

**Report on the 70th Annual Meeting of the International Society of
Electrochemistry, Durban, South Africa
4 – 9 August 2019**

The 70th Annual Meeting of the International Society of Electrochemistry was held for the first time on the African continent in Durban, South Africa.

City: Durban

(eThekweni in Zulu, meaning “bay/lagoon”) is the largest city in the South African Province of KwaZulu-Natal and holds a unique place in South Africa’s history. Archaeological findings from scenic Drakensberg mountains suggest that the Durban area has been inhabited by communities of hunter-gatherers since at least 100,000 BC. A melting pot of culture, Durban, with its famed Golden Mile of beachfront offered delegates a gateway into one of the cultural and environmental hotspots of South Africa. Visitors were spoilt by a selection of day trips and longer visits into sweeping mountainous terrain, with the Valley of a 1000 hills being one of the more popular cultural and scenic day tours selected by delegates.

Venue

The Inkosi Albert Luthuli International Convention Centre (aka Durban ICC) offered world class facilities and excellent local cuisine in South Africa’s first International Convention Centre, opened in 1997 by Nobel Laureate and former president of the country, President Nelson Rolihlala Mandela. The venue comfortably housed 11 parallel sessions over the week of the conference. A truly electrifying performance by the Amazebra Youth Organisation dancers wowed delegates at the Opening Ceremony on Sunday 4th August in the Main Auditorium. The Durban beachfront provided the perfect backdrop for the conference dinner, held in true African style in the themed Moyo restaurant, providing lucky ticket holders with selections of African cuisine entertained by Zulu dancing and delicate African-themed face painting.

Theme

The theme of the 70th ISE Annual Meeting, “*Electrochemistry: Linking Resources to Sustainable Development*” aimed to reflect the increasing importance of electrochemistry in promoting human development (through science, engineering, technology and innovation) and, most importantly, value-adding to Africa’s abundant human and natural resources (mineral resources, solar energy, etc) to achieve sustainable development on the continent. Twenty one symposia were hosted at the 70th ISE Annual Meeting, with several carefully curated symposia reflecting both the theme and the focus on sustainability, paying homage to South Africa’s leadership in precious metals mining and refining and recognising the need for new approaches in developing diagnostic sensors of relevance to developing nations. These included Symposium 1: *Recent Trends in Electroanalysis and Low-Cost Electrochemical Sensors*, Symposium 5: *Gold and Related Noble Metals in Electroanalysis, Electrocatalysis, and Electrochemical Devices*; and Symposium 12: “*Electrochemical Technology for Water and the Environment for Social, Health and Economic Development*”, amongst others.

Tutorials

Delegates could select from two tutorials which were given on Sunday 4th August. The first, Computational Electrochemistry, was delivered by Marc Koper, *Leiden*

University, Alexander Oleinick, *Ecole Normale Supérieure* and Wolfgang Schmickler, *Ulm University*. The second tutorial on offer, Electrochemical Sensors, was given by Emmanuel Iwuoha, *University of the Western Cape, South Africa*, Daniel Mandler, *Hebrew University of Jerusalem, Israel* and David Williams, *University of Auckland, New Zealand*. Robert Hillman, Editor-in-Chief of *Electrochimica Acta* presented a well-attended workshop which was tailored, this year, to provide young researchers and students with helpful insight into the publishing process and the drafting of successful papers.

Plenary Lectures

Six plenary lectures were delivered at the 70th ISE Annual Meeting. *Electrochimica Acta* Gold Medallist Juan M Feliu (*University of Alicante, Spain*) delivered the first plenary lecture on Sunday 4th August entitled: "Well-defined Pt(hkl) solution interfaces: charge, ionic adsorption and acid-base properties". On Monday, 5th August, Nobel Laureate Sir Fraser Stoddart (*Northwestern University, USA*) delivered a plenary lecture on "Radical Chemistry". Professor Tebello Nyokong (*Rhodes University, South Africa*), delivered the third plenary on Tuesday, 6th August in a talk entitled: "Methods of electrode surface modification using porphyrin-type molecules combined with nanomaterials". Professor Peter G. Bruce (*University of Oxford, UK*) delivered his plenary entitled: "Oxygen Redox Electrochemistry - The Future of Lithium Batteries on Wednesday, 7th August. Wolfgang Schuhmann (*Ruhr University Bochum, Germany*) delivered a plenary on: "From bioelectrocatalysis to electrocatalysis. A contribution to sustainability of energy provision" on Thursday 8th August, followed by Peidong Yang (*University of California, USA*) in the final conference plenary entitled: "Liquid Sunlight: the evolution of Photosynthetic Biohybrid Systems".

Masterclasses

This year, for the first time, a series of lectures, called Masterclasses, were held each day of the conference and comprised carefully selected presentations delivered in a classroom style format. The aim of the Masterclasses was to provide both schooling and insight into current and newer directions in electrochemistry, and was aimed at both students and young researchers. The Masterclass lectures received overwhelmingly positive reviews in terms of content and concept.

Participation

In terms of numbers, the Durban event welcomed 853 number of delegates from 58 countries, the top 5 in terms of attendance being: South Africa at 203, Germany at 98, China at 79, Japan at 52 and France at 44. Twenty one Symposia; 6 Plenary lectures; 59 Keynotes; 75 Invited Oral; 367 Oral and 351 Posters were smoothly delivered during the 70th ISE meeting.

Pre-and post-satellite meetings

As part of the 70th ISE Annual Meeting, two successful satellite meetings, co-sponsored by the ISE, were held. The pre-satellite meeting, themed "*Energy storage and Industry 4.0: Challenges and Prospects*" (*ENSTIN 2019*)" took place at the KwaMaritane Bush lodge, Pilanesberg National Park (North West Province) from 31st July to 2nd August 2019. The post-satellite meeting, which is the 5th International Symposium on Electrochemistry with the theme "*Electrochemistry at Nanostructured*

interfaces” took place at the University of the Western Cape, Cape Town from 11th to 14th August 2019.

Appreciation

The conference Chair, Co-Chairs and Local organising committee would like to acknowledge in particular Prof ZQ Tian, President of the International Society of Electrochemistry. He brought a unique signature to the annual meeting of the ISE, leading the drive to host the highly successful MasterClasses lecture series at the Durban ISE. His successful fund-raising through donors supported the travel and accommodation of many key speakers. Our appreciation is extended to our plenary and tutorial speakers for outstanding presentations. We acknowledge with gratitude Thierry Lenzin and Raphael Berger representing the ISE Conference Organization, for their support and logistics in delivering a highly professional conference experience. We extend a vote of thanks to all student helpers who allowed events to run smoothly over the week of the conference.

We further acknowledge the conference main sponsors, the South African National Convention Bureau, Tourism Kwazulu-Natal and the Durban Kwazulu-Natal Convention Bureau. Successful fund-raising through the South African National Research Foundation and sponsorships courtesy of Bio-Logic, Scribner and Ametek supported the attendance of many South African and African students and presenters. Their contributions are gratefully acknowledged. We also thank our Symposium organisers, Local and International Organising Committees and the ISE Executive Committee for their support in curating an excellent conference programme. Finally we extend our appreciation to all who attended the 70th ISE meeting in South Africa. Ngiyabonga. Thank you.

Kenneth Ozoemena, Janice Limson & Mkhulu K. Mathe

Chair and Co-Chairs: Organizing Committee of the 70th ISE Annual Meeting