



**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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Prof.dr Vojislav Mitić

Dr Lidija Mančić

Dr Nina Obradović

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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:

Prof. Dr. Vojislav Mitić SRB  
Prof. Dr. Rainer Gadow GER

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Prof. Dr. Marcel Van de Voorde EEZ  
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Dr. Richard Todd GBR  
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Dr. Marina Vuković SRB  
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Dr. Jelena Živojinović SRB  
Dr. Adriana Peleš Tadić SRB  
Dr. Ana Radosavljević Mihajlović, SRB  
Bojana Marković SRB

## Sponsors:

### **Analysis - Lab equipment, Belgrade (Serbia)**

Telekom (Serbia), Netico (Serbia), TOB (Serbia), Genal (Serbia), Gradska Toplana Niš (Serbia), JKP Tržnica Niš (Serbia)



Туристичка  
организација  
Београда



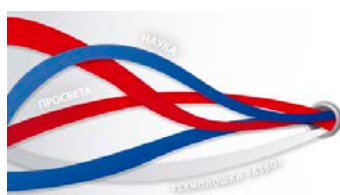
Tourist  
Organization  
of Belgrade

## Acknowledgements:

### **Ministry of Education, Science and Technological Development RS**

Serbian Academy of Sciences and Arts, Institute of Technical Sciences of SASA,  
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



УНИВЕРЗИТЕТ У БЕОГРАДУ  
ИНСТИТУТ ЗА ФИЗИКУ | БЕОГРАД  
ИНСТИТУТ ОД НАЦИОНАЛНОГ  
ЗНАЧАЈА ЗА РЕПУБЛИКУ СРБИЈУ



VINČA  
ИНСТИТУТ ЗА НУКЛЕАРНЕ НАУКЕ  
Univerzitet u Beogradu  
ИНСТИТУТ ОД НАЦИОНАЛНОГ ЗНАЧАЈА ЗА РЕПУБЛИКУ СРБИЈУ



Zadužbina



Andrejević



AGENCIJA FORMAT  
GRAFIČKI DIZAJN I DIGITALNA ŠTAMPA



**BEO TRAVEL**

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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 (2<sup>nd</sup> floor) and Halls 1, 2 (1<sup>st</sup> 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-2<sup>nd</sup> Floor) & 21.09.2021 (8.00-9.00AM-1<sup>st</sup> 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](mailto: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 <sup>th</sup> September Monday	08.00-09.00	Registration	2 <sup>nd</sup> Floor, Hallway		
	09.00-09.30	Opening Ceremony	2 <sup>nd</sup> Floor, Great Hall		
	09.30-09.40	Short Break	2 <sup>nd</sup> Floor, Great Hall		
	09.40-11.10	Plenary Session R.Gadow S.Tidrow N.Barišić	2 <sup>nd</sup> Floor, Great Hall		
	11.10-11.40	Coffee Break & Photo Session	2 <sup>nd</sup> Floor, Hallway		
	11.40-13.10	Plenary Session K.Maca B.Marinković W.Fahrenheitz	2 <sup>nd</sup> 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 <sup>nd</sup> Floor, Great Hall		
	15.50-16.20	Coffee Break	2 <sup>nd</sup> Floor, Hallway		
	16.20-18.25	Plenary/Keynote Session M.Novak H.Zoz N.Filipović R.Castro	2 <sup>nd</sup> Floor, Great Hall		
	19.30	Conference dinner	Palace hotel		
21 <sup>st</sup> September Tuesday	08.00-09.00	Registration	1 <sup>st</sup> Floor, Hallway		
	09.00-11.05	<table border="1"> <tr> <td> <b>Session: Ceramic &amp; Sintering Hall 3</b>  D.Kosanović  A.Stanković  N.Labus  N.Djordjević  V. Mařák  K.I. Rybakov  R.Svintsitski </td> <td> <b>Session: Nano- Opto- &amp; Bio-Ceramic Hall 2</b>  I.Dinić  M.Vuković  M.Rabasović  V.Loĵpur  S.Stojanović  N.Tatić  B.Vrbica </td> </tr> </table>	<b>Session: Ceramic &amp; Sintering Hall 3</b> D.Kosanović A.Stanković N.Labus N.Djordjević V. Mařák K.I. Rybakov R.Svintsitski	<b>Session: Nano- Opto- &amp; Bio-Ceramic Hall 2</b> I.Dinić M.Vuković M.Rabasović V.Loĵpur S.Stojanović N.Tatić B.Vrbica	1 <sup>st</sup> Floor
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	11.05-11.30	Coffee Break			
	11.30-13.50	<table border="1"> <tr> <td> <b>Session: Electroceramic, Modelling &amp; Simulation Hall 3</b>  S.Ribar  V.Mitić  M.Ĉebela  B.Randjelović  I.Radović  D.Danković  A.Stajĉić </td> <td> <b>Session: Catalysts Magnets &amp; Renewal Energy Hall 2</b>  Lj.Veselinović  M.Rosić  S.Marinović  S.Krstić  U.Ĉakar  F.Veljković  S.Stojiljković  G.Cvetanović </td> </tr> </table>	<b>Session: Electroceramic, Modelling &amp; Simulation Hall 3</b> S.Ribar V.Mitić M.Ĉebela B.Randjelović I.Radović D.Danković A.Stajĉić	<b>Session: Catalysts Magnets &amp; Renewal Energy Hall 2</b> Lj.Veselinović M.Rosić S.Marinović S.Krstić U.Ĉakar F.Veljković S.Stojiljković G.Cvetanović	1 <sup>st</sup> Floor
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	14.00-15.00	Buffet Lunch			
	15.00-15.45	Annual meeting of the Serbian Ceramic Society	1 <sup>st</sup> Floor, Hall 2		
	15.45-16.30	American Ceramic Society Serbian Chapter Round Table			
	16.30-17.00	Coffee Break	1 <sup>st</sup> 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**

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**08.00 – 09.00      Registration      Hallway, 2<sup>nd</sup> Floor**

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**Great Hall, 2<sup>nd</sup> Floor**

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**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, 2<sup>nd</sup> Floor**

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**09.40 – 11.10      Plenary Session**  
**Chairpersons: Bojan Marinković**

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

R. Gadow<sup>1,2</sup>, A. Killinger<sup>1</sup>, M. Blum<sup>1</sup> and A. Bernstein<sup>3</sup>,

<sup>1</sup>Institute for Manufacturing Technologies of Ceramic Components and Composites, University of Stuttgart, Stuttgart, Germany

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

<sup>3</sup> 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<sup>1,2</sup>

<sup>1</sup>Institute of Solid State Physics, TU Wien, Wiedner Hauptstraße 8, 1040 Wien Austria

<sup>2</sup>Department 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, 2<sup>nd</sup> Floor**

**Great Hall, 2<sup>nd</sup> Floor**

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**11.40 - 13.10 Plenary Session**

**Chairperson: Steven Tidrow**

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**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<sup>1,2</sup>; K. Drdlikova<sup>1</sup>; D. Drdlik<sup>1,2</sup>; J. Tasler<sup>2</sup>; R. Klement<sup>3</sup>; D. Galusek<sup>3,4</sup>

<sup>1</sup> CEITEC BUT, Brno University of Technology, Purkynova 123, 612 00 Brno, Czech Republic

<sup>2</sup> Faculty of Mechanical Engineering, Brno University of Technology, Technicka 2, 616 69 Brno, Czech Republic

<sup>3</sup> FunGlass, Alexander Dubcek University of Trencin, Studentska 2, 911 50 Trencin, Slovakia

<sup>4</sup> 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. Marinkovic<sup>1</sup>, Patrícia Ponton<sup>2</sup>, Carl Romao<sup>3</sup>, Thaís Moreira<sup>1</sup>, Mary Anne White<sup>4</sup>

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

<sup>2</sup> Department of Materials, Escuela Politécnica Nacional, 170525, Quito, Ecuador

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

<sup>4</sup> 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. Fahrenheitz  
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, 2<sup>nd</sup> Floor**

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

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**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<sup>1,2</sup>, Vojislav Mitić<sup>3</sup>  
<sup>1</sup>ISEL - Instituto Superior de Engenharia de Lisboa, Lisbon, Portugal  
<sup>2</sup>CMAFcIO - Centro de Matemática, Aplicações Fundamentais  
Investigação Operacional, Faculdade de Ciências da Universidade de  
Lisboa, Campo Grande, 1749-016, Lisbon, Portugal  
<sup>3</sup>Faculty 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 2<sup>nd</sup> Floor**

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**Great Hall, 2<sup>nd</sup> Floor**

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**16.20 - 18.25 Plenary/Keynote Session**  
**Chairpersons: Neven Barisic**

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**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<sup>1,2</sup>, Miljan Milosevic<sup>1,2</sup>, Dalibor Nikolic<sup>1,2</sup>, Milos Kojic<sup>1,2</sup>,  
Georgia Karanasiou<sup>3</sup>, Dimitris Fotiadis<sup>3</sup>  
<sup>1</sup>BIOIRC Research and Developed Center, Kragujevac, Serbia  
<sup>2</sup>University of Kragujevac, Kragujevac, Serbia  
<sup>3</sup>Foundation 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 21<sup>th</sup>, 2021**

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**08.00 - 09.00      Registration      Hallway, 1<sup>st</sup> Floor**

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**Hall 3, 1<sup>st</sup> Floor**

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

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

Darko Kosanović<sup>1</sup>, Viktor Pucky<sup>2</sup>, Stanko O. Aleksić<sup>3</sup>, Vladimir B. Pavlović<sup>4</sup> Vladimir A. Blagojević<sup>1</sup>

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

<sup>2</sup>Institute of Materials Research, Slovak Academy of Sciences, Watsonova 47, 04001 Košice, Slovakia

<sup>3</sup>Institute Iritel, Batajnicki put 23, 11 000 Belgrade

<sup>4</sup>Faculty 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 Stanković<sup>1</sup>, Ljiljana Veselinović<sup>1</sup>, Srečo Davor Škapin<sup>2</sup>, Smilja Marković<sup>1</sup>

<sup>1</sup>Institute of Technical Sciences of SASA, 11000 Belgrade, Serbia

<sup>2</sup>Jožef Stefan Institute, 1000 Ljubljana, Slovenia

**09.40 - 10.00      INV Dilatometric study of the ZnTiO<sub>3</sub> phase transition kinetic influenced by nano powder sintering**

Nebojša Labus<sup>1</sup>, Milena Rosić<sup>2</sup>, Smilja Marković<sup>1</sup>, Maria-Vesna Nikolić<sup>3</sup>

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

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

<sup>3</sup>Institute 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 Na<sub>2</sub>CO<sub>3</sub>**  
Nataša Đorđević<sup>1</sup>, Sanja Martinović<sup>2</sup>, Slavica Mihajlović<sup>1</sup>,  
Milica Vlahović<sup>2</sup>, Jasmina Lozanović Šajić<sup>3</sup>  
<sup>1</sup>Institute for Technology of Nuclear and Other Mineral Raw Materials,  
86 Franchet d'Esperey Blvd., Belgrade, Serbia  
<sup>2</sup>University of Belgrade, Institute of Chemistry, Technology and  
Metallurgy, 12 Njegoševa St, Belgrade, Serbia  
<sup>3</sup>Institute 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 Mařák<sup>1</sup>, Martina Ilčíková<sup>2</sup>, Katarína Drdlíková<sup>1</sup>, Daniel  
Drdlík<sup>1,3</sup>  
<sup>1</sup> CEITEC BUT, Brno University of Technology, Purkynova 123, 612  
00 Brno, Czech Republic  
<sup>2</sup> Department of Physical Electronics, CEPLANT, Masaryk University,  
Kotlarska 2, 611 37 Brno, Czech Republic  
<sup>3</sup> 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, 1<sup>st</sup> Floor**



## Hall 3, 1<sup>st</sup> Floor

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

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

Srđan Ribar<sup>1</sup>, Vojislav V. Mitić<sup>2</sup>, Branislav Ranđelović<sup>3</sup>, Dušan Milošević<sup>2</sup>, Vesna Paunović<sup>2</sup>, Hans Fecht<sup>4</sup>, Branislav Vlahović<sup>5</sup>

<sup>1</sup>Faculty of Mechanical Engineering, University of Belgrade, 16 Kraljice Marije, 11000 Belgrade, Serbia

<sup>2</sup>Faculty of Electronic Engineering, University of Nis, 14 Aleksandra Medvedeva, 18000 Nis, Serbia

<sup>3</sup>Faculty of Teachers Education, University of Kosovska Mitrovica, Nemanjina, 38218 Laposavic, Serbia

<sup>4</sup>University of Ulm, Institute for Multifunctional Properties of Materials, Ulm, Germany

<sup>5</sup>North 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. Mitić<sup>1</sup>, Branislav Ranđelović<sup>1,2</sup>, Srdjan Ribar<sup>3</sup>, Dušan Milošević<sup>1</sup>, Marina Soković<sup>4</sup>, Bojana Marković<sup>1</sup>, Hans Fecht<sup>5</sup>, Branislav Vlahović<sup>6</sup>

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<sup>4</sup> Institute of Biological Research „Sinisa Stankovic“, University of Belgrade, 142 Despota Stefana Blvd, 11000 Belgrade, Serbia

<sup>5</sup>Institute of Multifunctional Properties of Materials, University of Ulm, Ulm, Germany

<sup>6</sup>North Carolina Central University, USA Durham NC, USA

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

Maria Čebela<sup>1,2</sup>

<sup>1</sup> Institute for Nuclear sciences "Vinča", University of Belgrade, Serbia

<sup>2</sup>Department 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<sup>1,2</sup>, Vojislav V. Mitić<sup>1</sup>, Dušan Milošević<sup>1</sup>, Bojana Marković<sup>1</sup>, Vesna Paunović<sup>1</sup>, Sanja Aleksić<sup>1</sup>, Branislav Vlahović<sup>3</sup>

<sup>1</sup>Faculty of Electronic Engineering, University of Nis, 14 Aleksandra Medvedeva, 18000 Nis, Serbia

<sup>2</sup> Faculty of Teachers Education, University of Kosovska Mitrovica, Nemanjina, 38218 Laposavic, Serbia

<sup>3</sup>North Carolina Central University, USA Durham NC, USA

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

Ivana Radović<sup>a</sup>, Vojislav V. Mitić<sup>b,c</sup>, Aleksandar Stajčić<sup>d</sup>, Cristina Serpa<sup>e,f</sup>, Srdjan Ribar<sup>g</sup>, Branislav Randjelović<sup>b,h</sup> and Branislav Vlahović<sup>i</sup>

<sup>a</sup>Department of Physical Chemistry, 'VINČA' Institute of Nuclear Sciences - National Institute of the Republic of Serbia, University of Belgrade, Serbia

<sup>b</sup>University of Nis, Faculty of Electronic Engineering, Nis, Serbia, presenting author

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<sup>d</sup>Center of Microelectronic Technologies, Institute of Chemistry, Technology and Metallurgy – National Institute of the Republic of Serbia, University of Belgrade, Serbia

<sup>e</sup>ISEL - Instituto Superior de Engenharia de Lisboa do Instituto Politécnico de Lisboa

<sup>f</sup>CMAFciO - Centro de Matemática, Aplicações Fundamentais e Investigação Operacional, Faculdade de Ciências da Universidade de Lisboa, Campo Grande, 1749-016, Lisbon, Portugal

<sup>g</sup>University of Belgrade, Faculty of Mechanical Engineering, Belgrade, Serbia

<sup>h</sup>University of K. Mitrovica, Faculty of Teachers Education, Laposavic, Serbia

<sup>i</sup>Mathematics 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 Mitrović<sup>1</sup>, Sandra Veljković<sup>1</sup>, Snežana Đorić-Veljković<sup>2</sup>, Vojkan Davidović, Snežana Golubović, Danijel Danković<sup>1</sup>, Zoran Prijjić<sup>1</sup>

<sup>1</sup>University of Niš, Faculty of Electronic Engineering, Aleksandra Medvedeva 14, Niš, Serbia

<sup>2</sup>University 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<sup>1,2</sup>, Cristina Serpa<sup>3,4</sup> Aleksandar Stajčić<sup>5</sup>, Kouros Khamoushi<sup>6</sup>, Vesna Paunović<sup>1</sup>, Sanja Aleksić<sup>1</sup> and Branislav Vlahović<sup>7</sup>

<sup>1</sup>University of Nis, Faculty of Electronic Engineering, Nis, Serbia

<sup>2</sup>Institute of Technical Sciences, Serbian Academy of Sciences and Arts, Belgrade, Serbia

<sup>3</sup>ISEL - Instituto Superior de Engenharia de Lisboa, Lisbon, Portugal

<sup>4</sup>CMAFcIO - Centro de Matemática, Aplicações Fundamentais e Investigação Operacional, Faculdade de Ciências da Universidade de Lisboa, Campo Grande, 1749-016, Lisbon, Portugal

<sup>5</sup>Center of Microelectronic Technologies, Institute of Chemistry, Technology and Metallurgy – National Institute of the Republic of Serbia, University of Belgrade, Belgrade, Serbia

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

<sup>7</sup>Mathematics and Physics Department, North Carolina Central University, Durham, NC 27707, USA

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**14.00 - 15.00      Buffet Lunch      Club SASA, Mezzanine**

**Hall 2, 1<sup>st</sup> Floor**

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

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

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**16.30 - 17.00      Coffee Break      Hallway, 1<sup>st</sup> Floor**

**Club SASA, Mezzanine**

**17.00-18.00      Poster Session**

**Chairpersons: Suzana Filipovic, Ivana Dinic & Bojana Markovic**

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**18.00      Awards & Closing Ceremony**

**Tuesday, September, 21<sup>st</sup>, 2021**

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**08.00 - 09.00      Registration      Hallway, 1<sup>st</sup> Floor**

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**Hall 2, 1<sup>st</sup> Floor**

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

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**09.00 - 09.20      INV Influence of solvothermal synthesis parameters on  
NaY<sub>0.65</sub>Gd<sub>0.15</sub>F<sub>4</sub>:Yb<sub>0.18</sub>Er<sub>0.02</sub> UCNPs structural,  
morphological and optical characteristics**  
Ivana Dinic<sup>1</sup>, Marina Vukovic<sup>2</sup>, Marko Nikolic<sup>3</sup> and Lidija Mancic<sup>1</sup>  
<sup>1</sup>Institute of Technical Sciences of SASA, Belgrade, Serbia  
<sup>2</sup>Innovative Centre, Faculty of Chemistry Belgrade, University of  
Belgrade, Serbia  
<sup>3</sup>Photonic Center, Institute of Physics Belgrade, University of Belgrade,  
Serbia

**09.20 - 09.40      INV Sonochemical synthesis of optically active fluorides**  
Marina Vukovic<sup>1</sup>, Ivana Dinic<sup>2</sup>, Paula Jardim<sup>3</sup>, Smilja Markovic<sup>2</sup>,  
Ljiljana Veselinovic<sup>2</sup>, Marko Nikolic<sup>4</sup>, Lidija Mancic<sup>2</sup>  
<sup>1</sup>Innovative Centre Faculty of Chemistry Belgrade, University of  
Belgrade, Serbia  
<sup>2</sup>Institute of Technical Sciences of SASA, Belgrade, Serbia  
<sup>3</sup>Department of Metallurgical and Materials Engineering, Federal  
University of Rio de Janeiro, Rio de Janeiro, Brazil  
<sup>4</sup>Photonic 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 NaYF<sub>4</sub>:Yb,Er  
nanoparticles**  
Mihailo D. Rabasovic<sup>1</sup>, Ivana Dinic<sup>2</sup>, Aleksandra Djukic-Vukovic<sup>3</sup>,  
Milos Lazarevic<sup>4</sup>, Marko G. Nikolic<sup>1</sup>, Aleksandar J. Krmpot<sup>1</sup>, Lidija  
Mancic<sup>2</sup>  
<sup>1</sup> Photonic Center, Institute of Physics Belgrade, University of  
Belgrade, Zemun, Belgrade, Serbia  
<sup>2</sup> Institute of Technical Sciences of the Serbian Academy of Sciences  
and Arts, Belgrade, Serbia  
<sup>3</sup> Department of Biochemical Engineering and Biotechnology, Faculty  
of Technology and Metallurgy, University of Belgrade, Serbia  
<sup>4</sup> 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<sup>1,2</sup>, Sanja Stojanović<sup>1,2</sup>, Jelena Najdanović<sup>1</sup>, Jelena Živković<sup>1</sup>, Marija Vukelić-Nikolić<sup>1</sup>, Ivica Vučković<sup>3</sup>, Vladimir Cvetković<sup>4</sup>, Jelena Vitorović<sup>4</sup>  
<sup>1</sup>University of Niš, Faculty of Medicine, Department of Biology and Human Genetics, 18000 Niš, Serbia  
<sup>2</sup>University of Niš, Faculty of Medicine, Scientific Research Center for Biomedicine, Department for Cell and Tissue Engineering, 18000 Niš, Serbia  
<sup>3</sup>Clinic of Dental Medicine Niš, Department of Maxillofacial Surgery, 18000 Niš, Serbia  
<sup>4</sup>University 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<sup>1,2</sup>, Christiani A Amorim<sup>2</sup>, Anne des Rieux<sup>2</sup>, Lisa J White<sup>1</sup>  
<sup>1</sup>University of Nottingham, Nottingham, UK; <sup>2</sup>UCLouvain, Brussels, Belgium
- 10.50 – 11.05**      **ORL Synthesis and characterization of Ag-loaded hematite nanocomposites**  
Boško Vrbica,<sup>1</sup> Marija Šuljagić,<sup>2</sup> Dejan Jeremić,<sup>3</sup> Ljubica Andjelković,<sup>2</sup> Milica R. Milenković<sup>1</sup>  
<sup>1</sup>University of Belgrade, Faculty of Chemistry, Studentski Trg 12-16, Belgrade, Republic of Serbia  
<sup>2</sup>University of Belgrade-Institute of Chemistry, Technology and Metallurgy, Department of Chemistry, Njegoševa 12, Belgrade, Republic of Serbia  
<sup>3</sup>Innovation Center of the Faculty of Chemistry, University of Belgrade, Studentski Trg 12-16, 11000 Belgrade, Serbia
- 11.05 - 11.30**      **Coffee Break**      **Hallway, 1<sup>st</sup> Floor**

## Hall 2, 1<sup>st</sup> Floor

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- 11.05 – 13.00**      **Session: Catalyst, Magnetic & Renewal Energy**  
**Chairperson: Zorica Mojovic**
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- 11.30 - 11.50**      **INV CaCu<sub>3</sub>Ti<sub>4-x</sub>Ru<sub>x</sub>O<sub>12</sub>: Crystal structure, electrical and magnetic properties**  
Lj. Veselinović<sup>a\*</sup>, M. Mitrić<sup>b</sup>, L. Mančić<sup>a</sup>, P. M. Jardim<sup>c</sup>, S. D. Škapin<sup>d</sup>, N. Cvjetičanin<sup>e</sup>, S. Marković<sup>a</sup>  
<sup>a</sup>Institute of Technical Sciences of SASA, Knez Mihailova 35/IV, 11000 Belgrade, Serbia  
<sup>b</sup>The Vinča Institute of Nuclear Sciences, Belgrade, Serbia  
<sup>c</sup>Department of Metallurgical and Materials Engineering, Federal University of Rio de Janeiro, Rio de Janeiro, Brazil  
<sup>d</sup>Jozef Stefan Institute, Ljubljana, Slovenia  
<sup>e</sup>Faculty 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<sub>1-x</sub>Gd<sub>x</sub>MnO<sub>3</sub> (x=0.05; 0.1; 0.15; 0.2)**  
Milena Rosić<sup>1</sup>, Nebojša Labus<sup>2</sup>, Maria Čebela<sup>1</sup>  
<sup>1</sup>Laboratory for Material Science, Institute of Nuclear Sciences „Vinča“, University of Belgrade, Belgrade, Serbia  
<sup>2</sup>Institute 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 Čakar<sup>1</sup>, Mirjana Čolović<sup>2</sup>, Maria Čebela<sup>3</sup>, Nikolina Lisov<sup>4</sup>, Aleksandar Petrović<sup>4</sup>, Danijela Krstić<sup>5</sup>, Brižita Đorđević<sup>1</sup>  
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 Veljković<sup>1</sup>, Radovic Ivana<sup>1</sup>, Drakulić Dunja<sup>1</sup>, Dimitrijević Stevan<sup>2</sup>, Dimitrijević Silvana<sup>3</sup>, Stoiljković Milovan<sup>1</sup> and Veličković Suzana<sup>1</sup>  
<sup>1</sup>“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  
<sup>2</sup>University of Belgrade, Innovation Centre of Faculty of Technology and Metallurgy Belgrade, Karnegijeva 4, 11120 Belgrade, Republic of Serbia  
<sup>3</sup>Mining 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**





INV

### **DTA/TG Analysis And Phase Changes Of Activated Na<sub>2</sub>CO<sub>3</sub>**

Nataša Dorđević<sup>1</sup>, Sanja Martinović<sup>2</sup>, Slavica Mihajlović<sup>1</sup>,  
Milica Vlahović<sup>2</sup>, Jasmina Lozanović Šajić<sup>3</sup>

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<sup>2</sup>University of Belgrade, Institute of Chemistry, Technology and Metallurgy,  
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<sup>3</sup>Institute of Health Care Engineering with European Testing Center of Medical Devic,  
TU Graz, 16 Stremayrgasse St, Graz, Austria

Sodium carbonate material is used as a good sorbent of carbon dioxide from the atmosphere, and has gained increasing importance in environmental protection. In order to enhance its sorption ability, mechanochemically activated sodium carbonate was investigated, and the occurred changes after the activation and the relaxation time in a controlled environment were monitored. Activation was performed in a vibro-mill for 2 and 7 minutes, and the activated samples were placed in an atmosphere of carbon dioxide at a humidity of 95 % for 96 hours, (the relaxation time). Differential thermal and thermogravimetric analyses were applied with the aim of determining the changes that occurred on the activated samples during the relaxation period. The decomposition temperature change of activated Na<sub>2</sub>CO<sub>3</sub> samples, mass loss, and conversion degree of Na<sub>2</sub>CO<sub>3</sub> to NaHCO<sub>3</sub> was monitored depending on activation and relaxation time periods.

INV

### **Modified glycine nitrate procedure synthesis and properties of nanostructured**

**Ca<sub>1-x</sub>Gd<sub>x</sub>MnO<sub>3</sub> (x=0.05; 0.1; 0.15; 0.2)**

Milena Rosić<sup>1</sup>, Nebojša Labus<sup>2</sup>, Maria Čebela<sup>1</sup>

<sup>1</sup>Laboratory for Material Science, Institute of Nuclear Sciences „Vinča“, University of  
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<sup>2</sup>Institute of Technical Sciences of SASA, Knez Mihailova 35/IV, 11000 Beograd, Serbia

Nanocrystalline manganites Ca<sub>1-x</sub>Gd<sub>x</sub>MnO<sub>3</sub> (x=0.05, 0.1, 0.15, 0.2) were synthesized by a modified glycine-nitrate procedure. The subsequent studies were focused on the structural, microstructural and magnetic changes of the starting materials induced by calcination and sintering. Thermal treatments of the green bodies were carried out by conventional sintering method. Phase evolution, lattice parameters, chemical composition and magnetic properties were monitored by Differential thermal analysis (DTA), X-ray diffraction