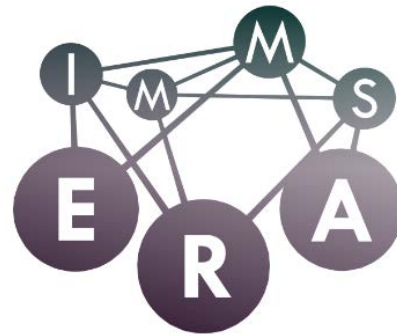


4<sup>th</sup> INTERNATIONAL MEETING  
ON  
MATERIALS SCIENCE  
FOR  
ENERGY RELATED APPLICATIONS



ONLINE MEETING  
*22-23 September 2021*

**CONFERENCE PROGRAMME**

## DAY 1 – September 22<sup>nd</sup>

10:00 – 10:15	Conference opening	
10:15 – 10:45	Plenary lecture 1 <b>Emerson Coy</b>	Photocatalytic applications of polydopamine based nanocomposites
<b>Break (10:45 – 11:00)</b>		
<b>Session 1 – Materials for electrochemical power sources</b>		
Chairperson: Nemanja Gavrilov		
11:00 – 11:15	<u>Konstantin A. Milakin</u> , Sonal Gupta, Ognjen Pop-Georgievski, Zuzana Morávková, Udit Acharya, Stefan Breitenbach, Christoph Unterweger, Patrycja Bober	Carbonized polypyrrole-gelatin cryogels for electrochemical storage applications
11:15 – 11:30	Marko Gloginjić, <u>Željko Mravik</u> , Danica Bajuk-Bogdanović, Andrzej Olejniczak, Vladimir A. Skuratov, Igor Pašti, Zoran Jovanović	Modification of surface oxygen groups of graphene oxide by ion beam irradiation for supercapacitor applications
11:30 – 11:45	<u>Dalibor Karačić</u> , Igor A. Pašti, Sanjin J. Gutić	Residual Manganese and Inert Electrolyte – Effects on the ORR activity of Electrochemically Reduced Graphene Oxides
11:45 – 12:00	Szilveszter Gábor Kéki, Milica Vasić, Milan Vranes, Biljana Šljukić, <u>Diogo M.F. Santos</u>	On the use of ionic liquids as electrolyte additives to enhance the performance of alkaline water electrolysis
12:00 – 12:15	<u>Stefan Breitenbach</u> , Christoph Unterweger, Christian Fürst, Achim Walter Hassel	Comparison of Different Activation Methods for the Preparation of Viscose-based Activated Carbon Fibers for Use as Supercapacitor Electrodes
<b>Break (12:15 – 12:30)</b>		
12:30 – 12:45	<u>Aleksandar Petričević</u> , Mila Krstajić Pajić, Piotr Zabinski, Uroš Lačnjevac, Nevenka Elezović, Vladimir Jović	Ultrathin Pt films electrodeposited on MAX phase substrate as cathodic catalysts in PEM fuel cells
12:45 – 13:00	Milena Pijović, Ivana Perović, Snežana Brković, Gvozden Tasić, Bojan Janković, <u>Nikola Zdolšek</u>	Boosting supercapacitor performances in acidic electrolyte using different chlorine salts

13:00 – 13:15	Stefan Breitenbach, <u>Nemanja Gavrilov</u> , Igor A. Pašti, Christoph Unterweger, Jiri Duchoslav, David Stifter, Achim Walter Hassel, Christian Fürst	Viscose fibers-derived carbons for electrochemical capacitors and selective oxygen reduction to peroxide in alkaline media
13:15 – 13:30	<u>Aleksandra Janošević Ležaić</u> , Jelena Rugar, Nemanja Gavrilov	ZnO/Carbon from biopolymer crosslinking as a supercapacitor material
13:30 – 13:45	<u>A. Balčiūnaitė</u> , F. Višnevskaja, J. Vaičiūnienė, L. Tamašauskaitė-Tamašiūnaitė, E. Norkus	Preparation of AuNiMo/Ti catalysts and investigation of their catalytic properties for borohydride oxidation

Break (13:45 – 15:00)

## Session 2 – Hydrogen energy and hydrogen storage materials

Chairperson: Biljana Šljukić Paunković

15:00 – 15:15	<u>Bojana Paskaš Mamula</u> , Igor Milanović, Bojana Kuzmanović, Nikola Biliškov, Nikola Novaković	Interaction of light alkali metals with ammonia borane: a theoretical study
15:15 – 15:30	<u>Katarina Batalović</u> , Jana Radaković, Bojana Paskaš Mamula	Data science and deep learning for the development of new hydrogen storage materials
15:30 – 15:45	<u>Ivana Perović</u> , Snežana Brković, Nikola Zdolšek, Gvozden Tasić, Mina Seović, Milena Pijović, Stefan Mitrović	Lowering the energy consumption for hydrogen production by using non noble catalyst in form of ionic activators
15:45 – 16:00	<u>Igor Milanović</u> , Nikola Biliškov	Solid State Mechanochemical Synthesis of Novel Bimetallic Amidoboranes
16:00 – 16:15	<u>Milos Baljovic</u> , Karl-Heinz Ernst	Interaction of hydrogen with phthalocyanine macrocycles for reversible storage

Break (16:15 – 16:30)

## Session 3 – Application of polymeric materials in the energy conversion and storage

Chairperson: Katarina Batalović

16:30 – 16:45	<u>J. Szewczyk</u> , M. Pochylski, K. Siuzdak, D. Aguilar-Ferrer, M. Kempniński, I. Iatsunskyi, J. Gapiński, E. Coy	2D-Like Polydopamine membranes from the Air/Water Interphase: towards the improvement of their morphological properties and successful transfer on multifunctional substrates
16:45 – 17:00	<u>Yusra Hambal</u> , Vladimir V. Shvartsman, Qiming M. Zhang, Doru C. Lupascu	Electrical energy storage capabilities of P(VDF-TrFE-CFE) relaxor polymers
17:00 – 17:15	<u>Andrea Špoljarić</u> , Nikolina Zekić, Marino Tropčić, Elvira Vidović	Modification of properties of PLA nanocomposites

**END OF DAY 1**

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## DAY 2 – September 23<sup>rd</sup>

10:00 – 10:30	Plenary lecture 2 <b>Milutin Smiljanić</b>	Novel supports for Pt nanocatalysts – enhanced electrocatalytic activity, selectivity and stability
<b>Break (10:30 – 10:45)</b>		
<b>Session 4 – Catalysis, electrocatalysis and photocatalysis in energy conversion and storage</b>		
Chairperson: Sanjin Gutić		
10:45 – 11:00	<u>Armin Hrnjić</u> , Ana-Rebeka Kamšek, Andraž Pavlišič, Franciso Ruiz-Zapeda, Matija Gatalo, Leonard Moriau, Primož Jovanovič, Nejc Hodnik	Investigation of Atomic Dissolution and Redeposition on Pt-Co/C Nanoparticles at Relevant Currents for Low-Temperature Proton Exchange Membrane Fuel Cells
11:00 – 11:15	<u>Marija Tomaš</u> , Paula Benjak, Ivana Grčić	Photocatalytic oxidation of ammonia on TiO <sub>2</sub> immobilized on rubber pads under artificial solar irradiation
11:15 – 11:30	<u>Paula Benjak</u> , Ivana Grčić, Marija Tomaš, Benjamin Radetić, Ivan Brnardić	Immobilization of titanium dioxide on a rubber pads for passive air and human health
11:30 – 11:45	<u>Klara Perović</u> , Hrvoje Kušić, Marin Kovačić, Ana Lončarić Božić, Marijana Kraljić Roković	Preliminary characterization investigation of TiO <sub>2</sub> -SnS <sub>2</sub> /GO-RGO nanocomposites for hydrogen generation
11:45 – 12:00	<u>M. Prokop</u> , T. Bystron, M. Paidar, K. Bouzek	Lifecycle of H <sub>3</sub> PO <sub>4</sub> dopant during high-temperature PEM fuel cell operation
<b>Break (12:00 – 12:15)</b>		
12:15 – 12:30	<u>Dušan Mladenović</u> , Elif Daş, Diogo M.F. Santos, Ayşe B. Yurtcan, Šćepan Miljanić, Biljana Šljukić	Simultaneously deposited PtM (M = Ni, Fe, Cu) on graphene nanoplatelet as bifunctional oxygen electrode catalysts
12:30 – 12:45	<u>Nataša Diklić</u> , Alexandra Beard, Adrian Heinritz, Tianyu Cen, Juan Herranz, Steffen Garbe, Thomas J. Schmidt	Breaking down the activity loss during O <sub>2</sub> -evolution stability tests on commercial IrO <sub>2</sub> -based catalysts

12:45 – 13:00	<u>Bojana Nedić Vasiljević</u> , Ana Dobrota, Igor Pašti	Application of Generalized Coordination Number as Platinum Dissolution Descriptor
13:00 – 13:15	<u>Laura Patricia Granda-Marulanda</u> , Ian McCrum, Federico Calle-Vallejo, Marc Koper	Affordable Density Functional Theory Simulation Methods for Electrocatalysis

**Break (13:15 – 14:30)**

## Session 5 – First Steps in Materials Science - Student's Pitch presentation section

Chairperson: Aleksandar Jovanović

14:30 – 14:45	<u>Doebner Von Tumacder</u> , Patrycja Bober	Electrosynthesized polypyrrole films in the presence of organic dyes
14:45 – 15:00	<u>Milena Nikodijević</u> , Čedomir Dimić, Ivana Petrović, Dragan Đorđević	Finishing of polyamide fabric with some boron compounds
15:00 – 15:15	<u>Udit Acharya</u> , Andrei Chernyshe, Jiří Zedník, Jiří Vohlídal, Jiří Pflieger	Electrochromic properties of iron (II) metallo-supramolecular polymers based on thieno[3,2-b]thiophene
15:15 – 15:30	<u>Lea Gašparič</u> , Anton Kokalj	DFT analysis of HER on titanium oxynitride and graphene supported Pt nanoparticles
15:30 – 15:45	<u>Lazar Bijelić</u> , Igor A. Pašti	A rhodium-exchanged nickel electrode as an alternative electrocatalyst for the hydrogen evolution reaction in alkaline media

**Break (15:45 – 16:00)**

## Session 6 – General

Chairperson: Ana Dobrota

16:00 – 16:15	<u>Massimiliano Banini</u> , Diogo M.F. Santos, Vítor Geraldes	Engineering the membrane separator of low-temperature liquid fuel cells
16:15 – 16:30	Gabrijela Radić, Margareta Postonjski, Klara Perović, Tayebah Sharifi, Hrvoje Kušić, <u>Marijana Kraljić Roković</u>	Electrochemical Characterisation of TiO <sub>2</sub> /SnS <sub>2</sub> Photoelectrode in the Presence of Pharmaceuticals
16:30 – 16:45	<u>Igor Pašti</u> , Tamara Lazarević-Pašti, Sanjin Gutić	Ultrasound and graphene oxide – something good and something bad

**END OF DAY 2 / END OF CONFERENCE**