to Microstructure Prognosis

Filip Bastić¹, Danijel Sirmić¹, Miloš Cvetanović¹, V.V. Mitić^{1,2}, V. Lj. Kocić¹, V. Paunović¹,
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PS2-22 Statistical analysis of the influence of temperature on microstructure contact surfaces on BaTiO₃ -ceramics doped with Ho₂O₃

S. Janković¹, V. V. Mitić^{2,3}, Lj. Kocić², V. Paunović², M. Miljković⁴
¹Mathematical Institute, SASA, Knez Mihailova 35, 11000 Belgrade, Serbia, ²University of Niš, Faculty of Electronic Engineering, Aleksandra Medvedeva 14, 18000 Niš, Serbia,
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PS2-23 BaTiO₃ – ceramics and fractal microstructure analyses

M. Cvetanović¹, F. Bastić¹, D. Sirmić¹, V. Mitić^{1,2}, Lj. Kocić¹, V. Paunović¹, M. Miljković³
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PS2-24 The Electrical Characteristics of Nb doped BaTiO₃ Ceramics

Miloš Marjanović¹, Miloš Đorđević¹, Vesna Paunović¹, Vojislav Mitić^{1,2}
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PS2-25 Influence of Sm₂O₃ on the Microstructure and Dielectric Characteristics of Codoped BaTiO₃ Ceramics

Vesna Paunović¹, Vojislav Mitić^{1,2}, Ljiljana Živković¹, Ljubiša Kocić¹
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PS2-26 Microstructure samples preparation and analysis on the way for statistical and fractals applications

Miroslav Miljković¹, Vesna Paunović¹, Ljubisa Kocić¹, Slobodanka Janković³, Vojislav Mitić^{1,2}
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PS2-27 Integral Characteristics of Distribution of Gas Molecules Velocity

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PS2-28 The Influence of Calcination Temperature on the Internal Morphology of a Fe₂O₃-Cr₂O₃ Porous Catalyst Used in the Water-gas Shift Reaction

Andrei Rotaru^{1,2} and Petre Rotaru¹

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PS2-29 The Effect of Calcination Condition on the Structural and Textural Properties of Mg(II) Doped Mesoporous Alumina

Zorica Vuković, Tatjana Novaković, Ljiljana Rožić, Srđan Petrović

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PS2-30 Hydrogen Retention in Glassy Carbon

Zoran Jovanović, Ana Kalijadis, Zoran Laušević

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PS2-31 Influence of Mortmorillonite/Beidelite Ratio on Electrochemical Response of *p*-Nitrophenol at Smectite Modified Glassy Carbon Electrode

M. Žunić¹, A. Milutinović-Nikolić¹, D. Stanković², D. Manojlović², N. Jović-Jovičić¹, P. Banković¹, Z. Mojović¹, D. Jovanović¹

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PS2-32 Oxygen Reduction Reaction on Palladium Modified Zeolite 13X

Zorica Mojović, Tihana Mudrinić, Predrag Banković, Nataša Jović-Jovičić, Ana Ivanović-Šašić, Aleksandra Milutinović-Nikolić, Dušan Jovanović,

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PS2-33 General Factorial Design in Adsorption Process of Acid Yellow 99 on Hexadecyl Trimethyl Ammonium Modified Smectite

N. Jović-Jovičić, A. Ivanović-Šašić, A. Milutinović-Nikolić, P. Banković,

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PS2-34 The Influence of the Nickel Incorporation Method on the Performance of Bentonite Based Electrodes in Electrooxidation of Phenol

T. Mudrinić¹, Z. Mojović¹, A. Milutinović-Nikolić¹, P. Banković¹, M. Žunić¹, N. Jović-Jovičić¹, N. Vukelić², D. Jovanović¹

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PS2-35 Use of the Complex Salt for the Charge Obtaining with the Aim of Reactionary SPS - Sintering of TiN - TiB₂ – Ni Composite

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PS2-36 Research of the Thermodynamic Laws of Reactionary SPS-sintering of TiB₂ – TiN Composition

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PS2-37 Properties of Magnesium Titanate Ceramic Obtained by Two Stage Sintering

S. Filipovic¹, N. Obradovic¹, V. B. Pavlovic¹, D. Kosanovic¹, M. Mitric², V. Paunovic³,
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PS2-38 Influence of Mechanical Activation on the Constituents of the MgO-Al₂O₃-SiO₂-MoO₃ System

N. Đorđević¹, N. Obradović², D. Kosanović², S. Marković², M. Mitrić³

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PS2-39 Mechanism and Kinetics of Dissolution of Glass-ceramics in Simulated Body Fluid (SBF)

Jelena D. Nikolić¹, Vladimir D. Živanović¹, Snežana N. Zildžović¹, Srđan D. Matijašević¹,
Snežana R. Grujić², Sonja V. Smiljanić², Vladimir S. Topalović¹

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PS2-40 Equivalent electrodes' method (EEM) and the Hybrid boundary element method (HBEM) application

Slavoljub R. Aleksić, Nebojša B. Raičević, Saša S. Ilić, Nenad N. Cvetković

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PS2-41 Determination of the Martensitic and Reverse Transformation Temperatures in Copper-based Shape Memory Alloys

Ana Kostov, Radiša Todorović, Aleksandra Milosavljević

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PS2-42 Microstructural Investigation of the Ternary Cu-Al-Ag System

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Tamara Holjevac Grgurić,³ Ivana Marković², Radiša Todorović¹

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PS2-43 Investigation of Thermodynamic Properties of Cu-Al-Zn Alloys

Lidija Gomidželović^{1,*}, Ana Kostov¹, Dragana Živković²

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PS2-44 The Influence of Temperature on Microstructure Contact Surfaces on BaTiO₃ – ceramics doped with Ho₂O₃

S. Janković¹, V. V. Mitić^{2,3*}, Lj. Kocić², V. Paunović², M. Miljković⁴

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PS2-45 Targeted Synthesis of Ceramic-Polymer Nanocomposites

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