

Foreword

On the request of Prof. Shi-Gang Sun, Editor-in-Chief of *Journal of Electrochemistry*, I served as the guest editor for this International Special Issue on Current Electrochemistry.

The *Journal of Electrochemistry* was founded in 1995 associated to the Chinese Chemical Society just before the 46th Annual meeting of the International Society of Electrochemistry (ISE). Prof. Zhao-Wu Tian was the founder of the journal and had been serving as the Editor-in-Chief until 2010. The journal is known for high quality scientific papers related to the electrochemical science, techniques and engineering, and is well-known in Electrochemistry Community in China. However, the journal is less distributed internationally, mainly due to the language barrier.

From 2010, the editorial office constructed a very professional editorial and online journal system, in both Chinese and English version. The English abstract section is significantly expanded so that the main points and progresses reported by the published papers could be understood by readers of the whole scientific community. To further promote the impact of the journal in the international electrochemistry field, we decided to organize this international special issue. We invited some internationally known electrochemists from either abroad or domestic, that have been studying, working in Xiamen University or have been collaborating with or visiting Xiamen University, a very dynamic electrochemistry center in China. This special issue contains 14 contributions from 6 countries and covers topics from interfacial electrochemistry, theoretical electrochemistry, electrochemical sensor, and electrochemical energy.

The understanding of interfacial behavior is vitally important to electrochemistry. Jacek Lipkowski and co-workers used polarization modulation infrared reflection absorption spectroscopy (PM-IR-

RAS) to *in situ* study the structure and orientation of a floating bilayer lipid membrane at a glucose modified Au(111) surface to mimics the natural environment of a biological membrane and confirmed existence of a water rich region between the bilayer and the gold electrode surface. Dongping Zhan and co-workers developed a new route to electrochemically synthesize functional materials at the liquid/liquid interface, using AgTCNQ as a model system. Juan Feliu and co-workers studied the Cu underpotential deposition on structure-defined stepped Pt surfaces to understand the initial deposition stages of copper.

The only paper dealing with theoretical electrochemistry was contributed by Jianwei Zhao and co-workers. They introduced a new and effective random walk simulation model for study of diffusion behavior of single particle within two-dimensional space.

Electrochemical sensor is a booming area in electrochemistry, especially boosted by adoption of nanotechnology. Richard G. Compton and co-workers reported a new sensitive, simple, and effective voltammetric method for the detection of ammonia in aqueous solution via the reaction with fluorescamine, with a limit of detection comparable with that for fluorometric method. Xinghua Xia and co-workers synthesized Graphene nanocomposites for high sensitive amperometric glucose sensing. Philip N. Bartlett and co-workers studied the detailed mechanism of H₂O₂ oxidation on mesoporous Rh electrodes, revealing the diffusion and reaction within porous electrodes.

Electrochemical energy is the hottest research topic in current electrochemistry. Sanping Jiang provided a concise review and outlook of materials and components that have used for SOFCs, and discussed the opportunities and challenges for the new generation of SOFCs technologies. Chuanjian

Zhong and co-workers reviewed their work on the ORR on ternary metal alloy nanoparticles prepared by molecularly-engineered synthesis and thermochemically-controlled processing, highlighting the importance of nanoscale tuning of structures and composition for the design of fuel cell catalysts. Shaowei Chen and co-workers reported a simple method to synthesize highly active cauliflower-like palladium nanocatalysts supported on carbon nanoparticles for formic acid oxidation. Hui Yang and co-workers synthesized a Pd/Ni bimetallic nanostructured electrocatalyst with an intrinsic high activity and durability for formic acid oxidation. Shouzhong Zou and co-workers reported an interesting electrochemical and in situ SERS study of electrooxidation of both solution and adsorbed CO under the influence of the adsorbed sulfur on polycrystalline Pt surface. Aicheng Chen and co-workers provided a mechanistic study of photoelectrochemical oxidation of lignin model compounds on TiO₂ nanotubes. Zheng Chen and co-workers' reported the novel application of screen printing techniques in the scale-up preparation of composite electrode coatings for supercapacitors.

Due to the page limit of one issue, we have to divide this special issue into two issues, issues 5 and 6. But the electronics version of the issue will be

published together online.

To promote the visibility of the paper in this issue, we request the authors to give a list of scientists that may be interested to their papers. We send the link of the special issue to all the included names.

I would like to thank all the authors for their contributions, and all the colleagues who took part in the peer-review process for their time and expertise. It is their effort to make this special issue truly historically high quality. I am sure this special issue will be the milestone issue in the 17 years history of the *Journal of Electrochemistry*.

I would finally acknowledge editorial support from Prof. Shi-Gang Sun (Editor-in-Chief), Dr. Chun-Feng Sun and Dr. Wei Yang during the preparation of this special issue.

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