Serbian Ceramic Society Conference
ADVANCED CERAMICS AND APPLICATION VIII
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, 23-25. September 2019.

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Dear Colleagues,

We have great pleasure to welcome you to the Advanced Ceramic and Application Conference VIII 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.

Advanced Ceramics today include many old-known ceramic materials produced through newly available processing techniques as well as broad range of the innovative compounds and composites, particularly with plastics and metals. Such developed new materials with improved performances already bring a new quality in the everyday life. The chosen Conference topics cover contributions from a fundamental theoretical research in advanced ceramics, computer-aided design and modeling of a new ceramics products, manufacturing of nanoceramic devices, developing of multifunctional ceramic processing routes, etc. Traditionally, ACA Conferences gather leading researchers, engineers, specialist, professors and PhD students trying to emphasizes the key achievements which will enable the wide speared use of the advanced ceramics products in High-Tech industry, renewable energy utilization, environmental efficiency, security, space technology, cultural heritage, etc.

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

This year the conference is supported by the Serbian Chapter of American Ceramic Society and European Academy of Sciences and Arts.

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 & Electro Ceramics
- Electrochemistry & Catalysis
- Magnetic & Refractory Ceramic
- Renewable Energy, Composites & Amorphous 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. Olivera Milošević SRB
Prof. Dr. Rainer Gadow GER
Prof. Dr. Marcel Van de Voorde EU

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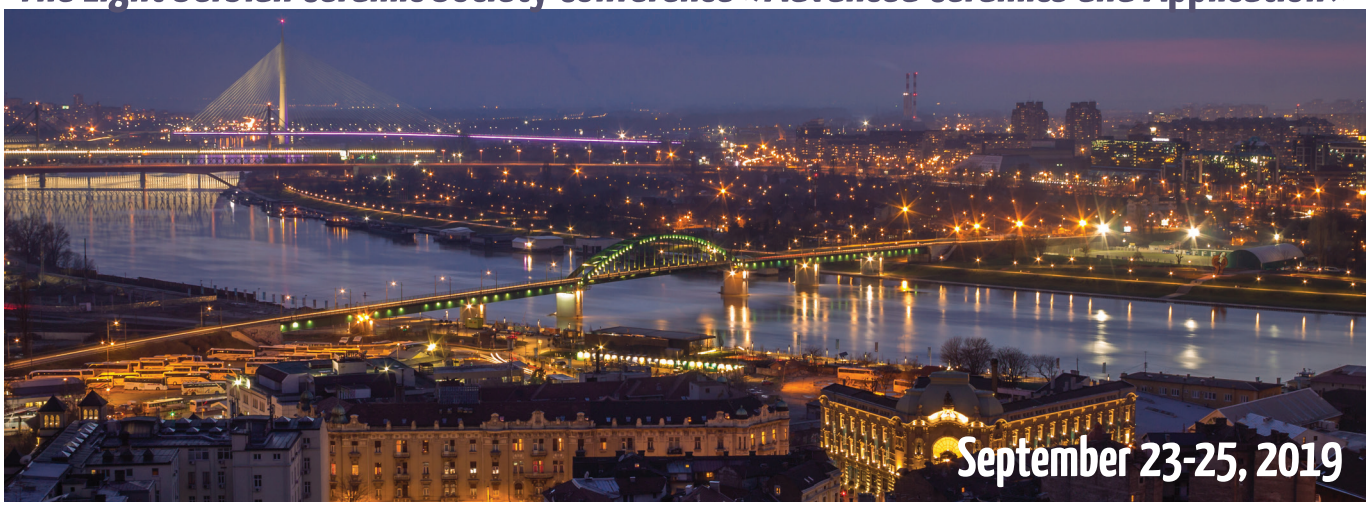
Conference Program and Abstracts

Program and Abstract's Contents

The Eight Serbian Ceramic Society Conference »Advanced Ceramics and Application«



Conference Information:

Conference venue: Serbian Academy of Sciences and Arts, Great Hall (second floor) and Halls 1, 2 (first floor), Knez Mihailova 35, Belgrade, Serbia
Conference fee: Standard fee for foreign participants: 200 EUR; Standard fee for domestic participants: 10000 RSD, Members of SCS, Keynote lecturers and PhD Students: 50% Discount; Invited lecturers have 40% Discount; Plenary lecturers & the last year winners for 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.
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.

Abstracts and papers publication: The official language of the conference is English. Conference abstracts will be published in the Book of Abstracts Conference. Papers presented at the conference can be submitted for publishing either in book or selected journals. More precisely, Serbian Ceramic Society and Springer Nature will publish each year one of Chapter book draw on the research and innovation presented at ACA Conferences in the frame of chosen topic. Beside, limited number of papers will be consider for publishing in following journals: Materials Chemistry and Physics, Journal of Ceramic Science and Technology and Science of Sintering.
Deadlines for submitting of full manuscripts will be delivered after the Conference.

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 reception desk at the beginning of the Conference on flash memory. 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/
Restaurant: Pivnica „Maxim 2“, Đure Jakšića 1, Belgrade (street beside conference venue)
Exchange office: „Hulk“, Vuka Karadžića 4
Tourist Information Centre: Knez Mihailova 5

Water: Tap water in Belgrade is safe to drink.

Program Overview

Date	Time	Programme		Floor, Room
September, 23, Monday	08.00-09.00	**Registration**		2nd Floor, Hall
	09.00-09.30	**Opening Ceremony**		2nd Floor, Great Hall
	09.30-09.40	**Short Break**		2nd Floor, Great Hall
	09.40-11.10	**Plenary Session 1**		2nd Floor, Great Hall
	11.10-11.30	**Coffee Break & Photo Session**		2nd Floor, Hal
	11.30-13.00	**Plenary Session 2**		2nd Floor, Great Hall
	13.00-15.00	**Buffet Lunch**		Club SASA
	15.00-16.30	**Plenary Session 3**		2nd Floor, Great Hall
	16.30-16.50	**Coffee Break**		2nd Floor, Hal
	16.50-18.05	**Keynote Session**		2nd Floor, Great Hall
	20.00	**Conference dinner (with invitations)**		
September, 24, Tuesday	08.00-09.00	**Registration** **Posters Installation**		Club SASA
	09.00-10.25	**Session: Basic Ceramic Science & Sintering** Hall 2		1st Floor
	10.25-10.45	**Coffee Break**		1st Floor, Hall
	10.45-13.00	**Session: Nano-, Opto- & Bio-Ceramic** Hall 2		1st Floor
	13.00-14.00	**Buffet Lunch**		Club SASA
	14.00-16.15	**Session: Magnetic Ceramic and Heritage, Art & Design** Hall 2		1st Floor
	16.15-16.30	**Coffee Break**		1st Floor, Hall
	16.30-18.00	**Poster Session**		Club SASA
September, 25, Wednesday	09.30-11.00	**Session: Electrochemistry & Catalysis Hall 1**	**Session: Glass & ElectroCeramics Hall 2**	1st Floor
	11.00-11.15	**Coffee Break**		
	11.15-12.35	**Session: Modeling & Simulation Hall 1**	**Session: Energy, Refractory, Cements Hall 2**	
	12.45-13.30	**Annual meeting of the Serbian Ceramic Society**		
	13.30-14.15	**American Ceramic Society Serbian Chapter Round Table**		
	14.15	**Buffet Lunch**		Maxim 2

Monday, September 23rd, 2019

08.00 – 09.00 **Registration** **Hall, 2nd Floor**

Great Hall, 2nd Floor

09.00 – 09.30 **Opening Ceremony of the Seventh Serbian Ceramic Society Conference: Advanced Ceramics and Application**

Prof.dr Vojislav Mitić, Dr. Olivera Milošević, Prof. Vladimir Pavlović, Dr. Dušan Jovanović, Marcel Van de Voorde, Branislav Brindić, President of SASA Academician Vladimir Kostić, Representatives of MNTR, High Representatives of the Government RS

09.30 - 09.40 **Short break**

Great Hall, 2nd Floor

09.40 – 11.10 **Plenary Session 1**

Chairpersons: Olivera Milošević, Eugene Medvedovski

09.40 – 10.10 **PL 1 Modification and Construction of Cathode Materials for Advanced Li-ion Batteries**

Cheng-Yu Wu, Hao Yang, Yang Wang, Yi-Chun Jin and Jenq-Gong Duh
Department of Material Sciences and Engineering,
National Tsing-Hua University, Hsinchu, Taiwan

10.10 – 10.40 **PL 2 Ceramics to metal joining for next generation power devices**

Katsuaki Suganuma
The Institute of Scientific and Industrial Research, Osaka University, Japan

10.40 - 11.10 **PL 3 Interface Engineering in Perovskite-based Nanocomplex Ceramics for High Dielectric & Piezoelectric Performances**

S. Wada[1], R. Kayanuma[1], Y. Isobe[1], K. Matsumoto[1],
S. Ueno[1], I. Fujii[1], C. Moriyoshi[2], Y. Kuroiwa[2]
[1]Material Science and Technology, University of Yamanashi,
4-4-37 Takeda, Kofu, Yamanashi 400-8510, Japan
[2]Department of Physical Science, Hiroshima University,
1-3-1 Kagamiyama, Higashi-Hiroshima, Hiroshima 739-8526, Japan

11.10 - 11.30 **Coffee Break and Photo Session** **Hall, 2nd Floor**

Great Hall, 2nd Floor

11.30 - 13.00 **Plenary Session 2**

Chairpersons: Walter Arnold, Vladimir Pavlovic

11.30 - 12.00 **PL 4 Advanced Ceramics and Coatings for Mineral and Oil & Gas Processing and Power Generation and the Technology Importance for Ceramic Manufacturing**

Eugene Medvedovski

Endurance Technologies Inc., Calgary, AB, Canada

12.00 - 12.30 **PL 5 Zirconia/Alumina Meta-Material for Biomedical Applications: Experience for Sintering and Real Practice**

S.Kulkov, A.Buyakov, D.Kulbakin and I.Kazantsev, A.Tsukanov

Tomsk State University, Institute of Strength Physics and Material Sciences RAS and Medical clinic

12.30 - 13.00 **PL 6 How first principles methods can be used to understand and predict the properties of microwave ceramic dielectrics**

Nathan Newman, Justin Gonzales and Chris Muhich

Materials Program, Arizona State University, Tempe, AZ

13.00 - 15.00 **Buffet Lunch** **Club SASA, Mezzanine**

Great Hall, 2nd Floor

15.00 - 16.30 **Plenary Session 3**

Chairpersons: Nathan Newman, Sergei Kulkov

15.00 - 15.30 **PL 7 Rare Earth Oxides as Environmentally-Friendly Corrosion Inhibitors**

William G. Fahrenholtz

Missouri University of Science and Technology

15.30 - 16.00 **PL 8 Near-Field Imaging Using Atomic Force Acoustic Microscopy**

Walter Arnold

I.Phys. Institut, Georg-August Universität Göttingen, Germany, and Department of Materials Science and Engineering, Saarland University,Saarbrücken, Germany

16.00 - 16.30 **PL 9 Learning from Nature: Strong, Tough and Lightweight Biological/Bio-inspired Ceramic-based Composites**

Po-Yu Chen

Department of Materials Science and Engineering National Tsing Hua University

16.30 - 16.50	**Coffee Break**	**Hall, 2nd Floor**

Hall, 2nd Floor

16.50 - 18.05 **Keynote Session**

Chairpersons: Satoshi Wada, Jenq-Gong Duh

16.50 - 17.15 **KN 1 Structural and Morphological study of $NaNbO_3$ nanostructure synthesized over metallic niobium**

Beatriz Canabarro[1], Paula Jardim[1]
[1]Department of Metallurgical and Materials Engineering,
FederalUniversity of Rio de Janeiro, Rio de Janeiro, Brazil

17.15 - 17.40 **KN 2 Multimaterials 3D printing: simplifying manufacturing and reducing costs**

Rouslan Svintsitski
3DCeram Sinto, Limoges, France

17.40 - 18.05 **KN 3 Bioinspired metal oxide nanomaterials for sustainable applications**

Ziqi Sun
ARC Future Fellow, Queensland University of Technology (QUT), Australia

20.00 **Conference dinner (with invitation)**

Tuesday, September 24th, 2019

08.00 - 09.00 **Registration / Posters and Exibition Installation** **Hall, 1st Floor**

Hall 2, 1st Floor

09.00 - 10.25 **Session: Basic Ceramic Science and Sintering**

Chairpersons: Nina Obradović

09.00 - 09.30 **PL 10 Processing and properties of structural and functional ceramics at Brno University of Technology**

K. Maca[1,2], K. Drdlikova[1], T. Spusta[1,2], V. Prajzler[1]
[1]CEITEC BUT, Brno University of Technology,
Purkynova 123, 612 00 Brno, Czech Republic
[2]Faculty of mechanical Engineering, Brno University of Technology,
Purkynova 123, 612 00 Brno, Czech Republic

09.30 – 09.50 **INV-BCS 1 Thermal thin film investigations via Time Domain Thermoreflectance method on Nb_2O_5**

Lisa Mitterhuber, Elke Kraker, Stefan Defregger
Materials Center Leoben Forschungs GmbH,
Rosseggerstraße 12, 8700 Leoben, Austria

09.50 - 10.10 **INV-BCS 2 Morphological and structural characterization of spinel $MgAl_2O_4$**

S. Filipović[1], N. Obradović[1], W. G. Fahrenholtz[2], B. A. Marinković[3],
J. Rogan[4], S. Lević[5], V. Pavlović[1]
[1]Institute of Technical Sciences of the Serbian Academy of Sciences and Arts,
11000 Belgrade, Serbia
[2]Materials Science and Engineering, Missouri University of Science and Technology,
Rolla, Missouri, United States
[3]Pontificia Universidade Catolica de Rio de Janeiro,
Dept. of Chemical and Materials Engineering, Rio de Janeiro, Brasil
[4]Department of General and Inorganic Chemistry,
Faculty of Technology and Metallurgy, University of Belgrade, 11120 Belgrade, Serbia
[5] Faculty of Agriculture University of Belgrade, 11000 Belgrade, Serbia

10.10 - 10.25 **ORL- BCS 1 The effect of heating rate on densification and grain growth during pressure-less sintering of fine grained alumina and zirconia ceramics**

Vladimír Prajzler[1], Tomáš Spusta[1], Karel Maca[1,2]
[1] CEITEC, Brno University of Technology, Purkyňova 123, 612 00 Brno, Czech Republic
[2] Faculty of Mechanical Engineering, Brno University of Technology,
Technická 2896/2, 616 69 Brno, Czech Republic

10.25 - 10.45 **Coffee Break** **Hall, 1st Floor**

Hall 2, 1st Floor

10.45 – 13.00 **Session: Nano-, Opto- & BioCeramic**

Chairpersons: Lidija Mančić

10.45 - 11.10 **KN 4 XRD-XRF-Raman-IR Combined Analysis: the EU H2020 SOLSA project**

Daniel Chateigner [1], Luca Lutterotti [2] and the SOLSA Consortium[3]
[1]Normandie Université, Université de Caen Normandie, CNRS-CRISMAT, France
[2]Department of Materials Engineering,Engineering Faculty, University of Trento, Italy
[3]http://www.solsa-mining.eu

11.10 - 11.35 **KN 5 Synthesis of Ce/Ru Doped ZnO photocatalysts to the degradation of emerging pollutants in wastewater**

G. Flores-Carrasco[1,2], M. Rodríguez-Peña[3], O. Milosevic[4], A. Urbieta[3], P. Fernández[3], M.E. Rabanal[1]
[1]Universidad Carlos III de Madrid & IAAB, Dept. of Materials Science and Engineering and Chemical Engineering, Avda. Universidad 30, 28911 Leganes, Madrid, Spain
[2]CIDS-ICUAP Benemérita Universidad Autónoma de Puebla, Av. San Claudio y 14 sur, Edif. 103C C.U., Col. San Manuel, Puebla 72570, México
[3]Departamento Física de Materiales, Fac. Ciencias Físicas, Universidad Complutense, Ciudad Universitaria, 280540 Madrid, Spain
[4]Institute of Technical Sciences of the Serbian Academy of Sciences and Arts, Knez Mihailova 35/IV, 11000 Belgrade, Serbia

11.35 - 12.00 **KN 6 Hydrothermal synthesis of the oxide powders**

Srecko Stopic, Bernd Friedrich
IME Process Metallurgy and Metal Recycling of the RWTH Aachen University, Germany

12.00 - 12.20 **INV-NOB 1 Dynamic tuning of quantum light emitted from atom-like defects in hexagonal boron nitride**

Snežana Lazić[1], Sergio Pinilla Yanguas[1], Carlos Gibaja[2], Pablo Ares[2], Félix Zamora[2] and Herko P. Van der Meulen[1]
[1]Departamento de Física de Materiales, Instituto "Nicolás Cabrera" and Instituto de Física de Materia Condensada (IFIMAC), UniversidadAutónoma de Madrid (UAM), 28049 Madrid, Spain
[2]Departamento de Química Inorgánica, UAM, 28049 Madrid, Spain

12.20 - 12.40 **INV-NOB 2 ZrO_2 Based Nanomaterials: Application in Photocatalysis**

Milica Carević, Tatjana Savić, Nadica Abazović and Mirjana Čomor
Vinča Institute of Nuclear Sciences, University of Belgrade, Belgrade, Serbia

12.40 - 13.00 **INV-NOB 3 Models and methods for testing the cells and tissues interactions with biomaterials**

Stevo Najman
University of Niš, Faculty of Medicine, Department of Biology and Human Genetics and Department for Cell and Tissue Engineering, 18000 Niš, Serbia

13.00 - 14.00 **Buffet Lunch** **Club SASA, Mezzanine**

Hall 2, 1st Floor

14.00 - 16.15 **Session: Magnetic Ceramic and Heritage, Art & Design**

Chairpersons: Snežana Lazić and Smilja Marković

14.00 - 14.30 **PL 11 Frequency and temperature dependent dielectric and magnetic properties of Manganese doped Cobalt ferrite nanoparticles**

F. A. Khan[1] and M. Z.Ahsan[2]
[1] Department of Physics, Bangladesh University of Engineering and Technology, Dhaka-1000, Bangladesh
[2] Department of Physics, Military Institute of Science and Technology Dhaka-1216, Bangladesh

14.30 - 14.55 **KN 7 New sustainable processing of RE-based magnetic materials**

Spomenka Kobe
Jožef Stefan Institute, Ljubljana, Slovenia

14.55 – 15.15 **INV-MC 1 How do preparation method and starch-encapsulation influence the magnetic properties of nanocrystalline cobalt ferrite?**

Ljubica Andjelković
Department of Chemistry, IChTM, University of Belgrade,
Studentski Trg 12-16, 11000, Belgrade

15.15- 15.30 **INV-MC 2 Ethyl cellulose based magnetic nanocomposite membranes**

Aleksandar Stajčić [1], Ivana Radović [2], Vladimir Dodevski[2],Vladan Ćosović[1], Jasna Stajić-Trošić[1], Miloš Vorkapić[1] and Dana Vasiljević-Radović[1]
[1]University of Belgrade, Institute of Chemistry, Technology and Metallurgy, Njegoševa 12, 11000 Belgrade, Serbia
[2]University of Belgrade, Vinca Institute of Nuclear Sciences, Laboratory for Materials Sciences, Mike Petrovića Alasa 12-14, P.O. Box 522, Belgrade 11000, Serbia

15.30 - 15.45 **ORL-HAD 1 Zlakusa hand-wheel pottery making as a cultural heritage and its protection**

Biljana Djordjević[1], Maja Milošević[2] and Mihovil Logar[2]
[1]National Museum in Belgrade, Serbia
[2]University of Belgrade, Faculty of Mining and Geology, Belgrade, Serbia

15.45 - 16.00 **ORL-HAD 2 Contextualizing the use of a ceramic vessel from Kostolac - Archaeoacoustic Analysis**

Dragan Novković[1], Aleksandra Nikolić[2], Zorana Đorđević[3]
[1] The School of Electrical and Computer Engineering of Applied Studies
[2] Central Institute for Conservation
[3] Institute for Multidisciplinary Research, University of Belgrade

16.00 - 16.15 **ORL-HAD 3 Interpretation of the Miniature Ceramic Artifacts**

Lidija Balj
Museum of Vojvodina, Dunavska 35, Novi Sad, Serbia

16.15 - 16.30	**Coffee Break**	**Hall, 1st Floor**

Club SASA, Mezzanine

16.30 - 18.00 **Poster Session**

Chairpersons: Suzana Filipović, Marina Vuković and Sandra Veljković

Wednesday, September, 25th, 2019

Hall 1, 1st Floor

09.30 - 11.00 **Session: Electrochemistry and Catalysis**

Chairpearsons: Predrag Banković

09.30 – 10.00 **PL 12 Ceramic-based catalysts as a sustainable solution for the challenges related to the critical raw materials (CRM)**

Zara Cherkezova-Zheleva
Institute of Catalysis, Bulgarian Academy of Sciences,
Acad. G. Bonchev St., Bldg. 11, 1113 Sofia, Bulgaria

10.00 - 10.15 **ORL- EC 1 Evaluation of the nickel state in Ni/BCY15 cermet - anode for proton conducting solid oxide fuel cell**

D. Nikolova[1], M. Gabrovska[1], E. Mladenova[2], D. Vladikova[2],
Y. Karakirova[1], Z. Stoynov[2]
[1]Institute of Catalysis, Bulgarian Academy of Sciences, Sofia, Bulgaria
[2]Acad. Evgeni Budevski Institute of Electrochemistry and Energy Systems,
Bulgarian Academy of Sciences, Sofia, Bulgaria

10.15 - 10.30 **ORL- EC 2 Bimetallic CuNi/BCY15 cermet anode for proton conducting solid oxide fuel cell**

M.Gabrovska[1], D. Nikolova[1], E. Mladenova[2], D. Vladikova[2], Z. Stoynov[2]
[1]Institute of Catalysis, Bulgarian Academy of Sciences,
Acad. G. Bonchev Str., Bldg. 11,1113 Sofia, Bulgaria
[2]Acad. Evgeni Budevski Institute of Electrochemistry and Energy Systems, Bulgarian Academy of Sciences, Acad. G. Bonchev Str., Bldg. 10, 1113 Sofia, Bulgaria

10.30 - 10.45 **ORL- EC 3 Cobalt impregnated natural and acid modified montmorillonite as catalysts in heterogeneous catalytic oxidation of nicotine in the presence of Oxone®**

I. Ilić[1], A. Milutinović-Nikolić[2], I. Gržetić[3], M. Ajduković[2],
B.Milovanović[4], T. Mudrinić[2], N. Jović-Jovičić[2]
[1]Institute of General and Physical Chemistry
Studentski trg 12/V, 11000 Belgrade, Serbia
[2]University of Belgrade - Institute of Chemistry, Technology and Metallurgy
Center for Catalysis and Chemical Engineering, Njegoševa 12, 11000 Belgrade, Serbia
[3]University of Belgrade – Faculty of Chemistry,
Studentski trg 12-16, 11000 Belgrade, Serbia
[4]Alumina ltd., Karakaj, 75400 Zvornik, Bosnia and Herzegovina

10.45 – 11.00 **ORL-EC 4 Calcium oxide on coal fly ash cancrinite-type zeolite as a catalyst for biodiesel production**

Stefan Pavlović, Predrag Banković, Dalibor Marinković, Miroslav Stanković
University of Belgrade, Institute of Chemistry, Technology, and Metallurgy, Njegoševa 12,
11001 Belgrade

11.00 - 11.15 **Coffee Break** **Hall, 1st Floor**

Hall 1, 1st Floor

11.15 - 12.35 **Session: Modeling &Simulation**

Chairpersons: Zara Cherkezova-Zheleva

11.15 - 11.40 **KN 9 Systematic investigation of grain aggregation induced by neck evolution under sintering conditions**

Zoran S. Nikolić
University of Niš, 18000 Niš, Univerzitetski trg 2, Serbia

11.40 - 12.00 **INV-MS 1 Theoretical and experimental study of multiferroics $BiFeO_3$ and $Bi_{(1-x)}Ho_xFeO_3$**

Maria Čebela[1,2], Pavla Šenjug[2], Filip Torić[2], Teodoro Klaser[2], Željko Skoko[2], Dejan Zagorac[1] and Damir Pajić[2]
[1] Institute for Nuclear sciences "Vinča", University of Belgrade, Serbia
[2]Department of Physics, Faculty of Science, University of Zagreb, Bijenička c. 32, HR-10000 Zagreb, Croatia

12.00 - 12.20 **INV- MS 2 Brownian fractal motion and energy effect on microorganism's fluctuation**

Goran Lazovic[1], Vojislav V. Mitic[2,3], Dusan Milosevic[2]
[1]Faculty of Mechanical Engineering University of Belgrade, Serbia
[2] Faculty of Electronic Engineering University Nis, Serbia
[3] Institute Technical Sciences of SASA, Belgrade, Serbia

12.20 - 12.35 **INV- MS 3 Graph theory applied to modeling and simulation of microstructure evolution in sintering**

Branislav M. Randjelović and Zoran S. Nikolić
University of Niš, Faculty of Electronic Engineering,
Aleksandra Medvedeva 14, 18000 Niš, Serbia

14.15 **Buffet Lunch** **Maxim 2**

Hall 2, 1st Floor

09.30 - 10.55 **Session: Glass & ElectroCeramics**

Chairpearsons: Spomenka Kobe

09.30 – 09.55 **KN 8 Alkali activation of waste materials: sustainability and innovation in processing traditional ceramics**

Bartolomeo Coppola, Paola Palmero, Jean-Marc Tulliani, Laura Montanaro
Politecnico di Torino, Department of Applied Science and Technology,
Corso Duca Degli Abruzzi, 24, Italy

09.55 - 10.15 **INV- GE 1 High sensitivity characterization of the nonlinear electric susceptibility of glasses and glass-ceramics in the microwave range**

Florian Bergmann[1], Martin Letz[1], Holger Maune[2], Gerhard Jakob[3]
[1] Schott AG, Mainz, Germany
[2] Technische Universität Darmstadt, Darmstadt, Germany
[3] Johannes Gutenberg Universität Mainz, Mainz, Germany

10.15 - 10.35 **INV-GE 2 The $BaTiO_3$ ferroelectric properties within the microscale fractal nature**

Vojislav V. Mitic [1,2], Goran Lazovic [3], Chun-An Lu [4], Vesna Paunovic [1], Sandra Veljkovic [1], Nathan Newman [5], Branislav Vlahovic [6]
[1]University of Nis, Faculty of Electronic Engineering, Nis, Serbia;
[2]Institute of Technical Sciences of SASA, Belgrade, Serbia;
[3]University of Belgrade, Faculty of Mechanical Engineering, Belgrade, Serbia
[4]Industrial Technology Research Institute, Taiwan
[5]Arizona State University, Chemical and Materials Engineering (MACME), USA
[6]North Carolina Central University, USA

10.35 - 10.55 **INV-GE 3 Synthesis, characterization and application of activated carbon materials obtained from biowaste**

Vladimir Dodevski[1], Bojan Janković[2], Ivana Radović[1], Milan Kragović[1], Marija Stojmenović[1]
[1]University of Belgrade, Institute of Nuclear Sciences "Vinča", Laboratory for Materials Sciences, Mike Petrovića Alasa 12-14, P.O. Box 522, 11001 Belgrade, Serbia
[2]University of Belgrade, Institute of Nuclear Sciences "Vinča", Department of Physical Chemistry, Mike Petrovića Alasa 12-14, P.O. Box 522, 11001 Belgrade, Serbia

11.00 - 11.15 **Coffee Break** **Hall, 1st Floor**

Hall 2, 1st Floor

11.15 - 12.20 **Session: Energy, Refractory, Cements**

Chairpersons: Bartolomeo Coppola

11.15 - 11.35 **INV-ERC 1 Processing of metal-ceramic composites by Spark Plasma Sintering: application to bulk composites and joining purposes**

Dina V. Dudina[1, 2, 3, 4*], Tomila M. Vidyuk[2,5], Michail A. Korchagin[2, 3], Maksim A. Esikov[1,3], Vyacheslav I. Mali[1], Alexander G. Anisimov[1]
[1] Lavrentyev Institute of Hydrodynamics SB RAS, Lavrentyev Ave. 15, Novosibirsk, 630090, Russia
[2] Institute of Solid State Chemistry and Mechanochemistry SB RAS, Kutateladze str. 18, Novosibirsk, 630128, Russia
[3] Novosibirsk State Technical University, K. Marx Ave. 20, Novosibirsk, 630073, Russia
[4] Novosibirsk State University, Pirogova str. 2, Novosibirsk, 630090, Russia
[5]Khristianovich Institute of Theoretical and Applied Mechanics SB RAS, Institutskaya str. 4/1, 630090 Novosibirsk, Russia

11.35 - 11.50 **ORL-ERC 1 Amidoxime-based Polymers for Extraction of Uranium from Seawater**

Sinisa Vuković
Deloitte AI Insights, 22 Adelaide St, Toronto ON M5H 0A9 Canada

11.50 - 12.05 **ORL-ERC 2 Synthesis and thermal phase evolution assessment of advanced Barium-Magnesium-Alumino-Silicate powders**

Mariano Casas-Luna[1], Simona Ravaszová[2], David Jech[1], Karel Dvorak[2], Ladislav Celko[1]
[1]Central European Institute of Technology - Brno University of Technology, Brno, Czech Republic
[2]Brno University of Technology, Faculty of Civil Engineering, Institute of Technology of Building Materials and Components, Brno, Czech Republic

12.05 - 12.20 **ORL- ERC 3 Dust particles in low-pressure hydrocarbon plasmas plasmas: mechanisms of formation and suppression of formation**

O. Stepanović
Harder Digital Sova d.o.o. Niš, Serbia

12.45 - 13.30 **Annual meeting of the Serbian Ceramic Society**

13.30 - 14.15 **American Ceramic Society Serbian Chapter Round Table**

14.15 **Buffet Lunch** **Maxim 2**

The complex dielectric permittivity reaches the lowest of 176.9 pF/m in the sample activated for 90 minutes and the highest of 918.07 pF/m in the sample activated for 180 min. This sample also shows the highest dissipation factor over the entire frequency band up to 500 MHz, reaching a maximum of 50% at a frequency of 431 MHz.

After the heating to 300 ^{0}C and subsequent cooling to room temperature, the most prominent increase in mass magnetization value of 95% shows the sample activated for 300 min.

P21
Cavitation demage morphology of glass-ceramics based on basalt

Marko Pavlović[1], Marina Dojčinović[1], Ljubiša Andrić[2],
Dragan Radulović[2], Zoran Čeganjac[3]

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Cavitation is a kind of wear and represents formation, growth and collaps of steam or vapor gas bubbles in a flowing fluid. Collaps of the bubble creates shock waves and micro–jet that are damaging materials in contact with the fluid that flows. It has been shown that the impact formed by collapsing cavitation bubbles cause damage and mass loss of the material, i.e., cavitation erosion. Basalt–based glass ceramics obtained by processes of melting, casting and thermal treatment of the basalt aggregate proved to be suitable for use in conditions of high cavitation loads. The experiment was conducted using an ultrasonic vibration method with stationary sample (ASTM G32 standard). A change in the sample mass in function of the cavitation time was monitored for the evaluation of cavitation resistance. The level of degradation of the sample surface was quantified using the image analysis. The change in the morphology of the sample surface with the test time was followed by scanning electron microscopy. Analyzing the progression of erosion samples of glass-ceramics, it can be concluded that the mass loss is small, for 120 min exposure is 3.53 mg, with a cavitation rate of 0.03 mg/min and total surface damage of the sample of 12%. This technical ceramics shows high resistance to the effect of the cavitation.

P22
The influence of DBD plasma treatment on the dielectric loss tangent and surface morphology of fibrous polymeric materials

Aleksandra M. Ivanovska[1], Mirjana M. Kostic[1], Slavica B. Maletic[2]
Andrijana A. Zekic[2], Koviljka A. Asanovic[1], Dragana D. Cerovic[2,3]

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The aim of this work was to investigate the influence of dielectric barrier discharge (DBD) plasma treatment during 30 and 60 seconds on the fibrous polymeric materials made of cotton, polyethylene terephthalate and polypropylene by recording the frequency dependence of the dielectric loss tangent. Furthermore, the changes in the sample surface morphology were observed using scanning electron microscopy (SEM). By comparing the frequency dependence of the dielectric loss tangent, the same trend