Report on the 5th International Symposium on Surface Imaging/Spectroscopy at the Solid/Liquid Interface (ISSIS2018)

The 5th International Symposium on Surface Imaging/Spectroscopy at the Solid/Liquid Interface (ISSIS), held on September 6th–8th, 2018 in Krakow (Poland) in the building of J. Haber Institute of Catalysis and Surface Chemistry, Polish Academy of Sciences (ICSC), was organized by Michał Mosiałek, Pawel Nowak, Grzegorz Mordarski, Robert P. Socha, Elżbieta Porębska, Małgorzata Zimowska (ICSC), Marian Jaskuła and Grzegorz Sulka (Faculty of Chemistry, Jagiellonian University (FCJU)). This symposium, dedicated to different aspects of *in situ* studies of electrified interfaces, gathered 77 scientists from 4 continents and 16 countries.

The conference was the fifth in series, following four meetings held under the same title, in 2006, 2009, 2012 and 2015. The conference was a forum for top-level scientists representing different fields: electrochemistry, surface science, plating, corrosion, electrocatalysis, nanomaterials, photovoltaic cells, fuel cells and secondary batteries, discussing both experimental and theoretical advances in interfacial solid/liquid chemistry.

Different aspects of investigations of the interfaces were presented in three plenary lectures: "Electrocatalysis in transition: from art to science" (J. Feliu, University of Alicante, Spain) "Application of spectroelectrochemistry to study of organic molecules and polymers for optoelectronics" (M. Łapkowski, Silesian University of Technology, Poland) and "Structure and reactivity of catalytic materials for electroreduction of carbon dioxide" (P. Kulesza, University of Warsaw, Poland). In total, the program included 3 plenary lectures, 18 invited lectures, 5 oral presentations, and 89 poster presentations. The international jury (prof. Tsirlina, prof. Kautek and prof. Simka) awarded four best poster presentations:

1st award Katarzyna E. Hnida (AGH University of Science and Technology, Academic Centre for Materials and Nanotechnology, Poland), Influence of pulse frequency on structure and morphology of InSb films obtained via electrodeposition,

2nd award Maria R. Ehrenburg (Frumkin Institute of Physical Chemistry and Electrochemistry, Russian Academy of Sciences, Russia), Electrodeposition of chromium on single-crystal electrodes from Cr(III) solutions in ionic liquids,

and two equal 3rd awards presented to:

Valentina Ljubic Tobisch (University of Vienna, Department of Physical Chemistry, Austria), Electrochemistry in heritage science: targeted cleaning of silver tarnish with an electrolytic pencil, ex quo with

Anna Pawlik (FCJU, Poland), Influence of modification of anodic nanoporous TiO_2 layers on their applications as potential drug delivery systems and scaffolds for cell culturing.

The conference presentations covered such areas as:

- diagnosis of the state of the electrode surface in situ and ex-situ by different spectroscopic, microscopic and electrochemical methods:

in-situ XRD, in situ XFAS, spectroelectrochemistry, in-situ PM-IRRAS, in situ STM, EIS, DRT-EIS, nanoscale EIS, SECM, NIBS-DLS, TERS, EPR, QCM-D, STM, SECM, XPS, confocal microscopy, cyclic voltammetry, adsorptive stripping voltammetry, potentiodynamic polarization;

- surface modification methods:

high-intensity laser pulses, plasma electrolytic oxidation, chemical and physical vapor deposition, sonication assisted liquid-phase exfoliation, voltage pulse detachment technique, anodic oxidation, pulsed electrodeposition, photoelectrocatalytic oxidation;

- preparation and investigation of new types of materials and coatings:

anodically grown nanoporous metal oxide layers, nanowires obtained by anodic oxidation, coatings for bio-compatible and bio-active materials, modified siloxane layers, electrodeposited metal layers.
- some important electrochemical processes and applications of electrochemistry:
oxygen reduction and new types of catalysts for this reaction, chloroform reduction, methanol oxidation and urea oxidation, supercapacitors, Li-ion and Na-air batteries, solid oxide fuel cells, electrochemistry in heritage science.

We would like to take this opportunity to express our gratitude to International Society of Electrochemistry for the auspice and financial support.

On behalf of the organizing committee,
Michał Mosiałek