

21st Topical Meeting

of the International Society of Electrochemistry

Photoelectrochemistry of semiconductors
at the nanoscale: from fundamental aspects
to practical applications

23-26 April 2017, Szeged, Hungary



Conference Report

The **21st Topical Meeting of the International Society of Electrochemistry** was hosted in the Hunguest Hotel Forrás, close to the downtown of Szeged, Hungary. The conference was co-organized by two ISE Divisions (Division 6 Molecular Electrochemistry and Division 7 Physical Electrochemistry) and the ISE Region Hungary. The topical focus was on the “Photoelectrochemistry of semiconductors at the nanoscale: from fundamental aspects to practical applications”, as reflected by the title. The aim of the meeting was to provide a common platform for researchers with interests in surface science, electroanalysis, bioelectrochemistry, photocatalysis, solar energy conversion and storage, and electrochemical materials science in general; thus making accelerated progress on understanding and exploiting light induced interactions at semiconductor interfaces. The meeting started on April 23rd (Sunday) afternoon and ended on the 26th (Wednesday). After the registration in the conference hotel, the opening ceremony took place. Five opening addresses were given:

- Csaba Visy, member of the Local Organizing Committee
- László Péter, ISE representative of Hungary, co-Chair of the Organizing Committee
- Katalin Nagy, Vice-Rector of the University of Szeged
- Krishnan Rajeshwar, co-Chair of the Organizing Committee
- Csaba Janáky, Secretary of the Organizing Committee

The speakers gave an overview on the aims and goals of the meeting, as well as some information about the host city and university. After the words of welcome, the first plenary talk was given by Prof. Akira Fujishima, one of the founding fathers of the research field. After the talk, the participants walked to the Town Hall of Szeged together, where the Welcome Reception took place. A welcome address was given by Dr. Ottó Berkesi, elected member of the City Council, which was followed by a dinner.



The conference hosted **4 keynote, 7 invited, and 51 contributed talks, as well as 68 posters (with approximately 150 participants in total)**. In addition to Prof. Fujishima, Prashant V. Kamat, Nathan S. Lewis, and Laurence M. Peter gave the keynote talks, to provide concise overviews of their recent research activities. The invited speakers were: Lionel Vayssieres (International Research Center for Renewable Energy, Xian Jiaotong University, China), Bunsho Ohtani (Hokkaido University, Japan), Wojciech Macyk (Jagiellonian University, Poland), Hyunwoong Park (Kyungpook National University, Korea), Pawel Kulesza (University of Warsaw, Poland), Wolfram Jaegermann (TU Darmstadt, Germany), Gerko Oskam (CINVESTAV-IPN, Mexico).

The talks and posters were divided into five themed symposia:

- **Symposium 1.** Synthesis of semiconductor electrodes (keywords: electrodeposition, light-assisted electrodeposition, electrophoretic deposition, photodeposition, nanostructures, nanowires, nanotubes, nanosheets)
- **Symposium 2.** Novel characterization tools (keywords: combined in situ electrochemical methods, surface photovoltage spectroscopy, IMPS/IMVS, DOS plot determination)
- **Symposium 3.** Emerging applications (keywords: photoelectrochemical cells, photocatalysts, flow-batteries, electrochromics, sensors, photonics, plasmonics)
- **Symposium 4.** New materials (keywords: organic lead halide perovskites, graphene based composites, 2D materials, organic semiconductors, MOFs)
- **Symposium 5.** Solar fuel generation (keywords: light absorber, hydrogen evolution, CO₂ reduction, co-catalyst, oxygen evolution, water splitting)

For more information on the technical highlights of the meeting please read the Energy Focus article published in ACS Energy Letters (C. Janáky and K. Rajeshwar: Current Trends in Semiconductor Photoelectrochemistry, *ACS Energy Lett.*, **2017**, 2 (6), pp 1425–1428).

The participants came from over 20 countries and from 5 continents. The following countries provided the most participants: Hungary, Poland, Republic of Korea, Taiwan, Germany, China, France, Japan, Netherlands, United Kingdom, Italy, Czech Republic, Spain, USA, Lithuania, Brazil, and Belgium.

A special lecture was given by Peter Dombi, head of Scientific Applications Division within the Extreme Light Infrastructure – Attosecond Light Pulses (ELI-ALPS) facility, which is currently being implemented in Szeged, Hungary, focusing on its particular relevance to future photoelectrochemical studies. Two groups from the conference participants took a guided tour in the facility and got first-hand information about ELI-ALPS. In addition, sightseeing tours were organized to explore the city of Szeged, and the Ópusztaszer National Historic Heritage Park.



Some of the gastronomic and cultural traditions of Hungary and the Szeged region was shown to the participants during the conference banquet. It was held in a traditional fish restaurant, also serving the obligatory Szeged style fish soup, and featuring folk music and dance.



Last but not least, we wish to thank all the participants who contributed to a very successful meeting, with a special thanks to the Local Organising Committee, the session chairs and the student helpers. Many thanks to Thierry Lenzin (ISE) and Péter Molnár (Hotel Forrás) who ensured the smooth planning and running of the meeting. Financial sponsorship from the sponsors below is gratefully acknowledged and we thank the exhibitors who participated in the meeting.

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