



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

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

PROGRAM AND THE BOOK OF ABSTRACTS

**Serbian Academy of Sciences and Arts, Knez Mihailova 35
Serbia, Belgrade, 20-21. September 2021.**

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EUROPEAN ACADEMY
of Sciences and Arts

Dear colleagues and friends,

We have great pleasure to welcome you to the Advanced Ceramic and Application IX Conference organized by the Serbian Ceramic Society in cooperation with the Institute of Technical Sciences of SASA, Institute of Chemistry Technology and Metallurgy, Institute for Technology of Nuclear and Other Raw Mineral Materials and Institute for Testing of Materials.

It is nice to host you here in Belgrade in person. As you probably know, Serbia launched a vaccination campaign at the beginning of this year, so up to date more than 50 percent of the adult population has been vaccinated. Since there is no one statistic to compare the COVID19 outbreaks and fears for loved ones in different countries, we believe that we all suffer similarly during this pandemic. That is why we appreciate even more your positive attitude and readiness to travel in this uncertain time. We understand that some of you had to cancel your lectures in the last minute due to the travel limitation in your countries, but we hope that you will come next year. We deeply hope that the ACA IX Conference will be worth remembering, that you will respect all COVID-19 safety measures at SASA building, that you will have a nice time here and that ultimately you will return to your home safely. We are very proud that we succeeded in bringing the scientific community together again and fostering the networking and social interactions around an interesting program on emerging advanced ceramic topics. The chosen topics cover contributions from fundamental theoretical research in advanced ceramics, computer-aided design and modeling of new ceramics products, manufacturing of nanoceramic devices, developing of multifunctional ceramic processing routes, etc.

Traditionally, ACA Conferences gather leading researchers, engineers, specialists, professors and PhD students trying to emphasize the key achievements which will enable the widespread use of the advanced ceramics products in the High-Tech industry, renewable energy utilization, environmental efficiency, security, space technology, cultural heritage, etc.

Serbian Ceramic Society was initiated in 1995/1996 and fully registered in 1997 as Yugoslav Ceramic Society, being strongly supported by American Ceramic Society. Since 2009, it has continued as the Serbian Ceramic Society in accordance with Serbian law procedure. Serbian Ceramic Society is almost the only one Ceramic Society in South-East Europe, with members from more than 20 Institutes and Universities, active in 16 sessions. Part of our members are also members of the Serbian Chapter of ACerS since 2019. Their activities in the organization of this conference is highly recognized. To them and all of you thanks for being with us here at ACA IX.

Prof. Dr Vojislav Mitić
President of the Serbian Ceramic Society
World Academy Ceramics Member
European Academy of Sciences & Arts Member

Prof. Dr Olivera Milošević,
President of the General Assembly of the
Serbian Ceramic Society
Academy of Engineering Sciences of Serbia Member

Conference Topics

- Basic Ceramic Science & Sintering
- Nano-, Opto- & Bio-ceramics
- Modeling & Simulation
- Glass and Electro Ceramics
- Electrochemistry & Catalysis
- Refractory, Cements & Clays
- Renewable Energy & Composites
- Amorphous & Magnetic Ceramics
- Heritage, Art & Design

Conference Programme Chairs:

Dr. Lidija Mančić SRB
Dr. Nina Obradović SRB

Conference Co-chairs:

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Prof. Dr. Rainer Gadow GER

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Bojana Marković SRB

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Туристичка
организација
Београда



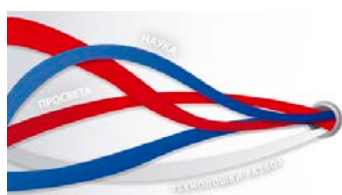
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of Belgrade

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Institute of Physics BU, Vinča Institute of Nuclear Sciences BU,
American Ceramics Society – Serbian Chapter

Hotel Palas, Zadužbina Andrejević, Pink Taxi, Beotravel, Agencija Format, Shenemil Serbia



Министарство просвете,
науке и технолошког развоја



Institut tehničkih nauka SANU



Zadužbina



Andrejević



BEO TRAVEL

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Book of Abstracts

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The Ninth Serbian Ceramic Conference Advanced ceramics and Application



Conference Information:

Conference location: Belgrade (Beograd) – the capital of Serbia, Serbian culture, education, science and economy, having about 2 million habitants. Belgrade is situated in South-Eastern Europe, on the Balkan Peninsula, at the confluence of the Sava and Danube Rivers in north central Serbia. The official language is Serbian, while foreigners can use English.

Conference venue: Serbian Academy of Sciences and Arts - SASA, Great Hall (2nd floor) and Halls 1, 2 (1st floor), Knez Mihailova 35, Belgrade, Serbia

Dress code: Serbian Academy of Science and Arts is a distinguished institution of supreme national importance. We kindly ask you to respect a dress code and not to wear short skirts and pants (above the knee); tank top and sleeveless shirts; flip-flops and open-toed sandals.

Covid-19 outbreak - information for conference participants:

Prevention and general precautions:

- avoid close contact (within 1 m) with people who are ill with fever, cough or respiratory symptoms;
- wear a face covering in enclosed environments;
- wash or sanitize your hands frequently – after coughing, before preparing food or eating, after toilet use, after contact with ill persons, and during exposure to high traffic public areas;
- cover your mouth and nose with a disposable tissue when coughing or sneezing and use the nearest waste receptacle to dispose of it after use. If you do not have a disposable tissue, cough or sneeze in your elbow;
- strictly do not attend the conference if you are unwell. Stay at home or your accommodation if you become unwell, develop a fever or respiratory symptoms;
- if you or other participants in the conference hall are unwell, inform the conference organizers and arrange to get an assessment from a healthcare provider.

Conference fee: Standard fee for foreign participants: 200 EUR; Standard fee for domestic participants: 10000 RSD; **Discounts:** Members of SCS, Keynote lecturers and PhD Students: 50%; Invited lecturers 40%; Plenary lecturers & the last year winners (oral and poster presentations): Free of charge.

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

Paying of the conference fee at site will be available only in cash.

Registration:

20. 09.2021 (8.00-9.00AM-2nd Floor) & 21.09.2021 (8.00-9.00AM-1st Floor)

Posters instalation:

21.09.201 (16.30-17.00) CLUB SASA

Useful telephone numbers:

Police:192

Firemen:193

Ambulance:194

Taxi services: For the taxi services from Belgrade Nikola Tesla Airport to any destination in Belgrade area and further, please contact TAXI INFO desk, located in the baggage area.

Time zone: Belgrade and Serbia are located in the Central European time zone region GMT + 1

Electricity: The electricity voltage in Belgrade is 220V. Electrical outlets are standard EU.

Currency: The official currency in Serbia is dinar, abbreviated RSD. Money may be exchanged in all banks and authorized exchange offices. Exchange rate for 1 EUR is around 118 RSD. Cash may be taken from ATMs 24 hours a day. Credit cards are accepted in shops, hotels and restaurants.

Water: Tap water in Belgrade is safe to drink.

Abstracts and papers publication: The official language of the conference is English. Conference abstracts will be published in the **Book of Abstracts**.

Limited number of papers presented at the conference will be possible to publish in **Science of Sintering**, as well as in the following Open Access Journals under special Article Processing Charges: **Fractal and Fractional** (spec.issue: The Materials Structure and Fractal Nature - eds.V.Mitic, C.Serpa, H-J.Fecht) and **Frontiers in Materials** (res.topic Advanced Structures and Properties of Electronic Ceramic Materials –eds.V.Mitic, Z.Sun, S-C. Tsay, J. De Los, S. Guerra and J.R. Hwu).

Type of presentation: Visuals for oral presentations should be in Microsoft PowerPoint (.ppt or .pptx) or Adobe Acrobat Reader 9 (.pdf). Any animation or video files must be compatible with Windows 7 and Windows Media Player. Bring your presentation to speaking desk at the beginning of the day when your presentation will be. Posters should be prepared in dimension: 70x100 cm. The official language on conference is English.

Additional Conference information president@serbianceramicsociety.rs
<http://www.serbianceramicsociety.rs/about.htm>

Recommended places near the Conference venue:

Hotel: Hotel Palas, Topličin venac 23; <http://www.palacehotel.co.rs/>

Exchange office: „Hulk“, Vuka Karadžića 4

Tourist Information Centre: Knez Mihailova 5 <http://www.tob.rs/en>

Date	Time	Programme	Floor, Room		
20 th September Monday	08.00-09.00	Registration	2 nd Floor, Hallway		
	09.00-09.30	Opening Ceremony	2 nd Floor, Great Hall		
	09.30-09.40	Short Break	2 nd Floor, Great Hall		
	09.40-11.10	Plenary Session R.Gadow S.Tidrow N.Barišić	2 nd Floor, Great Hall		
	11.10-11.40	Coffee Break & Photo Session	2 nd Floor, Hallway		
	11.40-13.10	Plenary Session K.Maca B.Marinković W.Fahrenheit	2 nd Floor, Great Hall		
	13.10-14.30	Buffet Lunch	Club SASA, Mezzanine		
	14.30-15.50	Plenary/Keynote Session F.A.Khan C.Serpa Z.Nikolić	2 nd Floor, Great Hall		
	15.50-16.20	Coffee Break	2 nd Floor, Hallway		
	16.20-18.25	Plenary/Keynote Session M.Novak H.Zoz N.Filipović R.Castro	2 nd Floor, Great Hall		
	19.30	Conference dinner	Palace hotel		
21 st September Tuesday	08.00-09.00	Registration	1 st Floor, Hallway		
	09.00-11.05	<table border="1"> <tr> <td> Session: Ceramic & Sintering Hall 3 D.Kosanović A.Stanković N.Labus N.Djordjević V. Mařák K.I. Rybakov R.Svintsitski </td> <td> Session: Nano- Opto- & Bio-Ceramic Hall 2 I.Dinić M.Vuković M.Rabasović V.Loĵpur S.Stojanović N.Tatić B.Vrbica </td> </tr> </table>	Session: Ceramic & Sintering Hall 3 D.Kosanović A.Stanković N.Labus N.Djordjević V. Mařák K.I. Rybakov R.Svintsitski	Session: Nano- Opto- & Bio-Ceramic Hall 2 I.Dinić M.Vuković M.Rabasović V.Loĵpur S.Stojanović N.Tatić B.Vrbica	1 st Floor
	Session: Ceramic & Sintering Hall 3 D.Kosanović A.Stanković N.Labus N.Djordjević V. Mařák K.I. Rybakov R.Svintsitski	Session: Nano- Opto- & Bio-Ceramic Hall 2 I.Dinić M.Vuković M.Rabasović V.Loĵpur S.Stojanović N.Tatić B.Vrbica			
	11.05-11.30	Coffee Break			
	11.30-13.50	<table border="1"> <tr> <td> Session: Electroceramic, Modelling & Simulation Hall 3 S.Ribar V.Mitić M.Ĉebela B.Randjelović I.Radović D.Danković A.Stajčić </td> <td> Session: Catalysts Magnets & Renewal Energy Hall 2 Lj.Veselinović M.Rosić S.Marinović S.Krstić U.Ĉakar F.Veljković S.Stojiljković G.Cvetanović </td> </tr> </table>	Session: Electroceramic, Modelling & Simulation Hall 3 S.Ribar V.Mitić M.Ĉebela B.Randjelović I.Radović D.Danković A.Stajčić	Session: Catalysts Magnets & Renewal Energy Hall 2 Lj.Veselinović M.Rosić S.Marinović S.Krstić U.Ĉakar F.Veljković S.Stojiljković G.Cvetanović	1 st Floor
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	14.00-15.00	Buffet Lunch			
	15.00-15.45	Annual meeting of the Serbian Ceramic Society	1 st Floor, Hall 2		
	15.45-16.30	American Ceramic Society Serbian Chapter Round Table			
	16.30-17.00	Coffee Break	1 st Floor, Hallway		
16.30-17.00	Poster Installation	Club SASA, Mezzanine			
17.00-18.00	Poster Session				
18.00	Awards & Closing Ceremony				

Monday, September 20, 2020

08.00 – 09.00 Registration Hallway, 2nd Floor

Great Hall, 2nd Floor

09.00 – 09.30 Opening Ceremony of the Seventh Serbian Ceramic Society Conference: Advanced Ceramics and Application
President of SCS - Prof.dr Vojislav Mitić, President of the General Assembly of the SCS - Dr. Olivera Milošević, President of SASA - Academician Vladimir Kostić, Deputy Minister of Ministry of Education Science and Technological Development - Dr. Marina Soković, National Assembly Deputy - Dr. Vladimir Orlić

09.30 - 09.40 Short break

Great Hall, 2nd Floor

09.40 – 11.10 Plenary Session
Chairpersons: Bojan Marinković

09.40– 10.10 PL Suspension Flame Sprayed Metal Doped Calcium Phosphate Coatings with Antibacterial Properties for Infection Prophylaxis

R. Gadow^{1,2}, A. Killinger¹, M. Blum¹ and A. Bernstein³,

¹Institute for Manufacturing Technologies of Ceramic Components and Composites, University of Stuttgart, Stuttgart, Germany

²Graduate School of Excellence for advanced Manufacturing Engineering (GSaME), University of Stuttgart, Stuttgart, Germany

³ Musculoskeletal research lab, Clinics of Orthopedics and Trauma Surgery, University of Freiburg, Freiburg, Germany

10.10 – 10.40 PL Reduced Search Space, Time and Cost, to Develop Halide Perovskites

Steven C. Tidrow

New York State College of Ceramics, Alfred University, Alfred, NY, USA

10.40 - 11.10 PL Cuprates: from complexity to simplicity

Neven Barišić^{1,2}

¹Institute of Solid State Physics, TU Wien, Wiedner Hauptstraße 8, 1040 Wien Austria

²Department of Physics, Faculty of Science, University of Zagreb, Bijenička cesta 32, HR-10000, Zagreb, Croatia

11.10 - 11.40 Coffee Break and Photo Session Hallway, 2nd Floor

Great Hall, 2nd Floor

11.40 - 13.10 Plenary Session

Chairperson: Steven Tidrow

11.40 - 12.10 PL Transparent alumina polycrystalline ceramics doped and co-doped with rare earth elements and transition metals for tailoring of luminescent properties

K. Maca^{1,2}; K. Drdlikova¹; D. Drdlik^{1,2}; J. Tasler²; R. Klement³; D. Galusek^{3,4}

¹ CEITEC BUT, Brno University of Technology, Purkynova 123, 612 00 Brno, Czech Republic

² Faculty of Mechanical Engineering, Brno University of Technology, Technicka 2, 616 69 Brno, Czech Republic

³ FunGlass, Alexander Dubcek University of Trencin, Studentska 2, 911 50 Trencin, Slovakia

⁴ Joint Glass Centre of the IIC SAS, TnUAD, FChPT STU, FunGlass, Studentska 2, 911 50 Trencin, Slovakia

12.10 - 12.40 PL Negative and Near-Zero Thermal Expansion in $A_2M_3O_{12}$ and Related Ceramic Families

Bojan A. Marinkovic¹, Patrícia Ponton², Carl Romao³, Thaís Moreira¹, Mary Anne White⁴

¹ Department of Chemical and Materials Engineering, Pontifical Catholic University of Rio de Janeiro (PUC-Rio), 22453-900, Rio de Janeiro, RJ, Brazil

² Department of Materials, Escuela Politécnica Nacional, 170525, Quito, Ecuador

³ Department of Chemistry, University of Oxford, Inorganic Chemistry Laboratory, South Parks Road, Oxford OX1 3QR, United Kingdom

⁴ Department of Chemistry, Dalhousie University, Halifax, Nova Scotia B3H 4R2, Canada

12.40 - 13.10 **PL** **High Entropy Ultra-High Temperature Ceramics:
New Materials for Extreme Environments**
William G. Fahrenholtz
Missouri University of Science and Technology
Department of Materials Science and Engineering
222 McNutt Hall; 1400 N. Bishop Avenue Rolla, MO 65409 United
States

13.10 - 14.30 **Buffet Lunch** **Club SASA**

Great Hall, 2nd Floor

14.30 - 16.30 **Plenary/Keynote Session**
Chairperson: Mario Novak

14.30 - 15.00 **PL** **Magnetocaloric properties and the critical point
exponents of $\text{Pr}_{0.55}\text{Ca}_x\text{Sr}_{0.45-x}\text{MnO}_3$ ($x = 0.00, 0.05, 0.1$ and 0.2)
at PM-FM phase transition**
F.A.Khan, M. A. A. Bally
Department of Physics
Bangladesh University of Engineering and Technology (BUET), Dhaka-
1000, Bangladesh

15.00 - 15.25 **KN** **Fractal reconstruction of irregular shapes**
Cristina Serpa^{1,2}, Vojislav Mitić³
¹ISEL - Instituto Superior de Engenharia de Lisboa, Lisbon, Portugal
²CMAFcIO - Centro de Matemática, Aplicações Fundamentais
Investigação Operacional, Faculdade de Ciências da Universidade de
Lisboa, Campo Grande, 1749-016, Lisbon, Portugal
³Faculty of Electronic Engineering, University of Nis, 14 Aleksandra
Medvedeva, 18000 Nis, Serbia

15.25 - 15.50 **KN** **Gravity-induced skeletal structure evolution – an
approach based on graph theory**
Branislav M. Randjelović, Zoran S. Nikolić and Vojislav V. Mitić
University of Niš, Faculty of Electronic Engineering,
Aleksandra Medvedeva 14, 18000 Niš, Serbia

15.50 - 16.20 **Coffee Break** **Hallway 2nd Floor**

Great Hall, 2nd Floor

16.20 - 18.25 Plenary/Keynote Session
Chairpersons: Neven Barisic

16.20 - 16.55 KN Dirac and Weyl semimetals
- how topology governs materials properties –
Mario Novak
University of Zagreb, Faculty of Science, Department of Physics, Bijenička
32, 10 000 Zagreb, Croatia

16.55 - 17.20 KN
Henning Zoz
Zoz Group
Maltoz-Strasse
D-57482 Wenden

17.20 - 17.55 KN Insilico clinical trials of the vascular stents
Nenad Filipovic^{1,2}, Miljan Milosevic^{1,2}, Dalibor Nikolic^{1,2}, Milos Kojic^{1,2},
Georgia Karanasiou³, Dimitris Fotiadis³
¹BIOIRC Research and Developed Center, Kragujevac, Serbia
²University of Kragujevac, Kragujevac, Serbia
³Foundation for Research and Technology Hellas, Ioannina, Greece

17.55 - 18.25 PL Phase Diagrams for Nanoscale Ceramics
Ricardo H. R. Castro
University of California, Davis

19.30 Conference dinner Hotel Palas

Tuesday, September 21th, 2021

08.00 - 09.00 Registration Hallway, 1st Floor

Hall 3, 1st Floor

09.00 - 11.05 Session: Ceramic Science & Sintering
Chairperson: Nina Obradović

09.00 - 09.20 INV Electronic Properties of BZT Nano-Ceramic Grades at Low Frequency Region

Darko Kosanović¹, Viktor Pucky², Stanko O. Aleksić³, Vladimir B. Pavlović⁴ Vladimir A. Blagojević¹

¹Institute of Technical Sciences of the Serbian Academy of Sciences and Arts, Knez Mihailova 35/IV, Belgrade, 11000, Serbia

²Institute of Materials Research, Slovak Academy of Sciences, Watsonova 47, 04001 Košice, Slovakia

³Institute Iritel, Batajnicki put 23, 11 000 Belgrade

⁴Faculty of Agriculture, University of Belgrade, Nemanjina 6, 11080, Belgrade-Zemun, Serbia

09.20 - 09.40 INV Synthesis and characterization of ZnO nano/micro crystals with enhanced sunlight-induced photo-catalytic activity

Ana Stanković¹, Ljiljana Veselinović¹, Srečo Davor Škapin², Smilja Marković¹

¹Institute of Technical Sciences of SASA, 11000 Belgrade, Serbia

²Jožef Stefan Institute, 1000 Ljubljana, Slovenia

09.40 - 10.00 INV Dilatometric study of the ZnTiO₃ phase transition kinetic influenced by nano powder sintering

Nebojša Labus¹, Milena Rosić², Smilja Marković¹, Maria-Vesna Nikolić³

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

²Laboratory for Material Science, Institute of Nuclear Sciences „Vinča“, University of Belgrade, Belgrade, Serbia

³Institute for Multidisciplinary Research, Kneza Višeslava 1, University of Belgrade, Belgrade 11030, Serbia

- 10.00 - 10.20** **INV DTA/TG Analysis And Phase Changes
Of Activated Na₂CO₃**
Nataša Đorđević¹, Sanja Martinović², Slavica Mihajlović¹,
Milica Vlahović², Jasmina Lozanović Šajić³
¹Institute for Technology of Nuclear and Other Mineral Raw Materials,
86 Franchet d'Esperey Blvd., Belgrade, Serbia
²University of Belgrade, Institute of Chemistry, Technology and
Metallurgy, 12 Njegoševa St, Belgrade, Serbia
³Institute of Health Care Engineering with European Testing Center of
Medical Devic, TU Graz, 16 Stremayrgasse St, Graz, Austria
- 10.20 - 10.35** **ORL Electrophoretic deposition of plasma-activated
hydroxyapatite powder densified by rapid sintering**
Vojtěch Mařák¹, Martina Ilčíková², Katarína Drdlíková¹, Daniel
Drdlík^{1,3}
¹ CEITEC BUT, Brno University of Technology, Purkynova 123, 612
00 Brno, Czech Republic
² Department of Physical Electronics, CEPLANT, Masaryk University,
Kotlarska 2, 611 37 Brno, Czech Republic
³ Faculty of Mechanical Engineering, Brno University of Technology,
Technicka 2, 616 69 Brno, Czech Republic
- 10.35 – 10.50** **ORL Rapid microwave sintering of electroceramics and
biocompatible ceramics**
S.V. Egorov, A.G. Ereemeev, V.V. Kholoptsev, I.V. Plotnikov, K.I.
Rybakov, A.A. Sorokin, Yu.V. Bykov
Institute of Applied Physics, Russian Academy of Sciences, Nizhny
Novgorod, Russia
- 10.50 – 11.05** **ORL 3DCeram and NewSpace applications**
Rouslan Svintsitski
3DCeram Sinto, Limoges, France
- 11.05 - 11.30** **Coffee Break** **Hallway, 1st Floor**

Hall 3, 1st Floor

11.30 – 13.30 **Session: Electroceramics, Modeling & Simulation**
Chairperson: Kirill Rybakov

11.30 - 11.50 **INV The ceramics materials density defined by artificial neural networks**

Srđan Ribar¹, Vojislav V. Mitić², Branislav Randelović³, Dušan Milošević², Vesna Paunović², Hans Fecht⁴, Branislav Vlahović⁵

¹Faculty of Mechanical Engineering, University of Belgrade, 16 Kraljice Marije, 11000 Belgrade, Serbia

²Faculty of Electronic Engineering, University of Nis, 14 Aleksandra Medvedeva, 18000 Nis, Serbia

³Faculty of Teachers Education, University of Kosovska Mitrovica, Nemanjina, 38218 Laposavic, Serbia

⁴University of Ulm, Institute for Multifunctional Properties of Materials, Ulm, Germany

⁵North Carolina Central University, USA Durham NC, USA

11.50 - 12.10 **INV Fractals, Graphs and Neural Networks: The Holly Trinity of Nanostructures - An Overview and Comparison of Methods**

Vojislav V. Mitić¹, Branislav Randelović^{1,2}, Srdjan Ribar³, Dušan Milošević¹, Marina Soković⁴, Bojana Marković¹, Hans Fecht⁵, Branislav Vlahović⁶

¹Faculty of Electronic Engineering, University of Nis, 14 Aleksandra Medvedeva, 18000 Nis, Serbia

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⁵Institute of Multifunctional Properties of Materials, University of Ulm, Ulm, Germany

⁶North Carolina Central University, USA Durham NC, USA

12.10 - 12.30 **INV A multidisciplinary approach to multiferroics**

Maria Čebela^{1,2}

¹ Institute for Nuclear sciences "Vinča", University of Belgrade, Serbia

²Department of Physics, Faculty of Science, University of Zagreb, Bijenička c. 32, HR-10000 Zagreb, Croatia

12.30 - 12.50 **INV Discrete mean square approximation applied on molecules and bacteria Brownian motion error calculation**

Branislav Randelović^{1,2}, Vojislav V. Mitić¹, Dušan Milošević¹, Bojana Marković¹, Vesna Paunović¹, Sanja Aleksić¹, Branislav Vlahović³

¹Faculty of Electronic Engineering, University of Nis, 14 Aleksandra Medvedeva, 18000 Nis, Serbia

² Faculty of Teachers Education, University of Kosovska Mitrovica, Nemanjina, 38218 Leosavic, Serbia

³North Carolina Central University, USA Durham NC, USA

12.50 – 13.05 **ORL Fractal reconstruction of fiber-reinforced polymer composites**

Ivana Radović^a, Vojislav V. Mitić^{b,c}, Aleksandar Stajčić^d, Cristina Serpa^{e,f}, Srdjan Ribar^g, Branislav Randjelović^{b,h} and Branislav Vlahovićⁱ

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^fCMAFciO - Centro de Matemática, Aplicações Fundamentais e Investigação Operacional, Faculdade de Ciências da Universidade de Lisboa, Campo Grande, 1749-016, Lisbon, Portugal

^gUniversity of Belgrade, Faculty of Mechanical Engineering, Belgrade, Serbia

^hUniversity of K. Mitrovica, Faculty of Teachers Education, Leosavic, Serbia

ⁱMathematics and Physics Department, North Carolina Central University (NCCU), Durham, North Carolina, US

13.05 - 13.20 **ORL Methods for modeling of NBTS induced threshold voltage shift in p-channel power VDMOSFETs**

Nikola Mitrović¹, Sandra Veljković¹, Snežana Đorić-Veljković², Vojkan Davidović, Snežana Golubović, Danijel Danković¹, Zoran Prijčić¹

¹University of Niš, Faculty of Electronic Engineering, Aleksandra Medvedeva 14, Niš, Serbia

²University of Niš, Faculty of Civil Engineering and Architecture, Aleksandra Medvedeva 14, Niš, Serbia

13.20 - 13.35 ORL Magnetic materials, Curie-Weiss law and fractal correction

Vojislav V. Mitić^{1,2}, Cristina Serpa^{3,4} Aleksandar Stajčić⁵, Kouros Khamoushi⁶, Vesna Paunović¹, Sanja Aleksić¹ and Branislav Vlahović⁷

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⁶Natural Science, Tampere University, P.O. Box 1001, FI-33014 Tampere, 33720, Finland

⁷Mathematics and Physics Department, North Carolina Central University, Durham, NC 27707, USA

14.00 - 15.00 Buffet Lunch Club SASA, Mezzanine

Hall 2, 1st Floor

15.00 - 15.45 Annual meeting of the Serbian Ceramic Society

15.45 – 16.30 American Ceramic Society Serbian Chapter Round Table

16.30 - 17.00 Coffee Break Hallway, 1st Floor

Club SASA, Mezzanine

17.00-18.00 Poster Session

Chairpersons: Suzana Filipovic, Ivana Dinic & Bojana Markovic

18.00 Awards & Closing Ceremony

Tuesday, September, 21st, 2021

08.00 - 09.00 Registration Hallway, 1st Floor

Hall 2, 1st Floor

**09.00 - 10.45 Session: Nano-, Opto- & BioCeramic
Chairperson: Lidija Mancic**

**09.00 - 09.20 INV Influence of solvothermal synthesis parameters on
NaY_{0.65}Gd_{0.15}F₄:Yb_{0.18}Er_{0.02} UCNPs structural,
morphological and optical characteristics**
Ivana Dinic¹, Marina Vukovic², Marko Nikolic³ and Lidija Mancic¹
¹Institute of Technical Sciences of SASA, Belgrade, Serbia
²Innovative Centre, Faculty of Chemistry Belgrade, University of
Belgrade, Serbia
³Photonic Center, Institute of Physics Belgrade, University of Belgrade,
Serbia

09.20 - 09.40 INV Sonochemical synthesis of optically active fluorides
Marina Vukovic¹, Ivana Dinic², Paula Jardim³, Smilja Markovic²,
Ljiljana Veselinovic², Marko Nikolic⁴, Lidija Mancic²
¹Innovative Centre Faculty of Chemistry Belgrade, University of
Belgrade, Serbia
²Institute of Technical Sciences of SASA, Belgrade, Serbia
³Department of Metallurgical and Materials Engineering, Federal
University of Rio de Janeiro, Rio de Janeiro, Brazil
⁴Photonic Center, Institute of Physics Belgrade, University of Belgrade,
Serbia

**09.40 - 10.00 INV Nonlinear laser scanning microscopy for imaging of
the cells labeled by up-converting NaYF₄:Yb,Er
nanoparticles**
Mihailo D. Rabasovic¹, Ivana Dinic², Aleksandra Djukic-Vukovic³,
Milos Lazarevic⁴, Marko G. Nikolic¹, Aleksandar J. Krmpot¹, Lidija
Mancic²
¹ Photonic Center, Institute of Physics Belgrade, University of
Belgrade, Zemun, Belgrade, Serbia
² Institute of Technical Sciences of the Serbian Academy of Sciences
and Arts, Belgrade, Serbia
³ Department of Biochemical Engineering and Biotechnology, Faculty
of Technology and Metallurgy, University of Belgrade, Serbia
⁴ Institute of Human Genetics, School of Dental Medicine, University
of Belgrade, Serbia

- 10.00 - 10.20** **INV Influence of the water flow lens system on performances of the different laboratory made Sb_2S_3 -based and commercial solar cells**
Vesna Lojpur and Ivana Validžić
Department of Atomic Physics, Vinča Institute of Nuclear Sciences, National Institute of the Republic of Serbia, P.O. Box 522, 11001 Belgrade, University of Belgrade, Serbia
- 10.20 - 10.35** **ORL Preclinical studies of natural bone substitute material in different conditions and models - our experience**
Stevo Najman^{1,2}, Sanja Stojanović^{1,2}, Jelena Najdanović¹, Jelena Živković¹, Marija Vukelić-Nikolić¹, Ivica Vučković³, Vladimir Cvetković⁴, Jelena Vitorović⁴
¹University of Niš, Faculty of Medicine, Department of Biology and Human Genetics, 18000 Niš, Serbia
²University of Niš, Faculty of Medicine, Scientific Research Center for Biomedicine, Department for Cell and Tissue Engineering, 18000 Niš, Serbia
³Clinic of Dental Medicine Niš, Department of Maxillofacial Surgery, 18000 Niš, Serbia
⁴University of Niš, Faculty of Sciences and Mathematics, Department of Biology and Ecology, 18000 Niš, Serbia
- 10.35 – 10.50** **ORL Combination of Extracellular Matrix Hydrogels with Different Biomaterials as a Tissue Engineering Strategy**
Natalija Tatic^{1,2}, Christiani A Amorim², Anne des Rieux², Lisa J White¹
¹University of Nottingham, Nottingham, UK; ²UCLouvain, Brussels, Belgium
- 10.50 – 11.05** **ORL Synthesis and characterization of Ag-loaded hematite nanocomposites**
Boško Vrbica,¹ Marija Šuljagić,² Dejan Jeremić,³ Ljubica Andjelković,² Milica R. Milenković¹
¹University of Belgrade, Faculty of Chemistry, Studentski Trg 12-16, Belgrade, Republic of Serbia
²University of Belgrade-Institute of Chemistry, Technology and Metallurgy, Department of Chemistry, Njegoševa 12, Belgrade, Republic of Serbia
³Innovation Center of the Faculty of Chemistry, University of Belgrade, Studentski Trg 12-16, 11000 Belgrade, Serbia
- 11.05 - 11.30** **Coffee Break** **Hallway, 1st Floor**

Hall 2, 1st Floor

11.05 – 13.00

Session: Catalyst, Magnetic & Renewal Energy

Chairperson: Zorica Mojovic

11.30 - 11.50

INV CaCu₃Ti_{4-x}Ru_xO₁₂: Crystal structure, electrical and magnetic properties

Lj. Veselinović^{a*}, M. Mitrić^b, L. Mančić^a, P. M. Jardim^c, S. D. Škapin^d, N. Cvjetičanin^e, S. Marković^a

^aInstitute of Technical Sciences of SASA, Knez Mihailova 35/IV, 11000 Belgrade, Serbia

^bThe Vinča Institute of Nuclear Sciences, Belgrade, Serbia

^cDepartment of Metallurgical and Materials Engineering, Federal University of Rio de Janeiro, Rio de Janeiro, Brazil

^dJozef Stefan Institute, Ljubljana, Slovenia

^eFaculty of Physical Chemistry, University of Belgrade, Studentski Trg 12-16, P.O. Box137, Belgrade, Serbia

11.50 - 12.10

INV Modified glycine nitrate procedure synthesis and properties of nanostructured Ca_{1-x}Gd_xMnO₃ (x=0.05; 0.1; 0.15; 0.2)

Milena Rosić¹, Nebojša Labus², Maria Čebela¹

¹Laboratory for Material Science, Institute of Nuclear Sciences „Vinča“, University of Belgrade, Belgrade, Serbia

²Institute of Technical Sciences of SASA, Knez Mihailova 35/IV, 11000 Beograd, Serbia

12.10 - 12.30

INV Cobalt-based catalysts in catalytic oxidation of tartrazine activated by Oxone®

Sanja Marinović, Tatjana Novaković, Tihana Mudrinić, Nataša Jović-Jovičić, Marija Ajduković, Aleksandra Milutinović-Nikolić, Predrag Banković

University of Belgrade – Institute of Chemistry, Technology and Metallurgy, Department of Catalysis and Chemical Engineering, Njegoševa 12, 11000 Belgrade, Republic of Serbia

12.30 - 12.50

INV Preparation and Characterization Of Active Carbon Microspheres Obtained From Fructose And Adsorption Application

Sanja S. Krstić, Vladimir M. Dodevski, Đuro Čokeša, Aleksandar B. Devečerski, Radojka T. Vujasin, Ksenija V. Kumrić, Branka V. Kaluđerović

Institut za nuklearne nauke „Vinča“ - Institut od nacionalnog značaja za Republiku Srbiju, Univerzitet u Beogradu, Beograd, Srbija

- 12.50 - 13.05** **ORL Natural active compounds in the prevention of oxidative stress**
Uroš Čakar¹, Mirjana Čolović², Maria Čebela³, Nikolina Lisov⁴, Aleksandar Petrović⁴, Danijela Krstić⁵, Brižita Đorđević¹
1. Faculty of Pharmacy, University of Belgrade, Serbia
2. Department of Physical Chemistry, Vinča Institute of Nuclear sciences - National Institute of the Republic of Serbia
3. Vinča Institute of Nuclear Sciences - National Institute of the Republic of Serbia
4. Faculty of Agriculture, University of Belgrade, Serbia
5. Institute of Medical Chemistry, Faculty of Medicine, University of Belgrade
- 13.05 - 13.20** **ORL Determination of corrosion products of Ag-Cu alloy by laser desorption ionization mass spectrometry**
Filip Veljković¹, Radovic Ivana¹, Drakulić Dunja¹, Dimitrijević Stevan², Dimitrijević Silvana³, Stoiljković Milovan¹ and Veličković Suzana¹
¹“VINČA” Institute of Nuclear Sciences - National Institute of the Republic of Serbia, University of Belgrade, Mike Petrovića Alasa 12-14, 11351 Belgrade, Republic of Serbia
²University of Belgrade, Innovation Centre of Faculty of Technology and Metallurgy Belgrade, Karnegijeva 4, 11120 Belgrade, Republic of Serbia
³Mining and Metallurgy Institute Bor, Zeleni Bulevar 35, 19210 Bor, Republic of Serbia
- 13.20 - 13.35** **ORL Applications of nanofluids in geothermal energy**
Staniša Stojiljković, Dragan Stojiljković, Ivan Savić, Gradimir Cvetanović, Milena Živanović
Faculty of Technology, University of Niš, Serbia
- 13.35 - 13.50** **ORL Solar energy storage with phase changes materials for adsorption cooling**
Gradimir Cvetanović, Milena Živanović, Staniša Stojiljković
Faculty of Technology, University of Niš, Serbia
- 14.00 - 15.00** **Buffet Lunch** **Club SASA, Mezzanine**

Hall 2, 1st Floor

15.00 - 15.45 **Annual meeting of the Serbian Ceramic Society**

15.45 – 16.30 **American Ceramic Society Serbian Chapter Round Table**

16.30 - 17.00 **Coffee Break** **Hallway, 1st Floor**

Club SASA, Mezzanine

17.00-18.00 **Poster Session**

Chairpersons: Suzana Filipovic, Ivana Dinic & Bojana Markovic

18.00 **Awards & Closing Ceremony**

P

Thermodynamic Data Analysis Of Sodium Carbonate To Bicarbonate Conversion Reaction

Nataša Đorđević¹, Sanja Martinović²,
Milica Vlahović², Slavica Mihajlović¹

¹Institute for Technology of Nuclear and Other Mineral Raw Materials, Franchetd'Esperey
Blvd. 86, Belgrade, Serbia

²University of Belgrade, Institute of Chemistry, Technology and Metallurgy- National
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During mechanical activation, the energy of treated material is raised to a higher level that can lead to the chemical transformation of the activated material. This is the point that should be considered as a phenomenon of the mechanochemical transformations appearing as a result of mechanical activation. Sodium carbonate as a substance that is often subjected to mechanochemical synthesis was mechanically activated in this study. Sodium carbonate is also a well-known material for being used as a good sorbent of carbon dioxide from the atmosphere, and as such has gained increasing importance in environmental protection. The conversion reactions of sodium carbonate to sodium bicarbonate under the specified environment of carbon dioxide and moisture were studied, and the thermodynamic data such as changes in enthalpy, entropy, and Gibbs energy at the temperature range of 0-160 ° C are given.

P

Investigation of bentonite characteristics from deposit „Bijelo Polje“ Municipality Bar (Montenegro) for application in geopolymers and hybrid cement binders

Dragan Radulović¹, Ljubiša Andrić¹, Anja Terzić², Branislav Ivošević¹, Dejan Todorović¹,
Vladimir Jovanović¹

¹Institute for Technology of Nuclear and Other Mineral Raw Materials

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Since the late seventies of twentieth century geopolymers have been investigated as a new type of aluminosilicate binders which will eventually replace traditional cement based structural materials. Geopolymers are the three-dimensional synthetic inorganic polymers, which contain amorphous and semi-amorphous crystal microstructures. Hybrid binders are structural materials which combine alkali activated raw materials and cement in its mix-design. In this paper the characteristics of bentonite, which are important for its application in geopolymers and hybrid cement binders, were thoroughly investigated in order to evaluate its proneness to alkali activation. Bentonite samples from three different deposits were submitted to detail testing. Elaborate physico-chemical and mineralogical characterization was