



**Serbian Ceramic Society Conference
ADVANCED CERAMICS AND APPLICATION XI
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, 18-20. September 2023.**

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Dr. Nina Obradović
Dr. Lidija Mančić

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Dr. Jelena Živojinović

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Dear colleagues and friends,

We have great pleasure to welcome you to the Advanced Ceramic and Application XI 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. 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 nano-ceramic 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 9 sessions..

Dr. Nina Obradović
President of the Serbian Ceramic Society

Dr. Suzana Filipović
President of the General Assembly of the Serbian Ceramic Society

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:

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Dr. Lidija Mančić SRB

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Academician Zoran Popović

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Dr. Jelena Živojinović

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Dr. Nebojša Potkonjak

Dr. Marko Perić

Dr. Magdalena Radović

Dr. Miloš Lazarević

Dr. Stanko Aleksić

M. Sci. Isaak Trajković

Sponsors:

Analysis - Lab equipment,

Turistička organizacija Beograda, Inovacioni centar Mašinskog fakulteta,

Institut za ispitivanje materijala,

Institut za tehnologiju nuklearnih i drugih mineralnih sirovina



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Serbian Academy of Sciences and Arts
Institute of Technical Sciences of SASA, Institute of Physics BU
Hotel Palace, Shenemil



Република Србија
МИНИСТАРСТВО НАУКЕ,
ТЕХНОЛОШКОГ РАЗВОЈА И
ИНОВАЦИЈА



Conference Program and Abstracts



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The Eleventh Serbian Ceramic Conference Advanced Ceramics and Application



The Eleventh Serbian Ceramic Society Conference »Advanced Ceramics and Application«
September 18-20, 2023 Serbian Academy of Sciences and Arts, Knez Mihailova 35,
Belgrade, Serbia

Conference Information:

Conference location: Belgrade (Beograd) – the capital of Serbia, Serbian culture, education, science and economy, having about 2.5 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 Hall2 (1st floor), KnezMihailova 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.

Conference fee: Standard fee for foreign participants: 400 EUR; Standard fee for domestic participants: 12000 RSD; **Discounts:** Members of SCS, Invited lecturers and PhD Students: 50%; 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 and Gala dinner at site will be available only in cash.

Registration:

18. 09.2023 (8.00-9.00A.M.-2nd Floor) & 19-20.09.2023 (8.00-9.00A.M.-1st Floor)

Posters instalation:

19.09.2023 (16.30-17.00) & 20.09.2023 (8.30-9.00)CLUB SASA

After each session, participants should remove their posters!

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*.

The Eleventh Serbian Ceramic Society Conference »Advanced Ceramics and Application«
September 18-20, 2023 Serbian Academy of Sciences and Arts, Knez Mihailova 35,
Belgrade, Serbia

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 Palace, 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>

The Eleventh Serbian Ceramic Society Conference »Advanced Ceramics and Application«
 September 18-20, 2023 Serbian Academy of Sciences and Arts, Knez Mihailova 35,
 Belgrade, Serbia

Date	Time	Programme	Floor, Room
18 th September Monday	08.00-09.00	Registration	2 nd Floor, Hallway
	09.00-09.30	Opening Ceremony	
	09.30-10.00	Award ceremony - Academician V. Radmilovic	
	10.00-10.15	Short break & Photo session	
	10.15-12.00	Electrochemistry & Catalysis O. Guillon M. Vujkovic F. Hansen J. Ackovic	2 nd Floor, Great Hall
	12.00-12.30	Coffee Break	2 nd Floor, Hallway
	12.30-14.15	Electrochemistry & Catalysis M. Ajdukovic N. Tomic M. Maksimov Z. Mrazek K. Milosevic J. Vujanovic	2 nd Floor, Great Hall
	14.15-15.00	Buffet Lunch	Club SASA, Mezzanine
19 th September Tuesday	15.00-17.30	Nano, Opto & Bio-ceramics C. Balazsi K. Balazsi M. Culo D. Milojkovic Z. Vasiljevic M. V. Nikolic	2 nd Floor, Great Hall
	19.00	Conference dinner	Palace Hotel
	08.00-09.00	Registration	1 st Floor, Hallway
	09.00-11.30	Modelling & Simulation D. Zagorac M. Mirkovic M. Zlatic M. Paric D. Malenov N. Milosavljevic	1 st Floor, Blue Hall
	11.30-12.00	Coffee Break	1 st Floor, Hallway
	12.00-14.10	Nano, Opto & Bio-ceramics P. Ferrain Y. Wu S. Stojanovic K. Colic B. Miljevic L. Mancic	1 st Floor, Blue Hall
	14.10-15.00	Buffet Lunch	Club SASA, Mezzanine
	15.00-17.20	Renewable energy & Composites M. Spreitzer P. Zabinski S. Maslovara S. Brkovic M. Marinkovic D. Sciti	1 st Floor, Blue Hall
17.20-19.00	Poster Session I & Exhibitions *	Club SASA, Mezzanine	
*16.30-17.00	Poster Session I & Exhibitions: Installation	Club SASA, Mezzanine	

The Eleventh Serbian Ceramic Society Conference »Advanced Ceramics and Application«
 September 18-20, 2023 Serbian Academy of Sciences and Arts, Knez Mihailova 35,
 Belgrade, Serbia

20th September Wednesday	08.00-09.00	Registration	1 st Floor, Hallway
	09.00-10.00	Poster Session II**	Club SASA, Mezzanine
	10.00-12.00	Basic Ceramic & Sintering F. Kam G. E. Hilmas V. Pavlovic P. Tamzko D. Galusak	1 st Floor, Blue Hall
	12.00-12.30	Coffee Break	1 st Floor, Hallway
	12.30-14.05	Basic Ceramic & Sintering W. G. Fahrholz S. Filipovic J. Zivojinovic W. Yared A. Poles Tadic A. Radosantjevic	1 st Floor, Blue Hall
	14.05-15.00	Buffet Lunch	Club SASA, Mezzanine
	15.00-17.25	Cement, Clay, Refractories & Glass, Electroceramics A. Raka D. Sekulic K. Cajko M. Vasic S. Stojilkovic M. Suljagic N. Djordjevic	1 st Floor, Blue Hall
	17.25-18.00	Awards & Closing Ceremony	1 st Floor, Blue Hall
	** 8.30-09.00	Poster Session II Installation	Club SASA, Mezzanine

Monday, September 18th, 2023.

08.00 – 09.00	Registration	Hallway, 2nd Floor
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		Great Hall, 2nd Floor
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09.00 – 10.00	Opening Ceremony of the XI Serbian Ceramic Society Conference: Advanced Ceramics and Application XI President of SCS – Dr. Nina Obradović, Short music programme, Dr. Marina Soković – Representative of Ministry for Science, Award Ceremony–Academician V. Radmilović	
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10.00 - 10.15	Short break and Photo Session	Great Hall, 2nd Floor
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10.15 – 12.00	Electrochemistry & Catalysis Chairpersons: Maja Pagnacco & Dalibor Marinković	
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10.15– 10.45	PL Protonic ceramics for hydrogen technologies <u>O. Guillon</u> ^{1,2,3} , L. Schäfer ¹ , M. Ivanova ¹ , M. Kindelmann ¹ , M. Bram ¹ ¹ Institute of Energy and Climate Research: Materials Synthesis and Processing (IEK-1), Forschungszentrum Jülich GmbH, 52425 Jülich, Germany ² RWTH Aachen University, Institute of Mineral Engineering (GHI), Department of Ceramics and Refractory Materials, 52064 Aachen, Germany ³ Jülich-Aachen Research Alliance: JARA-Energy, 52425 Jülich, Germany	
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10.45 – 11.15	PL What have we achieved regarding the development of rechargeable Na-ion batteries? <u>Milica Vujković</u> University of Belgrade - Faculty of Physical Chemistry, Studentski trg 12-16, Beograd	
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11.15 - 11.45	PL Electrochemical Strain Microscopy to reveal local Lithium-ion mobility in solid state electrolytes <u>N. Schön</u> ^{1,2} , <u>P. Veelken</u> ^{1,2} , <u>N. Scheer</u> ^{1,2} , <u>F. Hausen</u> ^{1,2} ¹ Forschungszentrum Jülich, IEK-9, 52428 Jülich, Germany ² RWTH Aachen University, IPC, Landoltweg 2, 52065 Aachen, Germany	
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- 11.45 – 12.00** **ORL Electrochemical testing of iron phosphor tungsten bronzes as potential electrode material**
Jovana Acković¹, Zoran Nedić², Tamara Petrović², Ružica Micić¹, Maja Pagnacco³, Pavle Tančić³
¹Faculty of Sciences and Mathematics, University of Priština in Kosovska Mitrovica, Lole Ribara 29, 38220 Kosovska Mitrovica, Serbia
²University of Belgrade - Faculty of Physical Chemistry, Studentski trg 12-16, Belgrade, Serbia
³University of Belgrade, Institute of Chemistry, Technology and Metallurgy, Department of Catalysis and Chemical Engineering, Njegoševa 12, 11000 Belgrade, Serbia

12.00 - 12.30 **Coffee Break** **Hallway, 2nd Floor**

Great Hall, 2nd Floor

- 12.30 - 14.15** **Electrochemistry & Catalysis**
Chairpersons: Maja Pagnacco & Dalibor Marinković
- 12.30 - 12.50** **INV Evaluation of cobalt supported chitosan-derived carbon-smectite catalysts in Oxone® induced dye degradation**
Gordana Stevanović, Nataša Jović-Jovičić, Jugoslav Krstić, Sanja Marinović, Predrag Banković, Marija Ajduković
University of Belgrade – Institute of Chemistry, Technology and Metallurgy, Department of Catalysis and Chemical Engineering, Njegoševa 12, 11000 Belgrade, Republic of Serbia
- 12.50 - 13.10** **INV From brookite-based nanopowder towards titanate nanoribbons: structure and application**
Nataša Tomić
Institute of Physics, University of Belgrade, 11080 Belgrade, Serbia
- 13.10 - 13.30** **INV Friction Force Microscopy as a tool to investigate (electro)catalytic processes at surfaces**
M. Maksimov^{1,2}, A. Kaus^{2,3}, Z. Teng⁴, K. Kleiner⁴, F. Gunkel³, F. Hausen^{1,2}
¹Forschungszentrum Jülich, IEK-9, 52428 Jülich, Germany
²RWTH Aachen University, IPC, Landoltweg 2, 52065 Aachen, Germany
³Forschungszentrum Jülich, PGI-7, 52428 Jülich, Germany
⁴University of Münster, MEET, Correnstraße 46, 48149 Münster, Germany

- 13.30 – 13.45** **ORL Graphene oxide/12 tungstophosphoric acid nanocomposites – achieving favorable properties with ion beams for electrochemical supercapacitors**
Željko Mravik¹, Milica Pejčić¹, Jelena Rmuš Mravik¹, Blaž Belec², Danica Bajuk-Bogdanovic³, Sonja Jovanović¹, Smilja Marković⁴, Nemanja Gavrilov⁵, Vladimir Skuratov⁵, Zoran Jovanović¹
¹Center of Excellence for Hydrogen and Renewable Energy (CONVINCE), Laboratory of Physics, Vinča Institute of Nuclear Sciences, University of Belgrade, Belgrade, Serbia
²Materials Research Laboratory, University of Nova Gorica, Ajdovščina, Slovenia
³Faculty of Physical Chemistry, University of Belgrade, Belgrade, Serbia
⁴Institute of Technical Sciences of SASA, Belgrade, Serbia
⁵Flerov Laboratory of Nuclear Reactions, Joint Institute for Nuclear Research, Dubna, Moscow region, Russia
- 13.45 – 14.00** **ORL Kinetics and mechanism study of photocatalytic degradation using heterojunction semiconductors**
Ksenija Milošević¹, Davor Lončarević¹, Melina Kalagasidis Krušić², Tihana Mudrinić¹, Jasmina Dostanić¹
¹University of Belgrade, Institute of Chemistry, Technology and Metallurgy, Department of Catalysis and Chemical Engineering, Njegoševa 12, 11000 Belgrade, Republic of Serbia
²University of Belgrade, Faculty of Technology and Metallurgy, Karnegijeva 4, 11000 Belgrade, Republic of Serbia
- 14.00 – 14.15** **ORL Detection of bisphenol S via screen-printed electrodes**
Jelena Vujančević^{1,2}, Špela Trafela², Neža Sodnik^{2,3}, Zoran Samardžija² and Kristina Žagar Soderžnik^{2,4}
¹Institute of Technical Sciences of the Serbian Academy of Sciences and Arts, Knez Mihailova 35/IV, 11000 Belgrade, Serbia
²Department for Nanostructured Materials, Jožef Stefan Institute, Jamova cesta 39, SI-1000 Ljubljana, Slovenia
³University of Ljubljana, Faculty of Chemistry and Chemical Technology, Večna pot 113, SI-1000 Ljubljana, Slovenia
⁴Jozef Stefan Postgraduate School, Jamova cesta 39, SI-1000 Ljubljana, Slovenia

14.15 - 15.00 **Buffet Lunch** **Club SASA**

Great Hall, 2nd Floor

-
- 15.00 - 17.30** **Nano, Opto & Bio-ceramics**
Chairpersons: Lidija Mančić & Ivana Dinić
-
- 15.00 - 15.30** **PL Current Status and Future Trends in Nanocarbon added Ceramics**
Csaba Balázs
Institute for Technical Physics and Materials Science, Centre for Energy Research, Eötvös Loránd Research Network, 1121 Budapest, Konkoly-Thege str. 29-33, Hungary
- 15.30- 16.00** **PL Ceramic biomaterials: From traditional technologies to novel applications**
Katalin Balázs
Thin Film Physics Department, Centre for Energy Research, 1121 Budapest, Konkoly-Thege M. str. 29-33, Hungary
- 16.00 - 16.30** **PL Long, rich and exotic path from insulating to metallic states in strongly correlated ceramic materials**
Matija Čulo
Institut za fiziku, Bijenička cesta 46, HR-10000 Zagreb, Croatia
- 16.30 – 16.50** **INV Luminescence transitions of Pr³⁺ (4f³) in fluorapatite nanocrystals for potential biomedical application**
Dušan V. Milojkov¹, Gordana D. Marković¹, Miroslav D. Sokić¹, Vaso D. Manojlović², Dragosav R. Mutavdžić³, Goran V. Janjić⁴
¹Institute for Technology of Nuclear and Other Mineral Raw Materials, 86 Franchet d Esperey St., 11000 Belgrade, Serbia
²Faculty of Technology and Metallurgy, University of Belgrade, 4 Karmegijeva St., 11000 Belgrade, Serbia
³Institute for Multidisciplinary Research, University of Belgrade, KnezaVišeslava 1, 11030 Belgrade, Serbia
⁴Institute for Chemistry, Technology and Metallurgy, University of Belgrade, Njegoševa 12, 11000 Belgrade, Serbia
- 16.50 – 17.10** **INV Biosynthesis of ZnO nanoparticles using agro-waste with antibacterial and antioxidant activity**
Zorka Vasiljević¹, Jovana Vunduk², Milena Dojcinović¹, Dragana Bartolić¹, Milos Ognjanović³, Nenad Tadić⁴, Goran Misković⁵, Maria Vesna Nikolić¹
¹University of Belgrade, Institute for Multidisciplinary Research, Kneza Visaslava 1, Belgrade, Serbia,
²The Institute of General and Physical Chemistry, Studentski trg 12/V, Belgrade, Serbia,

¹University of Belgrade, Institute for Multidisciplinary Research, Kneza Visislava 1, Belgrade, Serbia,

²The Institute of General and Physical Chemistry, Studentski trg 12/V, Belgrade, Serbia,

³University of Belgrade, VINČA Institute of Nuclear Sciences - National Institute of the Republic of Serbia, Mike Petrovića Alasa 12-14, Belgrade, Serbia

⁴Faculty of Physics, University of Belgrade, Studentski trg 12, Belgrade, Serbia

⁵Silicon Austria Labs, High Tech Campus Villach Europastraße 12, A-9524 Villach, Austria

17.10 – 17.30

INV METAL OXIDE NANOPARTICLES AS ACTIVE FOOD PACKAGING COMPONENTS

Maria Vesna Nikolic¹, Zorka Vasiljevic¹, Jasmina Vidic²

¹University of Belgrade- Institute for Multidisciplinary Research, Kneza Visislava 1, Belgrade, Serbia,

²Université Paris-Saclay, INRAE, AgroParisTech, Micalis Institute, Jouy en Josas, France

19.00 – 23.30

Conference Gala dinner

Hotel Palace

Tuesday, September 19th, 2023.

Hallway, 1st Floor

08.00 - 09.00 Registration

Hall 2, 1st Floor

09.00 - 11.30 Modelling & Simulation
Chairpersons: Marko Perić & Magdalena Radovic

09.00 - 09.30 PL Modeling & Simulation of Advanced Ceramic Materials
D. Zagorac^{1,2}

¹Institute of Nuclear Sciences Vinča, Materials Science Laboratory, Belgrade University, Belgrade, Serbia

²Center for the synthesis, processing, and characterization of materials for use in extreme conditions "Cextreme Lab", Laboratory for Theoretical Investigation of Materials (L-TIM), Belgrade, Serbia

09.30 - 10.00 PL Structural analysis using the powder diffraction method of different structures from the calcium phosphate group of materials

Miljana Mirković

Department of Materials, „VINČA" Institute of Nuclear Sciences - National Institute of the Republic of Serbia, University of Belgrade, Belgrade, Serbia

10.00 - 10.30 PL Rational Design of Single-Ion Magnets – Computational Chemistry Approach

Matija Zlataar¹ and Maja Gruden²

¹University of Belgrade – Institute of Chemistry, Technology and Metallurgy, Njegoševa 12, Belgrade, Serbia

²University of Belgrade – Faculty of Chemistry, Studentski trg 12-16, Belgrade, Serbia

10.30 - 10.50 INV DFT Analysis of Hyperfine Couplings in *d* and *f* metal complexes with Tetrahydro Borate Ligands

M. Perić, Z. Milanović, M. Radović, M. Mirković, A. Vukadinović, D. Stanković, D. Janković, S. Vranješ-Đurić

„VINČA" Institute of Nuclear Sciences - National Institute of the Republic of Serbia, University of Belgrade, 11001 Belgrade, Serbia

¹University of Belgrade, Innovation Center of Faculty of Mechanical Engineering, Belgrade, Serbia

13.40 – 13.55 **ORL Visible Light Driven Photocatalytic Ceramic Based Nano-Composites**

Bojan Miljević¹, Romana Cerc Korošec², John Milan van der Bergh^{1,3}, Vesna Miljić¹, Snežana Vučetić¹, Jonjaua Ranogajec¹

¹University of Novi Sad, Faculty of Technology, Department of Materials Engineering, Bul. cara Lazara 1, 21000 Novi Sad, Serbia

²University of Ljubljana, Faculty of Chemistry and Chemical Technology, Večna pot 113, 1000 Ljubljana, Slovenia

³Liverpool John Moores University, Built Environment and Sustainable Technologies (BEST) Research Institute, L3 2ET, Liverpool, United Kingdom

13.55- 14.10 **ORL β -NaYF₄:Yb,Tm@TiO₂-Acac core-shell structure for efficient photocatalysis**

Lidija Mančić¹, Ivana Dinic¹, Lucas A. Almeida², Jessiça Gil-Londoño², Marina Vuković³, Paula Jardim⁴, Bojan A. Marinković²

¹Institute of Technical Science of SASA, Kneza Mihaila 35/4, Belgrade, Serbia

²Department of Chemical and Materials Engineering, Pontifical Catholic University of Rio de Janeiro Rio de Janeiro, RJ, Brazil

³Innovative Centre, Faculty of Chemistry, University of Belgrade, Serbia

⁴Department of Metallurgical and Materials Engineering, Federal University of Rio de Janeiro, Rio de Janeiro, Brazil

14.10 - 15.00 **Buffet Lunch** **Club SASA**
Hall 2, 1st Floor

15.00 - 17.20 **Renewable Energy & Composites**
Chairpersons: Milica Marčeta Kaninski

15.00 – 15.30 **PL Epitaxial oxides on semiconductors: growth perspectives and device applications**

Matjaž Spreitzer¹, Lucija Bučar¹, Hsin-Chia Ho¹, Urška Trstenjak¹, Zoran Jovanović^{1,2}, Gertjan Koster^{1,3}

¹Advanced Materials Department, Jožef Stefan Institute, Ljubljana, Slovenia

²Laboratory of Physics, Vinca Institute of Nuclear Sciences, University of Belgrade, Belgrade, Serbia

³MESA+ Institute for Nanotechnology, University of Twente, Enschede, The Netherlands

- 15.30 – 16.00 **PL The role of epitaxial layer of oxides on surface of hydrogen evolution electrocatalyst**
Piotr Żabiński
Faculty of Non-Ferrous Metals, AGH University A. Mickiewicza 30,
30-059 Kraków, Poland
- 16.00 – 16.20 **INV Possibilities of integrating alkaline electrolyzer with ionic activators in micro combined heat and power systems**
Sladjana Maslovara¹, Dragana Vasic Anicijevic², Vladimir Nikolic¹,
Murjana Kijevcanin³, Milica Marceta¹
¹Institute of General and Physical Chemistry, Studentski trg 12/V
²Vinca Institute of Nuclear Science, Mike Petrovica Alasa 12-14
³Faculty of Technology and Metallurgy, Karnegijeva 4
- 16.20 – 16.40 **INV Investigation of tungsten-carbide-oxides as the anode catalysts supports for the proton exchange membrane fuel cells**
Snežana Brković¹, Milica Marčeta Kaninski², Ivana Perović¹, Slađana Malovara², Nikola Zdošek¹, Petar Laušević¹, Vladimir Nikolić²
¹University of Belgrade, Vinča Institute of Nuclear Sciences, Mike Petrovića Alasa 12-14, 11351, Vinča, Belgrade, Serbia
²Institute of General and Physical Chemistry, Studentski trg 12/V, 11158, Belgrade, Serbia
- 16.40 – 17.00 **INV Alumina supported catalysts for biodiesel production**
Milos Marinković¹, Milica Marceta Kaninski¹, Vladimir Nikolic¹,
Stevan Blagojevic¹, Hadi Waisi¹, Aleksandra Zarubica²
¹University of Belgrade, Institute of General and Physical Chemistry,
Studentski trg 12/V, P.O. Box 45, 11158 Belgrade, Serbia
²University of Niš, Department of Chemistry, Faculty of Science and
Mathematics, Višegradska 33, 18000 Niš, Serbia
- 17.00 – 17.20 **INV Processing and testing of UHTCMCs for aerospace applications**
D. Sciti¹, A. Vinci¹, L. Zoli¹, S. Mungiguerra², R. Savino²
¹CNR-ISSMC, National Research Council of Italy - Institute of Science,
Technology and Sustainability for Ceramics, Via Granarolo 64, 48018
Faenza, Italy
²University of Naples, Dept. of Industrial Engineering, Naples – 80125
Naples
- 17.20 - 19.00 **Poster Session I & Exhibitions** **Club SASA**

Wednesday, September 20th, 2023.

Hallway, 1st Floor

08.00 - 09.00	Registration & Poster Installation
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09.00 - 10.00	Poster Session II	Club SASA
		Hall 2, 1 st Floor

10.00 - 12.00	Basic Ceramics & Sintering Chairpersons: Suzana Filipović & Jelena Živojinović
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10.00 - 10.30	PL The role of powder selection and microstructure homogeneity to mechanical properties of zirconia toughened alumina composites <u>Frank Kern</u> Institut für Fertigungstechnologie keramischer Bauteile Universität Stuttgart Allmandring 7B, D-70569 Stuttgart
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10.30 - 11.00	PL Thermal, Electrical, and Mechanical Properties of (Ti,Cr)B₂ Ceramics <u>Gregory E. Hilmas</u> Missouri University of Science and Technology, Department of Materials Science and Engineering, 222 McNutt Hall; 1400 N. Bishop Avenue, Rolla, MO 65409, United States
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11.00 - 11.20	INV Hybrid Nanoscale Materials for Convergent Technologies <u>V. B. Pavlović¹, G. Vuković², M. Nikolić³, V.P. Pavlović⁴, M. Perić⁵, S. Nenadović⁵, M. Ivanović⁵, M. Mirković⁵, V. Djoković⁵, S. Knežević⁵, M. Suljagić⁶, Lj. Andjelković⁶, A. Janićijević⁷, D. Kovačević⁷, S. Filipović⁸, J. Vujančević⁸, B. Vlahović⁹ ¹University of Belgrade, Faculty of Agriculture, Belgrade, Serbia ²University of Wisconsin-Madison, USA ³University of Kragujevac, Faculty of Agronomy, Čačak, Serbia ⁴Faculty of Mechanical Engineering, University of Belgrade, Belgrade, Serbia ⁵University of Belgrade, Institute of Nuclear Sciences Vinca, Belgrade, Serbia ⁶University of Belgrade, Department of Chemistry, IChTM, Belgrade, Serbia ⁷The Academy of Applied Technical Studies Belgrade, Belgrade, Serbia ⁸University of Belgrade, Faculty of Agriculture, Belgrade, Serbia ⁹University of Belgrade, Faculty of Mechanical Engineering, Belgrade, Serbia</u>
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⁸Institute of Technical Sciences of the Serbian Academy of Sciences and Arts, Belgrade, Serbia

⁹North Carolina Central University, Durham, NC, USA

11.20 - 11.40 INV Novel Diboride Ceramics for Extreme Environment Applications

Peter Tatarko¹, Inga Zhukova¹, Naser Hosseini¹, Salvatore Grasso², Vasanthakumar Kombamuthu³, Zdeněk Chlup⁴, Alexandra Kovalčíková⁵, Monika Tatarková¹, Ivo Dlouhý³, Ján Duszka⁵

¹Institute of Inorganic Chemistry, Slovak Academy of Sciences, Dúbravská cesta 9, 845 36 Bratislava, Slovakia

²School of Engineering & Materials Science, Queen Mary University of London, Mile End Road, London, E1 4NS, United Kingdom

³CEMEA – Center of Excellence for Advanced Materials Applications, Slovak Academy of Sciences, 845 11 Bratislava, Slovakia

⁴Institute of Physics of Materials, Czech Academy of Sciences, Žižkova 22, 616 00 Brno, Czech Republic

⁵Institute of Materials Research, Slovak Academy of Sciences, Watsonová 47, 04001 Košice, Slovakia

11.40 - 12.00 INV Various strategies and dopants for the preparation of dense MgAl₂O₄ ceramics by SPS

Ali Talimian¹, Ali Najafzadeh², Václav Pouchlý³, Karel Maca³ and Dušan Galusek^{1,2}

¹Centre for functional and surface-functionalized glass, TnUAD, Trenčín, Slovakia

²CETEC BUT, Brno, Czech Republic

³Joint glass centre of the IIC SAS, TnUAD and FChPT STU, Trenčín Slovakia

12.00 - 12.30 Coffee Break Hallway, 1st Floor

12.30 - 14.05 Basic Ceramics & Sintering
Chairpersons: Darko Kosanović & Adriana Peleš Tadić

12.30 – 12.50 INV Densification of Dual Phase High Entropy Boride-Carbide Ceramics by Pressureless Sintering

William G. Fahrenholtz, Steven M. Smith II, and Gregory E. Hilmas
Materials Science and Engineering Department, Missouri University of Science and Technology Rolla, MO 65409 United States

12.50 – 13.05 ORL Optimization of processing parameters for high entropy dual phase ceramics

S. Filipovic^{1,2}, S. Smith¹, N. Obradovic^{1,2}, G. Hilmas¹, W. Fahrenholtz¹

- ¹Materials Science and Engineering, Missouri University of Science and Technology, Rolla, Missouri, United States
²Institute of Technical Sciences of the Serbian Academy of Sciences and Arts, Belgrade, Serbia
- 13.05 – 13.20** **ORL Influence of Fe Doping on the Crystal Structure and Optical Properties of Mechanically Activated SrTiO₃ Powders**
J. Živojinović¹, A. Peleš Tadić¹, D. Kosanović^{1,5}, N. Tadić², Z. Vasiljević³, S. M. Lević⁴, N. Obradović¹
¹Institute of Technical Sciences of the Serbian Academy of Sciences and Arts, Knez Mihailova 35/IV, 11000 Belgrade, Serbia
²University of Belgrade, Faculty of Physics, Cara Dusana 13, 11000 Belgrade
³University of Belgrade, Institute for Multidisciplinary Research, Kneza Visislava 1, 11000 Belgrade, Serbia
⁴University of Belgrade, Faculty of Agriculture, Nemanjina 6, 11080 Belgrade, Serbia
⁵Department of Materials Science and Engineering, Missouri University of Science and Technology, Rolla, MO 65409, USA
- 13.20 – 13.35** **ORL Why delamination cracks occur in ceramics manufactured via DLP, and how to eliminate them**
Wadiah Yared
Institute for Manufacturing Technologies of Ceramic Components and Composites, University of Stuttgart, Germany
- 13.35 – 13.50** **ORL Structural characteristics of MgAl₂O₄ spinel**
A. Peleš Tadić¹, J. Živojinović¹, N. Tadić², S. M. Lević³, S. Marković¹, V. Pavlović³, S. Filipović¹, N. Obradović¹
¹Institute of Technical Sciences of the Serbian Academy of Sciences and Arts, 11000 Belgrade, Serbia
²University of Belgrade, Faculty of Physics, 11000 Belgrade, Serbia
³University of Belgrade, Faculty of Agriculture, 11080 Belgrade, Serbia
- 13.50 – 14.05** **ORL Diatomic earth: Structure and modification**
Petar Knežević¹, Nikola Vuković², Katarina Mihajlović¹, Marko Vujaković¹, Katarina Pantović-Spajić², Ana Radosavljević-Mihajlović²
¹Faculty of Mining and Geology, University of Belgrade, Đušina 5-7, 11000 Belgrade, Serbia
²Institute for Technology of Nuclear and other mineral raw materials, Franske D Epere 86, Serbia
- 14.05 - 15.00** **Buffet lunch** **Club SASA**

Hall 3, 1st Floor

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- 15.00 – 17.20** **Cement, Clay, Refractories & Glass, Electroceramics**
Chairperson: Anja Terzić & Milica V. Vasić
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- 15.00 - 15.20** **INV Production of lightweight porous cementitious materials from diatomite via hydrothermal technology**
Arianit A. Reka
Department of Chemistry, Faculty of Natural Sciences and Mathematics, University of Tetovo, Blvd. Ilinden n.n., 1200 Tetovo, Republic of North Macedonia
- 15.20 - 15.40** **INV Electrical and humidity sensing properties of LNTO ceramics with ZnO as functional additive**
Dalibor L. Sekulić¹, Radoš R. Raonić², Tamara B. Ivetić²
¹University of Novi Sad, Faculty of Technical Sciences, Novi Sad, Serbia
²University of Novi Sad, Faculty of Sciences, Novi Sad, Serbia
- 15.40 - 16.00** **INV Chalcogenide glasses as memristive materials**
Kristina O. Čajko¹, Dalibor L. Sekulić², Svetlana R. Lukić-Petrović¹
¹University of Novi Sad, Faculty of Sciences, Novi Sad, Serbia
²University of Novi Sad, Faculty of Technical Sciences, Novi Sad, Serbia
- 16.00 - 16.15** **ORL The lumped approach in drying modeling of roofing tiles – variable effective diffusivity determination**
Miloš R. Vasić¹, Milica V. Vasić¹
¹Institute for testing of materials, Bulevar vojvode Mišića 43
- 16.15 – 16.30** **ORL Moisture regulation in urban spaces with clay-based plaster**
Milena Živanović¹, Gradimir Cvetanović¹, Staniša Stojiljković¹, Semir Osmanagić², Goran Manić³, Vesna Manić⁴
¹University of Niš, Faculty of Technology Leskovac
²Archaeological Park: Bosnian Pyramid of the Sun Foundation, Visoko
³Institute of Occupational Health, Niš
⁴University of Niš, Faculty of Science, Department of Physics, Niš
- 16.30 - 16.45** **ORL Origin and sustainability of negative ions in the air**
Milena Živanović¹, Gradimir Cvetanović¹, Staniša Stojiljković¹, Semir Osmanagić², Goran Manić³, Vesna Manić⁴
¹University of Niš, Faculty of Technology Leskovac
²Archaeological Park: Bosnian Pyramid of the Sun Foundation, Visoko

³Institute of Occupational Health, Niš

⁴University of Niš, Faculty of Science, Department of Physics, Niš

- 16.45 - 17.05** **INV BaTiO₃/Ni_xZn_{1-x}Fe₂O₄ (x =0, 0.5, 1) composites synthesized by thermal decomposition: The influence of phase composition on their magnetic and electrical properties**
M. Suliagić¹, L. Andjelković¹
¹University of Belgrade-Institute of Chemistry, Technology and Metallurgy, Department of Chemistry, Njegoševa 12, 11000 Belgrade
- 17.05 - 17.25** **INV Mechanochemical synthesis of strontium titanate**
Nataša Đorđević¹, Milica Vlahović², Slavica Mihajlović¹
¹Institute for Technology of Nuclear and Other Mineral Raw Materials, Franchet d'Esperey Blvd. 86, Belgrade, Serbia
²University of Belgrade, Institute of Chemistry, Technology and Metallurgy, Karnegijeva 4, Belgrade, Serbia
- 17.25 - 18.00** **Awards & Closing Ceremony** **Hall 2, 1st Floor**

for flat UHTCMC surfaces during arc jet tests, as well as erosion resistance for nozzle inserts during propulsion tests. Additionally, we have designed a special series of tests to expose UHTCMC bars to arc jet conditions and subsequently measure the impact of surficial oxidation on the flexural strength.

INV3

Mechanochemical synthesis of strontium titanate

Nataša Dorđević¹, Milica Vlahović², Slavica Mihajlović¹

¹Institute for Technology of Nuclear and Other Mineral Raw Materials, Franchet d'Esperey Blvd. 86, Belgrade, Serbia, n.djordjevic@itnms.ac.rs

²University of Belgrade, Institute of Chemistry, Technology and Metallurgy, Karnegijeva 4, Belgrade, Serbia

In this work, SrO and TiO₂ were mechanochemically activated for 520 minutes. The X-Ray Diffraction Analysis determined that strontium titanate was obtained. The starting components reacted in an amount of 99.1%. Phase changes during the reaction were analyzed and the dynamics of mechanochemical synthesis were defined. The occurrence of an intermediate compound (activated complex) on the reaction path from the reactant to the stable product of the reaction was assumed and experimentally proven. The rate constant of the mechanochemical neutralization reaction between strontium oxide and titanium oxide is defined. A mathematical relation with the basic thermodynamic and other physicochemical parameters of the process was established.

INV4

Various strategies and dopants for the preparation of dense MgAl₂O₄ ceramics by SPS

Ali Talimian¹, Ali Najafzadeh², Václav Pouchlý³, Karel Maca³ and Dušan Galusek^{1,2}

¹Centre for functional and surface-functionalized glass, TnUAD, Trenčín, Slovakia

²CETEC BUT, Brno, Czech Republic

³Joint glass centre of the IIC SAS, TnUAD and FChPT STU, Trenčín Slovakia

Dense MgAl₂O₄ ceramics are usually fabricated by pressure-assisted methods, such as SPS. Discoloration of MgAl₂O₄ by carbon contamination often prevents fabrication of transparent bodies. Use of LiF, which acts both as a sintering aid and impurity scavenger was described to promote densification and eliminate carbon contamination. The present contribution describes alternative approaches for the preparation of dense MgAl₂O₄ by SPS without carbon contamination.

A two-stage heating profile was used to produce transparent MgAl₂O₄ without sintering aids at 1250°C. The effect of critical temperature on transparency and carbon contamination was investigated: higher critical temperature resulted in higher contamination. LiOH was also used as an alternative to LiF. The addition of 0.3 wt% LiOH promoted densification, limited grain growth, and decreased the activation energy of sintering. While adding small amounts of LiOH, up to ca. 0.3 wt%, was beneficial for densification while suppressing grain growth,