

8<sup>th</sup> ISE SSRSE

8<sup>th</sup> ISE Satellite Student Regional Symposium on  
Electrochemistry

*May 25<sup>th</sup>, 2018., Ruđer Bošković Institute, Zagreb*

## Conference Report

Zagreb 2018.



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# **8<sup>th</sup> ISE SATELLITE STUDENT REGIONAL SYMPOSIUM ON ELECTROCHEMISTRY**

## **Conference Report**

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Meeting of the graduate/postgraduate students and post-doctoral researchers "8<sup>th</sup> ISE Satellite Student Regional Symposium on Electrochemistry" (8<sup>th</sup> ISE - SRSSE) was held on May 25<sup>th</sup>, 2018 at the Ruđer Bošković Institute, Zagreb, Croatia. ISE SSRSE is taking place successfully for the eight year in a row, and this year was held together with the 5<sup>th</sup> Day of Electrochemistry.

Young scientists, PhD students and graduate students were encouraged to present their research in the form of oral presentations. The meeting consisted of three sections with in total 21 oral presentations with participants from Croatia, Bosnia and Herzegovina, Serbia and Slovenia. The aim of the meeting was to create a platform of young scientists in Croatia and region by gathering, expanding their knowledge and creating network of young researchers in the field of electrochemistry.

8<sup>th</sup> ISE – SRSSE started with welcome by the chairs, Ana Cvitešić Kušan, PhD student from Ruđer Bošković Institute and Gabrijela Ljubek, PhD student from University of Zagreb, Faculty of Mining, Geology and Petroleum Engineering.



First section concerned synthesis and characterization of different materials for energy storage in applications. MSc Dalibor Karačić opened the session presenting the results of electrochemical reduction of graphene oxide in aqueous electrolytes in order to enhance capacitive properties of the material. MSc Magdalena Kralj presented her work which refers to hydrothermal microwave-assisted synthesis and electrochemical characterisation of graphene/SnO<sub>2</sub> composites. Following presentation was held by MSc Gabrijela Ljubek about influence of the surfactant concentration on incorporation of graphene oxide into poly(3,4 - ethylenedioxythiophen) layer.



*Dalibor Karačić (Faculty of Physical Chemistry, Serbia) Gabrijela Ljubek (Faculty of Mining, Geology and Petroleum Engineering, Croatia) and Magdalena Kralj (Faculty of Chemical Engineering and Technology, Croatia)*

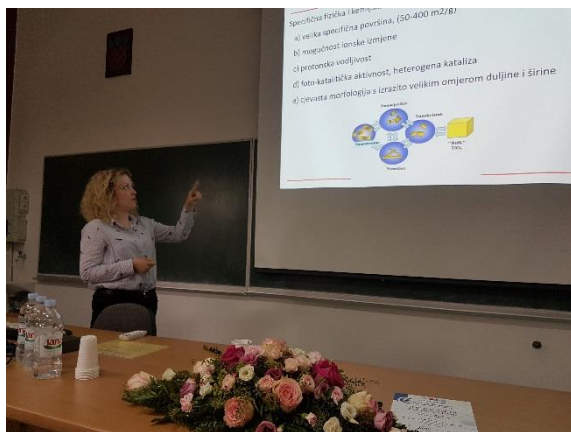
Second session was dedicated to the field of corrosion science. MSc Dajana Mikić opened the session presenting the results on the topic of corrosion protection of bronze by SAM of 16-phosphonohexadecanoic acid. Following presentation was held by graduate student Martina Mumelas about corrosion protection of copper with different benzimidazole derivatives.

Group of PhD students from National Institute of Chemistry, Slovenia, participated next in session with presentations about corrosion protection of aluminium and copper surfaces. MSc Damir Hamulić presented his study on the effect of hybrid coatings on Al Alloy AA7075. MSc Matic Poberžnik explained the attractive lateral interactions between oxygen atoms on aluminium surfaces using DFT method and MSc Dunja Gustinčić explained the adsorption of azoles on oxidised copper surface with the same DFT method.



*Damir Hamulić and Dunja Gustinčić (National Institute of Chemistry, Slovenia)*

MSc Ivana Zrinski presented her work on TiO<sub>2</sub> modified carbon paste electrodes which shows improved sensitivity and selectivity compared to pure carbon paste electrode. This electrode could be used for antioxidant detections in food. MSc Ivana Panžić prepared nanostructured titania thin-films using electrochemical anodization cell with Ti working electrode and Pt counter electrode, under 60 V voltage for 3 h in fluoride-based electrolytes of different compositions. She presented how electrochemical methods could be used for characterisation of electrolytes. MSc Tin Klačić presented his work: From single-crystal electrodes to surface complexation models. Following presentation was held by PhD Ivana Tomac about characterization of chlorogenic acids by electrochemical methods.



*Ivana Panžić and Lara Čižmek (Ruđer Bošković Institute, Croatia)*

Third session that covered analytical electrochemistry started after launch break with presentation of MSc Lara Čižmek concerning the electrochemical determination of total polyphenolic content and antioxidant activity in different plants. MSc Tatjana Mijošek and graduate student Lora Pereža presented their work on electrochemical determination of metallothionein levels in biota from the Krka river and aminosugar and protein in seawater.

MSc Jelena Dautović talked about long-term investigation of surface active substances in the Northern Adriatic. MSc Anđela Bačinić used cathodic stripping voltammetry method in order to determine cobalt-catechol complex and presented her results and future work on cobalt complexing with different organic ligands. MSc Saša Marcinek presented her work on segmented multi-detection window approach for organic speciation of trace metals and MSc Jasmin Pađan used voltammetry method in order to determine sub-pico-molar levels of platinum in the Krka river estuary. MSc Kristijan Vidović had very interesting presentation about electrochemistry as a tool for mechanistic studies: atmospheric aqueous-phase formation of nitroaromatic compounds. Last presentation about electrochemical evidence of mercapto-compounds in water soluble fraction of fine marine aerosols was held by MSc Ana Cvitešić Kušan.



*Kristijan Vidović (National Institute of Chemistry, Slovenia) and Ana Cvitešić Kušan (Ruđer Bošković Institute, Croatia)*

In the end, we would like to once again, to gratefully acknowledge the ISE sponsorship for the financial support given. The opportunity was provided for students and young researchers to gather, exchange their working experience in various fields of electrochemistry and make connections within Croatia and neighboring countries like Slovenia and Bosnia and



Herzegovina that may result in future collaboration making it pleasant and rewarding experience.



*Participants of 8<sup>th</sup> ISE – SSRSE and 5th Day of Electrochemistry. held on Ruđer Bošković Institute*

Ana Cvitešić Kušan

Ruđer Bošković Institute

Gabrijela Ljubek

University of Zagreb

"8<sup>th</sup> ISE Satellite Regional Symposium on Electrochemistry" (ISE - SRSSE) was organized under the patronage of the International Society of Electrochemistry (ISE).



Additional information on 8<sup>th</sup> ISE SSRSE can be found at website:

[https://www.hdki.hr/hdki/skupovi/dan\\_elektrokemije](https://www.hdki.hr/hdki/skupovi/dan_elektrokemije)



List of participants on 8<sup>th</sup> ISE Satellite Student Regional Symposium on Electrochemistry:

<b>1</b>	Dalibor Karačić	Electrochemical Control Of The Capacitive Properties Of Reduced Graphene Oxide In Aqueous Electrolytes
<b>2</b>	Magdalena Kralj	Preparation And Characterisation Of Supercapacitors Based On Graphene/Pseudocapacitive Materials
<b>3</b>	Gabrijela Ljubek	Influence Of The Surfactant Concentration On Incorporation Of Graphene Oxide Into Poly(3,4 -Ethylenedioxythiophen) Layer
<b>4</b>	Dajana Mikić	Various Preparation Methods Of Self-Assembled Monolayers Of 16-Phosphonohexadecanoic Acid On Bronze Surface
<b>5</b>	Martina Mumelaš	Benzimidazole Derivatives As Corrosion Inhibitors
<b>6</b>	Damir Hamulić	Electrochemical Characterization Of Hybrid Acrylate Coatings On Aluminium And Aluminium Alloys
<b>7</b>	Ivana Zrinski	Sensing Antioxidants On Tio <sub>2</sub> Modified Carbon Paste Electrode
<b>8</b>	Ivana Panžić	Electrolyte Composition As A Method To Control Morphology Of Anodized Titania Thin Films
<b>9</b>	Tin Klačić	From Single-Crystal Electrodes To Surface Complexation Models
<b>10</b>	Matic Poberžnik	Explanation Of Attractive Lateral Interactions Between Oxygen Adatoms On Aluminum Surfaces
<b>11</b>	Dunja Gustinčić	Density Functional Theory Study Of Plain Azole Molecules On Cu <sub>2</sub> O Model Of Oxidized Copper Surface
<b>12</b>	Ivana Tomac	Characterization Of Chlorogenic Acids Investigated By Some Electrochemical Methods
<b>13</b>	Lara Čižmek	Electrochemical Determination Of Total Polyphenolic Content And Antioxidant Activity Of Plants Immortelle, St. John's Wort, Yarrow And Chamomile
<b>14</b>	Tatjana Mijošek	Electrochemical Determination Of Metallothionein Levels By Brdička Method In Biota From The Krka River
<b>15</b>	Lora Pereža	Electrochemical Detection Of Aminosugar And Protein In Seawater
<b>16</b>	Jelena Dautović	Surface Active Substances In The Northern Adriatic: Long-Term Investigations
<b>17</b>	Anđela Bačinić	Determination Of Cobalt-Catechol Complex By Cathodic Stripping Voltammetry
<b>18</b>	Saša Marcinek	Segmented Multi-Detection Window Approach For Organic Speciation Of Trace Metals – A Model And Experimental Study In Estuarine System
<b>19</b>	Jasmin Pađan	Determination Of Sub-Pico-Molar Levels Of Platinum In The Krka River Estuary
<b>20</b>	Kristijan Vidović	Electrochemistry As A Tool For Mechanistic Studies: Atmospheric Aqueous-Phase Formation Of Nitroaromatic Compounds
<b>21</b>	Ana Cvitešić Kušan	Electrochemical Evidence Of Mercapto-Compounds In Water Soluble Fraction Of Fine Marine Aerosols