



## International Society of Electrochemistry

associated organization of IUPAC

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Dear friends, colleagues, and ISE members:

I am delighted to continue the tradition to circulate the yearly President's Newsletter and to bring you up-to-date with the activities of our Society during 2017, the first year of my term of office as ISE President.

I will devote specific paragraphs to the ISE Meetings, the elections of new officers, the Society's awards and fellowships, our journal *Electrochimica Acta* and the ISE membership. In this introduction, I just mention a few recent decisions taken by the Executive Committee. The ISE has established Guidelines on dealing with conflict of interests, similar to those of other scientific societies, which Officers, Representatives, Chairs and Members of Committees are expected to follow. Our Society has signed the San Francisco Declaration on Research Assessment. The Executive Committee urges the relevant committees to act in agreement with the principles of the Leiden Manifesto, not overrating metrics when they award prizes and recommend candidates for fellowship. The Executive Committee has asked the "Working Party for Diversity" to continue its activities. The aim of this Working Party, chaired by Tomokazu Matsue, is to consider issues of diversity within ISE and to recommend any steps that may be required to ensure equal opportunities for all ISE members.

### Scientific Meetings

This year's Topical Meetings were held in Buenos Aires, Argentina, on "Advances in Lithium and Hydrogen Electrochemical Systems for Energy Conversion and Storage", and in Szeged, Hungary, on "Electrochemistry at Modified Interfaces". The 68<sup>th</sup> Annual Meeting, "Electrochemistry without borders", was held in Providence, RI, USA. A Virtual Special Issues of *Electrochimica Acta* is being prepared for each meeting. In the following, I summarize the key points of the reports we received from the Organizing Committee Co-chairs, already published on the ISE website.

### Annual Meeting

The 68<sup>th</sup> Annual Meeting was held in Providence, the capital of the state of Rhode Island, and one of the oldest cities in the United States. The participants at the conference banquet, held in the Providence Biltmore Grand Ballroom, had a beautiful panoramic view of the city. The scientific theme of the meeting, "Electrochemistry without Borders", emphasizing the global character of the electrochemical community encompassed by the ISE, was found by many speakers to have a special meaning in view of current global conditions.

The conference was attended by 1082 participants, with roughly equal representation from North America, Asia, and Europe, and less numerous delegates from South America, Africa, and Australia. The meeting featured 5 plenary lectures, 48 keynotes, 698 oral presentations, 325 poster presentations, and 3 tutorials. Adam Heller delivered a plenary lecture entitled "Electrochemical Glucose Monitoring for Diabetes Management: Making the Monitoring Painless and Bloodless." Clare Grey spoke on "Recent Developments in the Application of In- and Ex-situ NMR Spectroscopy to Batteries and Supercapacitors." Krishnan Rajeshwar presented a lecture on "Photoelectrochemistry, Solid-State Chemistry, and Solar Fuels: A Nexus?". Hector Abruña, presented the *Electrochimica Acta* Gold Medal plenary lecture on "Operando Methods for the Study of Energy Materials." The final

plenary lecture on “Reactivity Descriptors of MN<sub>x</sub> Catalysts for the Oxygen Reduction Reaction” was provided by José Zagal. Frédéric Jaouen delivered a tutorial on “Platinum group metal free catalysts”. Shawn Kelley and Erik Scott provided tutorial lectures on “Biomedical applications of electrochemical systems”. Robert Hillman, Editor in Chief of *Electrochimica Acta* presented a workshop for authors and reviewers.

A special symposium on “Education for Electrochemistry and Electrochemical Engineering,” was co-sponsored by the Electrochemical Society (ECS). The ISE and ECS have entered into a project in which specific symposia are jointly sponsored. After the Providence meeting, the 69<sup>th</sup> ISE Annual Meeting in Bologna, Italy, 2-7 September 2018, will feature a jointly sponsored symposium on “Theory: from Understanding to Optimization and Prediction,” and the 2019 ECS Meeting in Dallas, Texas will feature a jointly sponsored symposium on “Imaging and Detecting Electrochemistry at the Nanoscale.”

### Topical Meetings

The 20<sup>th</sup> Topical Meeting was held in Buenos Aires, Argentina, at the auditoria of the Pontifical Catholic University, on 19-22 March 2017. It was organized by Divisions 3 “Electrochemical Energy Conversion and Storage”, Division 4 “Electrochemical Material Science” and the ISE Regional Section Argentina.

During the opening ceremony, the co-chairs highlighted the potentialities of Argentina in the field of production of clean and renewable energies, and the ISE Vice-president Plamen Atanassov described the objectives and activities of the Society. The speech of Dr. Miguel Angel Blesa, from the Ministry of Science and Technology of Argentina, one of the main sponsors of the meeting, closed the ceremony.

The scientific activities were organized in two parallel sessions, dealing with lithium batteries and hydrogen fuel cell systems, respectively. In the former session, keynote lectures were presented by Kristina Edström, Sweden, and Doron Aurbach, Israel, in the latter by Sanjeev Mukerjee, USA, and Edson Ticianelli, Brazil. The scientific program included invited lectures presented by Alejandro Franco, France, Silvia Bodoardo, Italy, Nuria García-Aráez, UK, Brett Lucht, USA, Robert Dominko, Slovenia, Dario Dekel, Israel, Simon Thiele, Germany, Sara Cavaliere, France, Andreas Friedrich, Germany, Stanko Brankovic, USA, and José Zagal, Chile, and was completed by 86 oral and 88 poster presentations. The poster sessions were accompanied by Argentine wines and traditional empanadas. The four Poster Prizes, offered by Divisions 3 and 4 were awarded to Analía Natali Arias, Giulio Ferraresi, Mariela Lescano and Sirlane Gomes da Silva.

The meeting, sponsored by the National Research Council (CONICET), the Ministry of Science Technology and Productive Innovation (MINCYT) and YTEC Tecnología, was attended by 203 delegates coming from 30 countries, and by 9 exhibitors. The traditional conference banquet was held on Tuesday evening at Piazzolla Tango, a historical theater in downtown Buenos Aires. The dinner was followed by a tango show offered by a traditional tango sextet of musicians and six tango couples.

The 21<sup>st</sup> Topical Meeting “Photoelectrochemistry of semiconductors at the nanoscale: from fundamental aspects to practical applications” took place on 23-26 April 2017 in the Hunguest Hotel Forrás, Szeged, Hungary. It was organized by Division 6 “Molecular Electrochemistry”, Division 7 “Physical Electrochemistry” and the ISE Regional Section Hungary.

During the opening ceremony, five opening addresses were given by 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 and Csaba Janáky, Secretary of the Organizing Committee.

The first plenary talk was given by Prof. Akira Fujishima. Then the delegates walked to the Town Hall of Szeged, where the Welcome Reception took place. The conference hosted 4 keynote, 7 invited, and 51 contributed talks, as well as 68 posters. Prashant Kamat, Nathan Lewis, and Laurence Peter gave the keynote talks, to provide concise overviews of their recent research activities. A special

lecture was given by Peter Dombi, head of Scientific Applications Division within the Extreme Light Infrastructure – Attosecond Light Pulses (ELI-ALPS) facility

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

The 150 participants came from over 20 countries and from 5 continents. They had a chance to experience some of the gastronomic and cultural traditions of Hungary and the Szeged region.

For these successful meetings, I gratefully thank all public and private institutions which provided financial support, the co-chairs of the Organizing Committees, Mark Orazem, Plamen Atanassov and Sanjeev Mukerjee (Providence), Agustin Bolzan and Ezequiel Leiva (Buenos Aires), László Péter and Krishnan Rajeshwar (Szeged), their co-workers and the student helpers who assisted the delegates. None of these successful meetings would have been possible without the dedicated effort and competence of the staff of the ISE Office, Thierry Lenzin, Kathleen Vionnet and Gil Bourgeois.

The ISE meetings for 2018 promise to maintain the high scientific and organizational standard that have become customary for our Society. Our program includes:

- 15-18 April 2018, Tokyo, Japan, 22<sup>nd</sup> Topical Meeting "Materials Engineering and Process Optimization at Electrified Solid/Liquid Interfaces"
- 8-11 May 2018, Vilnius, Lithuania, 23<sup>rd</sup> Topical Meeting, "Electrochemistry for Investigation of Biological Objects: from Functional Nanomaterials to Micro/Nano-Electrodes"
- 2-7 September 2018, Bologna, Italy, 69<sup>th</sup> Annual Meeting "Electrochemistry from Knowledge to Innovation".

Detailed information is available in the web sites of each meeting, easily accessible from the ISE homepage.

### Sponsored Meetings

ISE has sponsored 31 meetings held in 2017, in various continents. Financial support was offered by the ISE Divisions or by the Executive Committee. When requested, ISE publicized the sponsored meetings through personalized messages to its members. An exhaustive list is available on the website of the Society (<http://www.ise-online.org/ise-sponsoring/past-sponsored.php>).

### **Fellows**

Six new ISE Fellows were appointed in 2017 in recognition of their outstanding scientific achievements. They are Martin Bazant, Mario Ferreira, Maria Forsyth, Angela Molina, Emanuel Peled, José Manuel Pingarron. I congratulate each one of them. I am glad that two female Fellows could be appointed. This is just a start, because I know that many of our female colleagues deserve to join the ranks of ISE Fellows. Numerous nominations for ISE Fellow were submitted during the last few weeks and are presently being examined by the Fellows Nominating Committee.

### **Awards**

Twelve ISE Prizes were awarded in 2017 and announced in Providence. Among them, the Zhaowu Tian Prize for Energy Electrochemistry, created thanks to a donation made by Chinese scientists, was awarded for the first time.

- The Frumkin Memorial Medal was awarded to Doron Aurbach, Bar-Ilan University, Ramat Gan, Israel, for his many and great achievements across fundamental aspects of

electrochemistry for more than 35 years, especially in the area of batteries, where he is the founder of the field of rechargeable Mg batteries.

- The ISE-Elsevier Prize for Experimental Electrochemistry was awarded to Patrick Unwin, University of Warwick, UK, for his experimental contributions to the understanding of interfacial dynamics.
- The Katsumi Niki Prize for Bioelectrochemistry was awarded to Justin Gooding, University of New South Wales, Sydney, Australia, for his creative and truly innovative contributions in areas of bioelectrochemistry such as peptide-based electrodes, DNA biosensors, "wiring" of enzymes to electrodes, antifouling coatings, disposable electrodes with low detection limits of hyphenated methods for detecting cell response to therapeutics.
- The Alexander Kuznetsov Prize for Theoretical Electrochemistry was awarded to Michael Eikerling in recognition of his groundbreaking work on modelling polymer electrolyte/proton exchange fuel cells with an emphasis on water management, transport, and electrocatalysis.
- The Jaroslav Heyrovsky Prize for Molecular Electrochemistry was awarded to Armando Gennaro, University of Padova, Italy, in recognition of his outstanding contributions to molecular electrochemistry ranging from the very fundamentals of electron transfer mechanisms to the development of electrosynthetic processes.
- The Tajima Prize was awarded to Xile Hu, Ecole Polytechnique Fédérale de Lausanne, Switzerland, for his outstanding researches on catalysts composed of earth-abundant elements for chemical transformations of relevance to synthesis, energy, and sustainability.
- The Zhaowu Tian Prize for Energy Electrochemistry was awarded to Xiangfeng Duan, UCLA, Los Angeles, CA, USA for his studies that opened a new direction of materials science by rational design and synthesis of novel nanostructured materials.
- The ISE Prize for Electrochemical Materials Science was awarded to Csaba Janáky, Hungarian Academy of Sciences, for his contributions in the synthesis and characterization of solar conversion and storage hybrid devices, as well as the understanding and implementation of novel photoelectrosynthetic processes.
- The ISE-Elsevier Prize for Green Electrochemistry was awarded to Abdoulaye Thiam, Universidad Tecnológica Metropolitana, Santiago, Chile, for his work on Electrochemical Advanced Oxidation Processes, in particular the development of the electro-Fenton process.
- The ISE-Elsevier Prize for Applied Electrochemistry was awarded to Federico Bella, Politecnico di Torino, Italy, for his outstanding achievements in the field of solar cells and batteries.
- The Early Career Analytical Electrochemistry Prize of ISE Division 1 was awarded to Kristina Tschulik, Ruhr-University Bochum, Germany, in recognition of her excellent work applying electrochemistry for the physical and chemical characterization of nanostructures and in particular single nanoparticles.
- The De Nora Foundation Young Author Prize was awarded to Jilei Liu, Nanyang Technological University, Singapore, author of the article "Electrocatalytically Active Graphene supported M<sub>2</sub>Mo Carbides (M=Ni, Co) for Oxygen Reduction Reaction", *Electrochimica Acta* 2016, 216, 246-252.

Nominations and applications for the ISE Prizes 2018 are invited and must be submitted to the ISE Office between February 1<sup>st</sup> and May 1<sup>st</sup>, 2018.

Three *Electrochimica Acta* Travel Awards for Young Electrochemists, sponsored by Elsevier, and seven ISE Travel Awards, aimed at encouraging the participation of young scientists in the 68<sup>th</sup> ISE Annual Meeting, were awarded to Federico Bella, Dominic Bresser, Veronica Celorrio, Nadim Darwish, Ruud Kortlever, Jilei Liu, Ross Milton, Sergi Garcia-Segura, Hwa Yoon, Aleksandar Zeradjanin.

Similar Travel Awards will be made in 2018, to enable young researchers to participate in the 69<sup>th</sup> Annual Meeting, in Bologna, Italy.

There have been no changes in the Board of Editors of *Electrochimica Acta*, during the past 12 months. It includes Robert Hillman, Editor-in-Chief, Sergio Trasatti, Special Issues Editor, and twelve Editors: Philippe Allongue, Gary Attard, Nick Birbilis, Aicheng Chen, Elena Ferapontova, Laurence Hardwick, Robert Kostecki, Rüdiger Kötz, Pawel Kulesza, Tomokazu Matsue, Sotiris Sotiropoulos, and Shi-Gang Sun.

The Impact Factor of the Society journal for 2016 has been 4.798, almost identical to that of the previous year, 4.803 for 2015, and significantly larger than in other recent years, 4.504 for 2014 and 4.086 for 2013. In terms of Eigenfactors, a metric that takes into account the total number of citations (representing the scale and scope of the journal) and the quality of the journals in which those citations appear, *Electrochimica Acta* had a better score than two of the three journals that had higher IF values. These results confirm the strength of *Electrochimica Acta* among electrochemical journals.

### **Executive Committee**

Elections were held, May-June 2017, to renew some positions in the Executive Committee. In the period 2018-2020, Alison Downard and Deborah Jones will serve as Vice Presidents and Tim Albrecht will serve as Secretary General. I am glad to welcome them and I am sure that they will greatly contribute to the future activities of our Society. The terms of service of Plamen Atanassov, Katharina Krischer and Manuela Rueda ended on 31 December 2017. I am very grateful to them for their excellent service to the Society and their always friendly and constructive attitude.

The elections of the President Elect (2019-2020) and of a Vice President (2019-2021) will take place during the spring 2018. The candidates will be selected by a Nominating Committee chaired by myself and comprising Christian Amatore, immediate Past President, Hiroshi Nishihara, appointed by the Executive Committee, Sabine Szunerits and Fred Lisdat, appointed by the Council.

### **Divisions**

The composition of the boards that run the ISE Divisions during the term 2017-2018 may be found on the ISE website (<http://www.ise-online.org/ise-committees/div-officers.php>). These boards will choose the candidates to the position of Division Chair Elect for the term of service 2019-2020, before the end of June 2018. The divisional elections will take place during the autumn. The Division Officers, with the cooperation of their members, continue to play a central role in the life of the Society, by promoting scientific activities in their respective fields, preparing and implementing the scientific programs of the symposia of meetings of the Society, and organising divisional activities at Annual Meetings.

### **Regional Sections**

In the calendar year 2017, the ISE had 44 recognized Regional Sections. The reports on the activities of most Regional Sections are available on the website of the Society ([http://www.ise-online.org/ise-committees/RRreports/RR\\_Reports\\_2017.pdf](http://www.ise-online.org/ise-committees/RRreports/RR_Reports_2017.pdf)).

Elections of Regional Representatives for the term 2018-2020 were held in various Regions. E. Slavcheva (Bulgaria), M. Kraljic Rokovic (Croatia) and E.M. Ungureanu (Romania) were re-elected for a second term. E. Leiva (Argentina), D. Silvester (Australia-New Zealand), F. Lima (Brazil), J. Rossmesl (Denmark), U. Krever (Germany), F. González Bravo (Mexico), A. Viana (Portugal) and H. Teng (Taiwan) will each serve their first term in 2018-2020.

I wish to thank the former Regional Representatives for their activities on behalf of ISE and to congratulate the new ones on their election. Their active participation in the life of the Society, especially in recruiting new members and in maintaining and strengthening the links between the ISE and the local electrochemical communities, is of primary importance.

### **Committees**

The term of Petr Krtil as member of the Scientific Meetings Committee (SMC) ended on 31<sup>st</sup> December 2017. Nadine Pébère will replace him and will serve on the SMC for 3 years (2018-2020). Wei-nien Su will chair the SMC in 2018, the final year of his term.

In the Fellows Nominating Committee (FNC), Robert Savinell was appointed to replace Alan Bond, whose ordinary five-year term ended on 31<sup>st</sup> December 2017. Takashi Kakiuchi will chair the committee in 2018. I wish to thank Petr and Alan, for their numerous valuable contributions to the activity of the ISE committees, Nadine and Robert, for agreeing to serve.

The Executive Committee has appointed Susana Cordoba, Sao Paulo, Brazil, Luigi Falciola, Milano, Italy, Martin Jonsson-Niedziolka, Warsaw, Poland and Bin Ren, Xiamen, China, as members of the Publications Committee, chaired by Christopher Brett, Coimbra, Portugal. The main task of the Publications Committee will be advising the Executive Committee concerning ISE presence and visibility on social media and communications with the membership.

The activity of the "Working Party for Diversity" chaired by Tomokazu Matsue and comprising Shelley Minter and Elena Ferapontova, will be continued. Stimulating nominations of female candidates to ISE awards and ISE Fellowship will be one of their main tasks.

### **Membership**

After reaching an historical maximum of 3918 members in 2016, the ISE membership has slightly declined in 2017 to 3774. This number is higher than those of all years before 2016, e.g. 3537 members in 2015, 3544 members in 2014, 3587 members in 2013). The stabilization of ISE membership in a range that could hardly be imagined only 10 years ago proves the appreciation of the international electrochemical community for ISE activities. Europe accounts for more than 50% of the members. The Annual Meeting in Providence and the Topical Meeting in Buenos Aires have enhanced the ISE membership in the Americas (ca. 18%), which is again close to that in Asia (ca. 24%).

The membership fees for 2018 have been maintained at the 2017 level, i.e. 50 € for ordinary members and 15 € for young and emeritus members.

At the end of my first year of service as President of the Society, I am happy with ISE performance and confident that it will further improve in the near future. This will be possible only thanks to the contribution of new officers, meeting organizers, symposium organizers and other dedicated members who ensure continuity in the life of our Society. I look forward to meeting you all at ISE meetings during the coming year, in Tokyo, Vilnius and Bologna. I wish you all a successful and happy New Year!

Sincerely,



Philip N. Bartlett  
ISE President 2017-2018  
Southampton, December 31<sup>st</sup>, 2017