No. 1 September 2015

NEWSLETTER

Serving Electrochemical Science, Technology and Engineering within the catchment of

The Royal Society of Chemistry
and
The Society of Chemical Industry

ROYAL SOCIETY OF CHEMISTRY | ELECTROCHEMISTRY GROUP

SCI Where science meets business
an environment to advance knowledge exchange

Contents

Editorial

Welcome to the new issue! I have inherited the job of editor of the Newsletter from Frank Marken who has done an excellent job of keeping us all well informed of some of the most important events within the electrochemical community (http://www.bath.ac.uk/chemistry/contacts/academics/frank_marken/). This issue in 2015 is slightly late but I hope to restore the regular appearance of the three issues per year in the near future. I intent to keep a similar format as developed by Jay Wadhawan who started the pdf online version but if anyone has comments and ideas please do send them to (capla@soton.ac.uk).

This newsletter comes just before the **Electrochem 2015** conference takes place in historic Durham city, at Durham University (http://www.electrochem2015.co.uk/). This meeting promises to be an exciting opportunity for everyone to meet again and interchange experiences and share their findings with the electrochemical community, especially to inspire PhD students, for whom the **Electrochem** meetings is an excellent opportunity to network.

This issue includes an interview with Prof David Williams, recipient of the Castner Medal this year and a reflexion from Prof Robert Dryfe as he completed his term as Chairman of the Electrochemistry Group.

As usual, several conference reports held in 2015 are included together with information on conferences and highlights of recent publications. The electrochemical calendar and new product information is included. I welcome any feedback and suggestions or contributions from readers for future issues.

Carlos Ponce de León

If you wish to notify the editor with your view on the material or the content of any item in this issue, or if you wish to contribute to the newsletter, please write to the Editor-in-Chief (Carlos Ponce-de-León, Faculty of Engineering and the Environment University of Southampton) at:

capla@soton.ac.uk

Missed a copy? You can catch up on all the news *via* our web-space hosted by the Royal Society of Chemistry at the following URL.
http://www.rsc.org/Membership/Networking/InterestGroups/Electrochemistry/news.asp

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ELECTROCHEM 2015 CONFERENCE

"MOLECULAR MATERIALS IN ELECTROCHEMISTRY"

DURHAM UNIVERSITY

SUNDAY 13TH - TUESDAY 15TH SEPTEMBER 2015

A MEETING OF SCIENCE AND INDUSTRY

RSC | Advancing the Chemical Sciences

SCI

Durham University

Newcastle University

TOPICAL HIGHLIGHTS

NANOELECTROCHEMISTRY
Convenors: B. Horrocks /K. Coleman

ELECTROANALYSIS AND ELECTROCHEMICAL MEASUREMENTS
Convenors: J. Wadhawan / R. Compton

ELECTROCHEMISTRY AT SOFT INTERFACES
Convenor: R. Dryfe

FUNDAMENTAL ELECTROCHEMISTRY
Convenors: F. Marken / P. Bartlett

ENERGY PRODUCTION AND STORAGE
Convenors: N. Rees / D. Brett/ M. Mamlouk

ELECTROCHEMICAL PROCESSES , SYSTEMS AND MATERIALS
Convenors: S. Roy/ P. Fielden /J.Hart

CORROSION SYMPOSIUM
Convenor: J. Wharton

AWARD LECTURES
Faraday Medal 2015
Sheelagh Campbell Award
Fleischmann Lectureship

LOCATION
Durham is located between Manchester, London and Edinburgh with good access via railway or via Newcastle airport.

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Interview:

Castner Medal Interview

The Castner Medal will be awarded to at the Electrochem 2015 meeting in Durham, 13-15 September 2015.

David Williams developed his research career in electrochemistry and chemical sensors at the UK Atomic Energy Research Establishment, Harwell, in the 1980s. He became Thomas Graham Professor of Chemistry at University College London in 1991, and co-founded Capteur Sensors Ltd. He was Head of the Chemistry Department at UCL from 1999-2002, and co-founded Aeroqual Ltd. From 2002-2005, David was Chief Scientist at Inverness Medical Innovations, based at Unipath Ltd in Bedford.

David joined the faculty of the Chemistry Department at the University of Auckland in February 2006. He is a Principal Investigator and Deputy Director in the MacDiarmid Institute for Advanced Materials and Nanotechnology (NZ), and an Associate Investigator of the Maurice Wilkins Centre of Biodiscovery, and of the Centre for Medical Technology.

David is an Adjunct Professor at Dublin City University (Eire), where he was a Principal Investigator in the Biomedical Diagnostics Institute. He is a Visiting Professor at University College London, where he retains strong research links. He is also a Visiting Professor at the University of Southampton. In the past, David has been Visiting Professor at the University of Toronto and Cranfield Institute of Technology. He is an Honorary Professor of the Royal Institution of Great Britain.

David has published over 200 scientific papers in international journals, and is inventor on around 40 patents.

Prior to his invited lecture at **Electrochem 2015**, Professor David E Williams answered some questions related to his successful career in electrochemistry:

1) What sparked your interest in science?
When I was 10yr old, we moved house and I met a boy who lived up the street who had a wonderful chemistry set. It was an eye-opener. I learnt that, at that time, small boys could go to the pharmacist or local grocery store and buy things like sulphur, Conde's Crystals (potassium permanganate) or Spirits of Salts (concentrated hydrochloric acid!) that had very interesting properties. The transformations were just fascinating - smells, bangs, colours and fizzing. I was just hooked and wanted to learn what was behind all this. Then, at high school, I was really fortunate in having chemistry and physics teachers who let me have the run of the laboratory after school hours and who guided and encouraged my curiosity.

2) ...and in electrochemical technology?
That came at university in Auckland – an inspirational teacher, Graham Wright, whose students now lead electrochemistry labs all around the world.

3) What keeps you interested?
I have fun all the time in my work. I enjoy seeing aspects of my work turn into products that are useful and helpful – that people want to make and buy. I enjoy the constant intellectual challenge and I enjoy having ideas and seeing them through to a finished piece of work.

4) What do you think are the main challenges in this area?
Electrochemistry is everywhere and there is no lack of big questions to tackle, from energy storage and supply, through to questions about energy transduction in living systems. Electrochemical materials science is one example – e.g. finding electrocatalysts that are stable under highly oxidising conditions.

5) If you had not pursued a career in this field, what would you have done?
Probably engineering.

6) What has been the highlight of your career to date?
Seeing my work on chemical sensors going all the way from basic science to successful commercial products and being able to jump between academia and industry to achieve this.

7) Would you have done anything differently?
I've had a lot of failures along the way and wandered down a few byways, but in the end I think that I learned from these.

8) What advice would you give to someone at the start of their careers to achieve a similar level of success as you?
Be thoroughly grounded in the basics so you can build up an understanding of a new area from first principles, and be open-minded: when opportunity knocks it might be wearing shabby jeans and a grubby tee-shirt. And, obviously, you have to

be prepared to work pretty hard and grind through the boring stuff when you need to, and learn when to stop and try something different.

9) What is your next goal?

I have a couple of projects that I would like to see come through to a commercial reality: dense networks of low-cost air quality instruments; and devices to measure markers in milk, from every cow on a farm at every milking, to improve animal management and well-being.
I also have a really fun collaboration trying to build functional nanostructures using proteins as the building blocks: seeing a way through to some neat device would be a real blast.

10) You have been invited to deliver SCI's Castner Medal lecture at Electrochem 2015. What can attendees expect from your lecture?

I hope, a sense of great fun doing good science that has application.

Dr Pauline M Allen
Chair, SCI ECTG

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Reflections

In 2014, I completed my "tour of duty" as Chair of the RSC Electrochemistry interest group committee. It has been an interesting and enjoyable experience, I thought I should use the Newsletter to reflect upon it. The first point is that electrochemistry in the UK, and Ireland, appears to be in good health. The membership of the group has grown from approximately 400, three or four years ago, to around 700 now, according to statistics I received from the RSC. Leaving aside the "cheap" observation, that the growth is clearly due to the strategic vision of the committee members....., the real reason is more likely to be the renewed interest in electrochemistry – most notably in the context of energy conversion/storage – that has permeated many aspects of science and technology over the past few years. Over the summer, I did try to glean some more from the growth statistics via the RSC staff – were they genuine (as a sceptical scientist)? And, if real, was the growth in numbers driven more by industry or academia? However I didn't get very far, so I will leave this as a task for my successor.

Another measure of the health of the group is through the vigour of the conferences it organises, and in this respect again, the signs are good. We have supported, usually, four one-day "regional" meetings as a forum for student talks – generally London/SE, Midlands, "Great Western" and North-West. The only plea here would be for others to step up to the plate to organise meetings in the areas not covered by the above list – the group will meet the costs, so money is no excuse! I was quite concerned about the annual "Electrochem" meeting a few years ago: there were a couple of conferences where attendances were poor and the whole meeting generally felt tired. However, recent conferences have changed my opinion entirely – Frank Marken did an excellent job for Electrochem 2011 (Bath), the meeting at which I formally took over from Andy Mount as chair. The subsequent meetings at Trinity College Dublin (2012, organised by Mike Lyons), Southampton (2013, organised by Carlos Ponce de León Albarrán) and Loughborough (2014, organised by Upul Wijayantha) have been uniformly excellent: well organised with a stimulating scientific programme, so I would like to record my thanks to each of the above-named organisers.

Given the increased prominence of electrochemistry, it is only right that it should have a higher profile both in undergraduate and school curricula. To this end, it is actually very interesting to teach electrochemistry to a sixth form class, something I had the opportunity to do on a bright spring day in 2013. On the day in question, I made the short train trip from Manchester to Bolton, to be met by Dr Kristy Turner, who teaches Chemistry at Bolton School (Boys' Division). Kristy is heavily involved with the RSC, and has a particular interest in the School-University transition, having spent the academic year 2011-12 as an RSC Teacher Fellow within my own department. Kristy encouraged members of the Manchester academic staff to "have a go" at taking one of her A level classes, the result being

my train journey to Bolton to explain the delights of the Daniell cell to the Bolton School cohort. The lesson brought home how little one can sensibly cover, given that the students also made cells and were introduced to the experimental delights of equilibrium electrochemistry, in a school lesson. I was pleasantly surprised by the depth of electrochemical material in the A level curriculum (Kristy's school follows the AQA syllabus), although I did find an over-reliance on students learning cell conventions/nomenclature over understanding of what an electrochemical cell actually is.

A more recent conversation with Kristy has revealed that all Chemistry A level students will have to do an electrochemical practical (e.g. the Daniell cell) with the introduction of the new syllabus in 2015, although this material will fall in the "A2" part of the course, so it will be needed from Autumn 2016. Given that very few schools/colleges currently offer electrochemistry practical work, since it has not been a curricular requirement, there is a fairly urgent demand to spread electrochemical expertise out to teachers over the next 12 months or so. It would be good if the Electrochemistry group, along with relevant divisions (e.g. Education) of the RSC could support the development of appropriate practical exercises for teachers, which would be capable of interesting the next generation of students in electrochemistry.

Finally, I would like to say that it has been a privilege to serve the electrochemical community. The group committee has consisted of a great bunch of people over the past three years, and I would particularly like to express my gratitude to the Secretary (Upul Wijayantha), Treasurer (Katherine Holt) and Newsletter Editor (Frank Marken, a.k.a. the Messiah, given his reincarnation in this role) for all their hard work over this period. Lastly, I wish Tim Albrecht well as the incoming Chair – and I hope that the group continues to flourish.

Rob Dryfe
Leaving Chair RSC
Electrochemistry group

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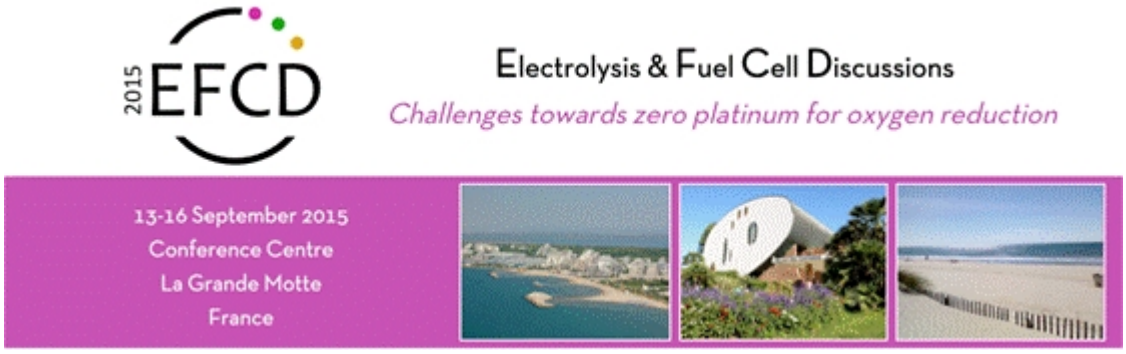
More Meetings:



Challenges Towards Zero Platinum for Oxygen Reduction

International Conference starts 9 days from now, 13th-16th September 2015

Conference programme
On-line registration
Exhibition opportunities

Conference dedicated to the preparation and characterisation of ultra-low platinum loading and non-platinum group metal catalysts and MEAs, including:

- **Cathode catalysts** for PEMFC and AEMFC
- **Non-PGM catalysts**

More Meetings:

EU FP7 project

New **Co**ncept of Metal-Air **B**attery for **Aut**omotive Application Based on Advanced Nanomaterials

FINAL WORKSHOP

28 September 2015,
Faculty of Sciences, module 8, second floor, lecture theatre 202
Universidad Autónoma de Madrid, Spain

Programme

14:00 **Welcome and introduction to NECOBAUT project**
Alberto Garcia
TECNALIA, Spain.

14:25 **Evaluation of noble and cost-effective materials for the air electrode of metal-air batteries**
Vincenzo Baglio, Cinthia Alegre, E. Modica, Antonino S. Aricò
CNR-ITAE, Italy.

14:50 **Carbon Materials for Energy Storage and Conversions**
Flavio Mornaghini
Imerys Graphite & Carbon, Switzerland.

15:15 **Preparation of the gas diffusion air electrode and iron-air cell design**
Rachel McKerracher, Horacio Figueredo, Carlos Ponce de Leon
University of Southampton, United Kingdom.

15:40 **Development of Ecodesign Batteries**
Miguel Sierra
Técnicas Reunidas S.A., Spain.

16:05 Break

16:20 **Bifunctional oxygen and air electrodes development for metal air and metal oxygen batteries**
Gunder Karlsson
SiteTel Sweden AB, Sweden.

17:10 **Batteries for transport applications**
José Maria Carrasco
SAFT Baterías, S.L., Spain.

17:35 **Risk involved in the operation of batteries and iron-air battery**
Amandine Lecocq, Ghislain Binotto
INERIS, France.

18:00 **Concluding remarks and end of the workshop**

More Meetings:

Russian Academy of Sciences
Division of Chemistry and Material Sciences
Federal Agency for Scientific Organizations
A.N. Frumkin Institute of Physical Chemistry and Electrochemistry
M.V. Lomonosov Moscow State University
Department of Chemistry
D.I. Mendeleev University of Chemical Technology of Russia

10th International Frumkin Symposium on Electrochemistry

First Circular

Moscow
21-23 October 2015

Scope of the Symposium

Microsymposium 1
Fundamental Aspects of Electrochemistry
Organizers: V.A. Safonov (Chair, safon@elch.chem.msu.ru), A.I. Danilov, Yu.D. Gamburg, I.G. Medvedev (all from Russia).
- modeling of electrochemical processes;
- kinetics and mechanisms of electrochemical processes;
- structure of electrified interfaces;
- new experimental and theoretical approaches to study electrochemical systems.

Microsymposium 2
Electrochemistry of Functional Materials
Organizers: M.A. Vorotyntsev (Chair, mivo2010@yandex.com), V.V. Malev, O.A. Petrii, A.V. Vannikov (all from Russia)
- electrochemical and redox synthesis of functional inorganic, organic, polymeric and composite materials;
- characterization of functional materials via combination of electrochemical and other methods;
- theoretical modeling of functional materials;
- promising functional materials for electrocatalysis, energetics, sensors, membranes, micro-, nano- and optoelectronics.

Microsymposium 3
Electrochemical Energetics
Organizers: T.L. Kulova (Chair, tkulova@mail.ru), V.S. Kolosnitsin, A.B. Yaroslavtsev, Yu.P. Zaikov (all from Russia), A.P. Kurbatov (Kazakhstan)
- kinetics and mechanism of processes in batteries, supercapacitors, fuel cells and electrolysers.
- applications of new electrode and electrolyte materials for batteries, supercapacitors, fuel cells and electrolysers.
- high temperature electrochemical devices.
- new investigation techniques of electrochemical devices.
- degradation and aging modes of materials and electrochemical devices.

Microsymposium 4
(Bio)electrocatalysis: from biosensors to biofuel cells.
Organizers: A.A. Karyakin (Chair, Russia, aak@analyt.chem.msu.ru), P. Atanassov (USA), A. Kuhn (France), S. Shleev (Sweden), W. Shin (Korea).
- electrochemistry of biological systems: theoretical approaches and experimental strategies;
- fundamentals of electrocatalysis and bioelectrocatalysis;
- biosensors: from environmental monitoring to health care;
- enzyme, organelle, and microorganism based fuel cells: from energy harvesting to implantable biodevices.

Microsymposium 5
Bioelectrochemistry
Organizers: Yu. A. Chizmadzhev (Chair), O.V. Batishchev (olegbati@mail.ru), Yu.A. Ermakov (all from Russia), P. Pohl (Austria), J. Zimmerberg (USA)
- protein-lipid and polymer-lipid interactions
- membranes in electric field. electroporation.
- nerve impulse propagation and excitable media
- ion transport along and across the membrane
- thermodynamics, electrostatics and mechanics of membranes.

Microsymposium 6
Scientific relations between Electrochemists from Western and Eastern Europe: past and future
Organizers: F. Scholz (Chair, Germany, fscholz@uni-greifswald.de), R. Compton (UK), G. Inzelt (Hungary), Yu.V. Pleskov (Russia)
- This microsymposium is focused on the history and future prospects of scientific relations between electrochemists in Western and Eastern Europe.

Symposium format
The Symposium includes plenary lectures, keynote, oral and poster presentations.

Official language
Official language of the Symposium is English.

Organizing and Program Committee

Chairman – **A.Yu. Tsivadse**
Vice-Chairmen – **V.N. Andreev, B.M. Grafov**
Scientific Secretaries – A.A. Nekrasov, G.M. Kornacheva

Yu.A. Chizmadzhev	A.D. Davydov
V.V. Emets	V.A. Grinberg
A.A. Karyakin	A.L. Klyuev
T.L. Kulova	Yu.I. Kuznetsov
V.V. Lunin	V.A. Safonov
A.M. Skundin	M.R. Tarasevich
A.V. Vannikov	M.A. Vorotyntsev

International Advisory Board

H.-J. Apell (Germany)	P. Atanassov (USA)
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A. Kuhn (France)	P.J. Kulesza (Poland)
L. Mir (France)	V.A. Petrosyan (Russia)
B.I. Podlovchenko (Russia)	P. Pohl (Austria)
F. Scholz (Germany)	V.P. Stepanov (Russia)
N.V. Smirnova (Russia)	J. Vondrák (Czech Republic
V.I. Zabolotsky (Russia)	J. Zimmerberg (USA)

Invited plenary speakers (confirmed)

C. Amatore (Paris, France)
D. Aurbach (Bar Ilan, Israel)
R. Compton (Oxford, UK)
J. Ulstrup (Lyngby, Denmark)
J. Zimmerberg (Bethesda, USA)

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More Meetings:

66th Annual Meeting International Society of Electrochemistry 2015
4 - 9 October, Taipei, **Taiwan**
http://annual66.ise-online.org/

18th ISE Topical Meeting 2016
8 - 11 March, Gwangju, **Korea**
http://topical18.ise-online.org/

19th ISE Topical Meeting 17- 20 April, Auckland, **New Zealand**
http://topical19.ise-online.org/

67th Annual Meeting 21 - 26 August, The Hague,
The Netherlands:
http://annual67.ise-online.org/

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Meetings:

The 6th Baltic Electrochemistry Conference
Helsinki, Finland 15th to 17th June 2016

Topics include:

a) Ionic liquids
b) Electrochemical energy conversion and storage
c) Medical applications
d) Nanoscale electrochemistry
e) Functionalized electrodes and sensors
f) Electrodeposition and redox replacement
g) Novel techniques in electrochemistry
h) Liquid|liquid interfaces
i) Transport processes
j) Theoretical and computational electrochemistry

Important dates

Deadline for abstract submission:	31st January 2016
Early-bird registration	31st March 2016
Final registration	15th April 2016

For more information baltic2016@aalto.fi

More information at:

http://chemistry.aalto.fi/en/current/6th_electrochemistry_meeting/

http://www.rsc.org/events/detail/18680/6th-baltic-electrochemistry-conference-electrochemistry-of-functional-interfaces-and-materials

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Meetings Reports (International):

20th International Conference on Solid State Ionics, Keystone, Colorado, United States, June 14th-19th

With the support of the RSC Electrochemistry Group travel bursary, I was able to attend my first international conference, with the Rocky Mountains as its backdrop, in the form of SSI-20, a biennial gathering for research in solid state ionics.

Upon arrival at the conference in Keystone resort, 100 km west of Denver, Colorado, an afternoon of tutorial sessions for early-stage PhD students (myself being one of these) was held which consisted of four lectures on the technical aspects underlying the science represented at the conference: impedance spectroscopy, defect chemistry, electrochemistry of batteries and an introduction to atomistic modelling. This served as a good warm-up for what was to follow in the many symposia covering the breadth and depth of solid state ionics science.

As a new-to-the-field Li battery materials-chemist, my research interests were well catered for by the number of battery related discussions- it was in Monday afternoon's session on Solid Electrolytes that I presented a paper for the first time with a talk on *Revealing Lithium Conduction Pathways in Lithium-Rich Garnets using Aliovalent Dopants*. This session provoked much discussion throughout as well as after the talks had finished, with the role of aluminium in this family of lithium-conducting materials under much contention. I was struck by how much interest has been generated by these materials in the search for a safe, stable and highly conducting electrolyte for use in battery technologies.

My attention, however, was not constrained to the battery sessions. The conference provided me with an excellent opportunity to broaden my awareness of research activities in different but related disciplines. I particularly enjoyed some of the *Fundamentals of Transport and Reactivity and Nanoionics* presentations, as these dealt with more fundamental questions which could be applied to a number of systems. An exciting example is the use of modelling to try to answer experimental problems and predict physical phenomena, as demonstrated in an elegant talk by Lixin Sun of Bilge Yildiz's group at MIT - which made a clear argument for her atomic simulation studies of the mobility characteristics of ions along dislocation sites in metal oxides.

To serve as a midweek break, Wednesday afternoon was allocated for delegates to spend as they wished; the breath-taking landscape and glorious sunshine meant that a trip to the top of one of the mountains was due. A group of us took the gondola to its peak (still covered in patches by the winter's snow) and hiked back down. This was followed by the conference banquet, with a twist! Held in a riding stable, this relaxed ranch-style barbeque gave the opportunity to mingle and share ideas as well as the chance to learn to lasso as the sun set over the mountains.

The mountain gondola (top left); the view from the top (top right and below)

A final highlight was Friday's plenary by John B. Goodenough, credited with identifying and developing the cathode material Li_xCoO_2 used for today's rechargeable lithium batteries. He drew on his lifetime's work in the field of solid state physics and energy materials to discuss his thoughts on energy storage, whilst suggesting interesting directions for future generations, including recent work in his Texas lab on amorphous proton-conducting materials. This was an uplifting talk to end on, after a conference in which I was able to share my work and ideas with others, receive guidance and advice regarding my research, and expand my knowledge of other exciting and important research within the broad field of solid state ionics.

Thank you to the RSC Electrochemistry Group for your support, which made this experience possible.

Rowena Brugge
Department of Materials
Imperial College London

Meetings Reports (International):

Conference Report

4th International Conference on Bio-Sensing Technology 2015, 10-13 May 2015, Lisbon, Portugal

The "4th International Conference on Bio-Sensing Technology 2015" was attended by prestigious international researchers as well as many companies' delegates in the biosensors field.

There were about 300 posters presented and over 40 talks delivered by researchers from academia and industry. My poster, entitled "Multi-mode electrochemical biosensing for kinase drug discovery applications using ferrocene crowned nanoparticles", includes part of my 3rd year work which is also been recently published on the scientific journal "Electrochemistry Communications".

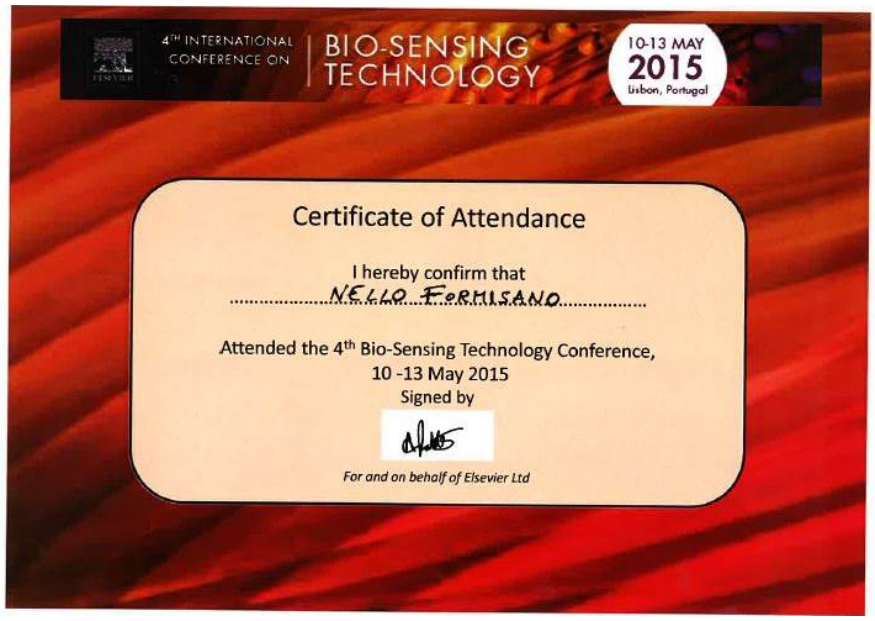
The 3-day programme was organized into themed sessions with oral talks, workshops, industrial exhibitions and poster sessions. My study, supervised by Dr Pedro Estrela, aimed to support new drug discovery by developing an effective and integrated electrochemical/optical system that can screen inhibitors of kinase. To be more specific, I developed a biosensor to detect kinase mediated phosphorylation of proteins where the activity of novel inhibitors of kinases can be observed. Therefore, the conference was of great interest to my research.

My poster attracted attention from other researchers and fruitful discussions and exchange of ideas with people from the international scientific community gave me inspiration for improvements, future works and collaborations. In terms of topics brought from other researchers, I found the invited talks and some posters truly inspiring and these provided me the opportunity to be informed on the latest advancements in the biosensor technology for a wide range of applications in medicine, disease detection, drug discovery and environment pollutants detection as well as on the discovery of new biomarkers, new technologies, real applications and case studies. In particular I found very interesting a study that integrates both a therapeutic and diagnostic system used for replacing and/or repairing damages at the spinal cord by use of stem cells and subsequent monitoring of the follow-up. This study was conducted by researchers of the University of Algarve (Portugal). I also found very interesting a study on protein biomarker detection based on the changes of the electrical charge by using field-effect transistors. This was particularly important for me as I am currently developing a new biosensor that exploits a very similar technology although it has some significant differences. However, I found the system that we are developing here in Bath rather smarter and more efficient compared to the one seen at the conference. This boosted my excitement and expectations about my work. It gave me hope for publishing my work on a top journal of the field.

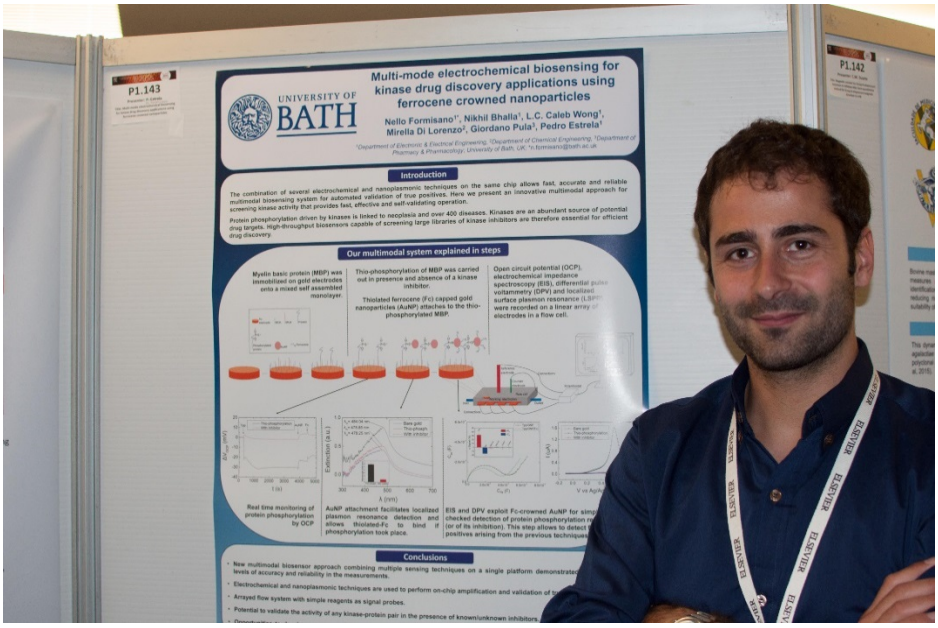
In general, I am very glad I had the opportunity to attend the conference. It also helped to further understand the great potential of parts of my project. Moreover, I had the opportunity to meet and make contacts with many research groups and companies related to my field, which I could exploit in the next month for job hunting. I sincerely thank the RSC Electrochemistry Group for allowing me to economically sustain this trip which has been an important leg for my academic study and professional growth.

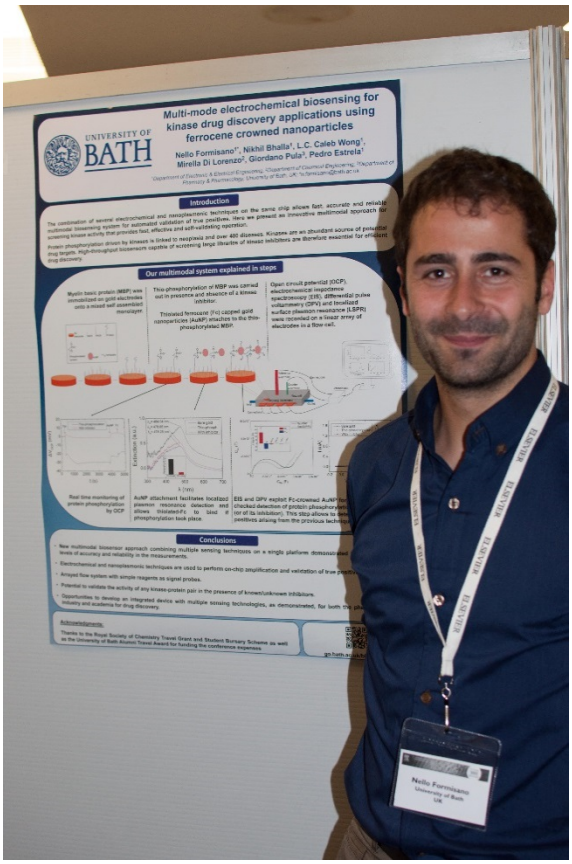
Nello Formisano
University of Bath

Certificate of attendance



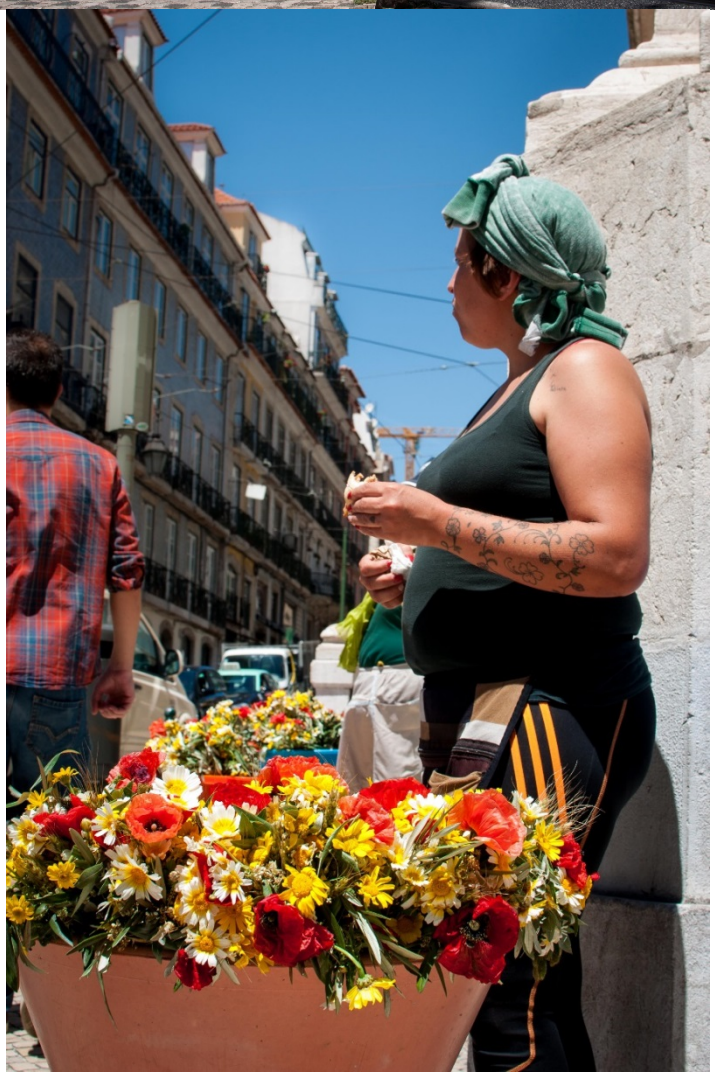
Pictures of Nello Formisano at the conference

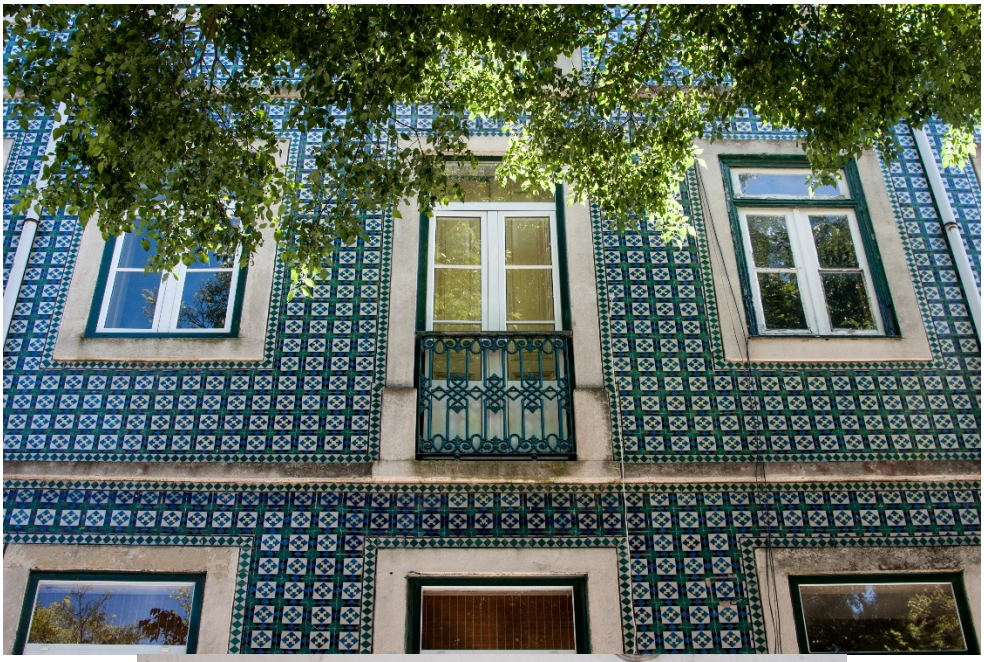




With my research group + researchers from other universities

Typical images of Lisbon





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Meetings Reports (International):

11th ECHEMS - Electrochemistry in renewable energy based on molecular mechanisms

Beer and Batteries in Bremen: 11th ECHEMS Meeting

What does a statue of a chicken-on-a-cat-on-a-dog-on-a-donkey have in common with electrochemistry? Admittedly not much, but I was able to experience both of them when I visited Bremen in mid-June for the 11th EChems meeting. As the conference was on a Monday, I made the most of the weekend to explore the town. A beautiful little city in North West Germany, with a UNESCO designated World Heritage Site for a town centre; Bremen was hosting a festival called 'La Strada' during my stay. Inexplicably this included people driving round the town square on spikey quad bikes and dancing with suitcases. Whilst I still can't tell you what the festival was for/about it did lend a certain party atmosphere to the town; who says the Germans don't have a sense of humour?!

From left to right: One of the performers at the La Strada festival riding his quad bike, The famous statue of the Town Musicians in Bremen, Dancing with Suitcases (?!)

After a very enjoyable weekend soaking up the German atmosphere, I made the short train journey over to Bad Zwischenahn where the conference was being held.

First started in 2006, the EChems Meeting is held annually to bring together researchers working in electrochemistry and its application to topical scientific problems. The theme for this year was molecular electrochemistry for application in renewable energy; an area which was of direct relevance to my own PhD research looking at molecular electrocatalysts for energy conversion. We enjoyed excellent talks in a wide range of areas, from batteries to biofuel cells and everything in between. Amongst many excellent presentations, Tsukasa Yoshida gave a particularly memorable talk about solar cells where he compared them to artificial intelligence robots that could have children and grandchildren; I'll never think of them in the same way...!


All the conference attendees in front of the Bad Zwischenahn Lake, Plenary speaker Francesco Paolucci. Photo credits to the EChems team

On the last day I caught up with one of the plenary speakers, Professor Francesco Paolucci, from the University of Bologna. Given my own work in water oxidation catalysts I particularly enjoyed his talk about nano-composites for use in the Artificial Leaf, and I chatted to him about his beer preferences and what he thinks the challenges are for electrochemistry.

What did you enjoy most about the conference?
Not the weather! No seriously it was very well organised and there were lots of speakers from areas that were very different to mine. I particularly enjoyed hearing from speakers related to applications and engineering as I don't often hear about that area so it made for a very varied programme. In general I think one of the main points of the EChems meeting is to push research in the area of molecular electrochemistry; an area which seemed to be disappearing. This is really bad because the new generation just don't know what has been done 30-40 years ago and so you are losing some of the know-how about procedures, protocols and theoretical interpretation of data. I think this is one of the things that the EChems meetings have been so successful with over the years.

What do you think the most important challenge for electrochemistry is?
Exactly what we've been talking about this week; for me energy related work is the most important challenge. So managing to split water and reduce CO_2 is something that should be the main focus for most of the financial schemes in the next 10 years. In fact this is what's starting to happen. On national levels we have projects that have been funded by the national government on CO_2 reduction and water splitting – they're big, important projects and I hope they continue.

And lastly, German or Italian beer?!
(Laughs) What do you think?! If it were wine it'd be different but it's got to be German beer!

Despite not being an electrochemist by training I really enjoyed the conference. I feel that it has broadened my knowledge of areas where electrochemistry is important, and for me really highlighted its relevance and application. I would like to thank the RSC again for its generous support for my attendance.

Emma Sackville
Bath University

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Meetings Reports (International):

2nd International Conference on Label-Free Technologies, Boston, USA, 12-14 March 2015

Label-free technologies conference was attended by over 300 delegates from all around the globe. There were 58 posters presented and 42 talks delivered by researchers from academia and industry. With the generous support from Electrochemistry Group of the Royal Society of Chemistry (RSC) I was able to orally present some of my PhD research work.

The 3-day programme was organized into themed sessions with oral talks, workshops, industrial exhibitions and poster sessions. I submitted an abstract titled 'Integrated nanoplasmonic and field-effect sensing for kinase drug discovery applications' that was accepted for Keynote talk at the conference. My PhD research project (supervised by Dr Pedro Estrela; Dr Mirella Di Lorenzo and Dr Giordano Gula) aims to developed integrated electrochemical and optical biosensors for drug discovery applications. To be more specific, I developed a label free biosensor to detect kinase mediated phosphorylation of proteins where activity of novel inhibitors of kinases can be observed. Hence, label free technologies conference was of great interest to me. The invited talks were truly inspiring and showcased the latest advancements in the biosensor technology for a wide range of applications in medicine, disease detection, drug discovery, energy harvesting and environment conversation.

My presentation was in the first session of the last day of the conference. Dr Aydogan Ozan, chairperson of my presentation session, kindly agreed to take pictures of me during my oral talk. My research results sparked a considerable amount of interest from the audience. Two questions arose, the first one from an eminent German scientist, Prof. Fred Lisdat, on buffer strengths for pH measurement on semiconductor, and second from Dr Ozan on multiplexing of my biosensor. After the session, the other speakers as well as audience showed their interest on my work and discussed possibilities of working together either on the same project or on a new one.

Josh Eckman, CEO Wasatch Microfluidics, showed his interested to integrate microfluidics on our biosensor. Prof Luo-Chen Liu, Chang Gung University Taiwan wanted to work on modelling our biosensor techniques. Representatives of companies including BioNavis Sierra Sensors, Biosening Instrument and Horiba Scientific appreciated my work and were interested in commercial application of our developed biosensor technology. Dr Sameer Sonkusale from Tufts University encouraged me to explore post doc opportunities at his university. I was also fortunate to meet Prof. Frank Vollmer from Max plank institute in Germany and we have a pleasant conversation on whispering gallery mode biosensors. I had long been curious to know how to develop label free whispering gallery mode biosensors for single biomolecule detection. He gave me some illuminating ideas and encouraged me to explore more in this field once I finish my PhD. Another new area of label free techniques that fascinated me was the development of focal mologrpahy at Prof Gatterdam Lab in ETH Zurich. It is a technique that measures hologram of biomolecules on a waveguide like Titanium pentaoxide.

The 3-day conference was filled with tantalizing electrochemical and optical label free techniques for biosensor development, together with fabulous scenery of Boston city and wonderful American cuisine. I would sincerely like to thank Electrochemistry Group of Royal Society for allowing me to make this wonderful trip that will definitely benefit me professionally in long run.

Nikhil Bhalla,
Department of Electronic and Electrical Engineering,
University of Bath, UK

Pictures

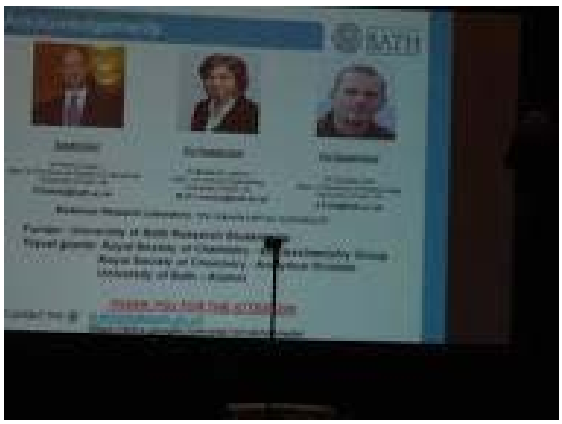
Certificate of Attendance

Selfie at the conference Attendance

Group picture with Collaborators of University of Bath from Slovak Academy of Sciences and University of Cardiff

With Prof Aaron Wheeler

Presentation time



Acknowledging

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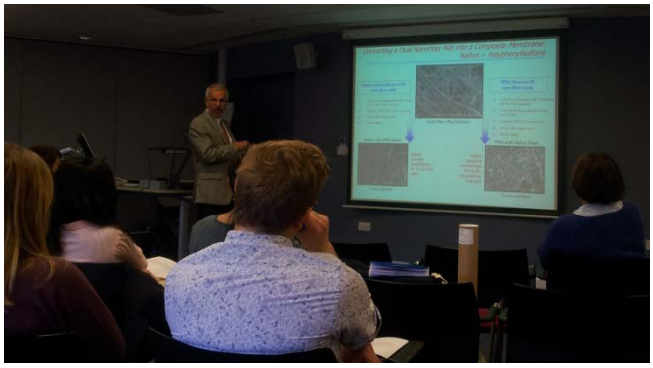
Meetings Reports (National):

SCI Electrochem Postgraduate Conference 2015 – Newcastle University

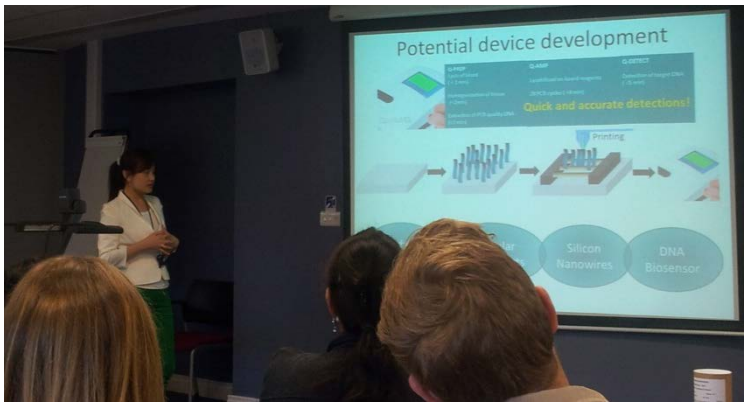
The SCI Electrochem Postgraduate Conference, SCIEPC 2015, was a special event that took place at Newcastle University on 8th June 2015. It allowed postgraduate students studying in the field of electrochemistry to present their work either as a poster or an oral presentation to fellow students in a friendly atmosphere. During the day, 30 delegates (postgraduate students and postdocs) attended the event. The attendees were from both Chemical Engineering and Chemistry departments from Newcastle University, University of York, University of Strathclyde, and even all the way from University College London. The event gave participants an opportunity to discuss their work with one another, creating future networks and discussing possible research collaborations.

The event was funded by the SCI, and organised/chaired by Simon Coleman, the Student Representative of the SCI Electrochemistry Technology Group. Further sponsorship was provided by Alvatek, who also attended the event.
Simon Coleman opened the conference by introducing the SCI, highlighting its main aims and objectives. Information was also given about the SCI Electrochemical Technology Group and how it aims to bring electrochemical technologies to market and support the development of applied electrochemical science in academia. The students were told how to find out more about the SCI. They were also encouraged to join SCI ECTG, by explaining the many benefits that membership confers.



The event was kicked off by a fantastic keynote presentation. It was a great privilege to welcome a special guest speaker, Prof. Peter Pintauro, from Vanderbilt University. Funding to cover his travel costs was kindly provided by Paul Shearing, from the Research Network.

Prof. Pintauro gave a very energetic and inspiring talk on 'Nanofiber-based Membranes and Electrodes' and the use of new electro-spinning techniques. There were many positive comments from the students about how much they enjoyed the keynote presentation.



The students were then given the chance to present their own work. A variety of different topics were covered, from fuel cell technology to electrochemical studies for DNA Biosensors. The students were engaged into much discussion following each presentation and an enjoyable and informative day was had by all.

Catering staff at Newcastle University provided coffee refreshments during the day, as well as a delicious buffet lunch. Plenty of time was allowed for poster sessions, which took place during the breaks. This gave students time to network and discuss their work over a coffee.

Alvatek kindly provided funding for one of the coffee breaks. The Director of Alvatek, David Sheath, also attended the event and presented an exhibit at the conference and gave a short demonstration of some state-of-the-art electrochemistry equipment. This gave students an opportunity to converse with someone from industry, as well as people from academia. David Sheath was also gave helpful advice on equipment and electrochemistry experiments.

Before the end of the conference, prizes were given to the two students who gave the best oral presentations during the day. The winners were post-graduate students from University College London: Mailis Lounasvuori and Siti Zakaria. Mailis gave an interesting talk on the influence of edge functionalities on the electrochemical performance of graphene nanoflakes, whilst Siti gave a very

informative presentation on electrochemical and spectroscopic studies of iron sulphides for CO_2 reduction. Their award (provided by the SCI) consisted of free registration at Electrochem 2015, held at Durham University on 13-15th September. The students will also present their work as an oral presentation at the Electrochem conference.

The conference concluded with a special social event, held at a private function room in the University. This gave the opportunity for further interactions between the postgraduates. Drinks and light refreshments were provided, along with musical entertainment by a Newcastle-based band, AlterCosmos, playing some Catalan and Spanish influenced tunes. Prof. Sudipta Roy also joined in the musical concert by performing one of her favourite Indian songs. The conference was a great success, with many positive comments from the postgraduates. It's hoped that a similar event will take place next year at UCL.

Simon Coleman
SCI ECTG Student Representative / Chairman of the SCIEPC 2015

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Meetings Reports (National):

ISE Satellite Student Regional Symposium "Great Western Electrochemistry Meeting" University of Bath, Monday 22nd June 2015

The GWEM event was held at the University of Bath and brought together participants from Manchester, Bristol, Oxford, Bath, and Cardiff with invited industry speakers from Johnson-Matthey (Dr. John Blake) and from ITM-Power (Dr. Nick van Dijk), international visitors (Dr. Jesus Iniesta from Alicante, Dr. Vinicius Graciano from Sao Paulo), as well as commercial exhibitors. After four sessions with in total 17 talks chaired by PhD students and postdocs the event finished with wine and nibbles.The meeting started with a coffee at 10am and talks in the first session by Gabriela Kissling (Bath) about "Cu_2ZnSnS_4 solar cells – an electrochemist's approach" and by Jo Humphrey (Bristol) explaining "Structure-dependent electroreduction of CO_2 at Au-Pd Nanostructures". Next Two presentations by the Oxford group were presented by Tom Bartlett (Oxford) on "Beyond Metallic Nanoparticle Impacts: Qualitative Collision Voltammetry of Metal Halide Nanoparticles" and by Stanislav Sokolov (Oxford) on "Are Nanoparticles Spherical or Quasi-spherical?". In these talks the latest developments in the mechanistic understanding and possible applications of "impact voltammetry" were discussed.

A break with discussion and posters followed. In the second morning session two invited talks from industry were delivered, both with a very positive outlook on the

importance of electrochemical technologies in the coming years of transition away from fossil fuel technologies. Nick Van Dijk (ITM power) discussed the important "Electrolysis of Water" technology and the remaining fundamental challenges in energy efficiency improvements and John Blake (Johnson-Matthey) described the latest "Developments in Fuel Cell MEAs for the Automotive Market". Discussions followed into the lunch break.

In the first afternoon session Dr. Jesus Iniesta (Alicante) presented a talk on the topic "Study of the electrooxidation of methylated nucleic bases and derivatives at screen printed carbon electrode sensors" with a strong electroanalytical theme. This was followed by Nikhil Bhalla (Bath) discussing "PhosphoSense technology for drug discovery applications". A switch to more electro-catalysis oriented talks followed with Prabhuraj Balakrishnan (Manchester) presenting "Graphene based materials in Direct Methanol systems" and Vinicius P Graciano (Sao Paulo) explaining "Studies on Co and Ni electrodes: additives and effects on Co and Ni reduction". This session concluded with James Shirtcliffe (Bristol) presenting "Magnetic engineering of electrodeposited nanolaminates". The latter talk demonstrated the strong link from electrochemistry to physics and the importance of magnetic fields in confined electro-deposited ferromagntics.

After the coffee & poster break, Oliver Donovan (Cardiff) presented "Spectroeletrochemical investigations of hydrogenation reactions on well-defined platinum surfaces" where the use of "shiners" in in situ Raman spectroscopy was explained. Next, Gareth Hughes (Bristol) discussed "Studies Towards the Development of a Disposable, Screen-printed, Amperometric glutamate biosensor and its possible applications" and, keeping the analytical theme, Kevin Honeychurch (Bristol) presented "Voltammetric Behaviour of Clonazepam and Flunitrazepam and their simultaneous Determination in Serum Using Liquid Chromatography with Redox Mode Dual Electrode Detection". The day concluded with a talk by Zakiya Al Amri (Bristol) "Controlled design and properties of Pt clusters on Au" and two presentations from the home team by Wentao (Bath) on "Surface engineering of solar cells" and by James Weber (Bath) on "Microwire electroanalysis".

All-in-all a long day and a difficult task for the jury to award prizes. The poster prize was awarded to Dominic Macias (Bath) for his poster "Pico-Electrochemistry in Humidity-Equilibrated Electrolyte Films on Nano-Cotton: Three- and Four-Point Probe Voltammetry and Impedance". The runner-up prize for the postgraduate talks was awarded to Tom Bartlett (Oxford) for his presentation on impact voltammetry with non-metallic particles. The top prize with free registration at electrochem 2015 in Durham was awarded to Jo Humphrey (Bristol) of r her presentation on electro-reduction of carbon dioxide on Au-Pd nano-structures. The meeting was then closed with wine & nibbles and further opportunities for discussion and exchange of ideas.

Bath
Frank Marken

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Meetings Reports (National):

Electrochemical Impedance Spectroscopy (EIS) Summer School Bath 14th to 17th July 2015 (by F. Marken)

The Electrochemical Impedance Spectroscopy summer school took place in Bath in July with support from the STFC (sponsoring training for several UK PhD participants). Overall the course attracted 32 participants mixed from abroad and from the UK with about 50% industry participants and 50% participants from academic institutions. The course team was based on 6 academics and 10 demonstrators. The guest lecture this year on application of impedance in fuel cell systems was presented by Dr Dan Brett from UCL London.

The course is based on introductory lectures covering network analysis and mathematical derivations, applications of impedance in electro-chemistry, materials, corrosion and sensing, as well as advanced topics such as spectro-electrochemistry.

Most of the course is laboratory based with hands-on training in setting up experiments, fitting and data analysis, as well as interpretation of data. In seven complementary experiments topics from high temperature conducting oxides, battery materials, corrosion, supercaps, solar cell, to conducting polymers are covered and explained.

Participants are able to interact with staff and students and network with peers. Discussions at the summer school have led to longer term co-operations being initiated and new industry-academia ties being formed.

Meetings Reports (National):

The annual northwest electrochemistry conference 21 Jul 2015 - ElectrochemNW 2015

The 21st of July 2015 saw the annual Electrochemistry North West meeting arrive at Manchester Metropolitan University for the first time. Hosted by Professor Banks, some 65 delegates were in attendance to enjoy the facilities at the university's new business school as well as some of the insights provided by the novel research showcased throughout the day.

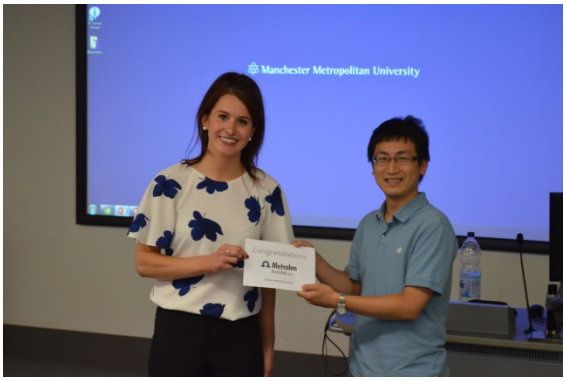
The north atrium of the new business school fills up to observe the novel research on display

It may have been a classic grey summer's day in Manchester, but that wasn't going to put a dampener on proceedings - the conference kicked off in spectacular fashion with an excellent plenary lecture from the renowned Professor Richard

Compton talking about the electrochemical studies of nanoparticles. Whether or not nanoparticles are ones area of research, you would be hard-pressed to find somebody that did not find the talk fascinating. From detailing an entirely new approach to *in situ* nanoparticle sizing with zeptomole (10^{-21} moles) sensitivity, the frontier of research, through to the explanation of *dirty electrodes* effect on nanoparticle study and more – there was plenty to dazzle the captivated audience.

From there the audience was subject to a variety of excellent talks all in very different fields from one another, testament to the diversity of electrochemical studies performed in the North West. Each of the talkers should be commended for their skill, Stephen Hughes (University of Liverpool), Yuqin Zou (University of Manchester), Ioannis Tzagkaroulakis (University of Lancaster) and prize-winner Rob Smith (University of Liverpool). A special mention should also be given to Dr Chris Roberts (University of Manchester) for his last minute presentation on measuring hydrogen permeation through uranium oxide to cover for somebody who, unfortunately, was unable to attend.

Whilst being fed and watered, delegates were able to view the posters on display (14 in total) with all universities in the region represented – again the diversity of work on display was a remarkable sight. Following the close of the last presentation, it was time to award the prizes.



Vicky Black (Metrohm) awards the prize for best poster to Tzu-Ho Wu

Steve Fryatt (Alvatek) presented the award of £150 for best oral presentation to Rob Jones and his talk on "Porous Carbon Electrodes for Applications in Electroanalysis" who will now have the opportunity to present at *Electrochemisty 2015*, Vicky Black (Metrohm) delivered £100 as a reward for the best poster to Tzu-Ho Wu for their work "*In situ* Raman microscopy studies on electrochemically activated manganese oxide pseudocapacitors". Acknowledgements must be given to RSC Electrochemistry Group, RSC NW Analytical Division and RSC Electroanalytical Sensing Systems group for their sponsorship of this event and also Dr Edward Randviir for his efforts in helping to organise and ensure its smooth running. As the conference came to a close, many delegates opted to take the afternoon as an opportunity to network with one another at a nearby drinking

establishment; it is rumoured that particular branch of JD Wetherspoon plc met its weekly targets in the very same night.

Jay Smith
@SmithJayP
Manchester Metropolitan University

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Student Conference Bursaries

The Student Bursary Scheme provides financial support to promising postgraduate students to attend a major electrochemistry conference abroad. This includes UK based students travelling to a conference abroad and students based abroad wishing to attend a conference in the UK. The Bursary Scheme is open to all postgraduate student members of the RSC's Electrochemistry Group undertaking research in electrochemistry. Applications shall consist of:

(i) the application form (see http://www.rsc.org/ScienceAndTechnology/Funding/TravelGrants/InterestGroups.asp),
(ii) the abstract submitted to the conference organisers,
(iii) one A4 page *curriculum vitæ* stressing academic and scientific achievements (*e.g.*, research articles, oral and poster presentations ***made by the applicant***).

Applications may be made at any time of the year and shall be submitted to the Group Secretary in electronic form.

The selection committee of the Electrochemistry Group shall decide the sum awarded. Under normal circumstances this sum shall not exceed £300.

Successful applicants shall produce a conference report article for the Newsletter.

Candidates should submit their applications directly to the RSC Electrochemistry Group Secretary:

Dr. Upul Wijayantha (email: **U.Wijayantha@lboro.ac.uk**).

Related: also see RSC travel bursaries
http://www.rsc.org/Membership/Networking/InterestGroups/Electrochemistry/StudentBursaryScheme.asp

Electrochemical Science and Technology Information Resource (ESTIR)

The ESTIR and related websites operate under the auspices of the Ernest B. Yeager Centre for Electrochemical Sciences (YCES), Case Western Reserve University.

Currently around 50 UK Electrochemistry Groups are featured on this website.

Check them out, update your profile or add your group at the following URL.

http://electrochem.cwru.edu/estir/grads.htm
or
http://electrochem.cwru.edu/estir/history.htm

For more information, contact:

Zoltan Nagy, Visiting Scholar
Department of Chemistry, Campus Box 3290
The University of North Carolina at Chapel Hill
Chapel Hill, NC 27599-3290, USA
Telephone: USA-(919) 272-2228
E-mail: nagyz@email.unc.edu

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INTERNATIONAL SOCIETY OF ELECTROCHEMISTRY

ISE REGIONAL STUDENT MEETINGS

Graduate Students who are members of ISE and intend to organize a **Regional Student Meeting** can apply for ISE financial support. **Regional Student Meetings** are typically one-day meetings involving graduate students active in the geographic area where the meeting takes place.

The format of the meeting (oral presentations, posters, discussion sessions, other) is autonomously decided by the organizers who will be responsible for securing a venue and collecting registrations. No registration fee should be requested. No later than one month after the meeting, the organizer(s) will send to the ISE Office a report on the event, including the names and the e-mail addresses of the participants. The participants will be encouraged to apply for ISE membership. An overview of the report accompanied by suitable pictures if available will be posted on the ISE website under Student Activities.

Applications for ISE support must be sent by e-mail to the **ISE Office (info@ise-online.org)**, with a copy to the Regional Representative of the country where the meeting is organized, 3-12 months before the meeting date, using the **application form**. The local ISE Regional Representative ***(Dr. Tim ALBRECHT of Imperial College London, for the United Kingdom)***, if requested, will assist the potential meeting organizer in the preparation of the application. Applications will be analyzed by a committee consisting of (i) ISE Secretary General, (ii) ISE Treasurer, (iii) ISE Vice President responsible for Educational Activity and (iv) ISE Vice President responsible for Regional Sections.

The response will be communicated to the applicant and to the relevant Regional Representative no later than 1 month after the application submission.

The maximum financial support will be **600 €**; the expected use of the funds must be specified in the application. Co-sponsoring by other Societies and/or institutions is possible.

Find out more:

http://www.ise-online.org

Future SCI Events (Editors Selection)

16th International Nuclear Graphite Specialists Meeting

The National College for Teaching and Leadership, Triumph Road, Nottingham 13-17 September 2015, Start 6pm on Sunday, Organised by SCI, RSC and IOP British Carbon Group
https://www.soci.org/Events/Display-Event?EventCode=GCRB130915

The 22nd Annual SCI-CSCST Conference: Renewable Energy and Novel Materials for a Sustainable Future

Aston University, Birmingham, UK, 19 September 2015, 8:30
https://www.soci.org/Events/Display-Event?EventCode=SCHU190915

MIBio 2015: Stability of biopharmaceuticals - From molecular interactions to successful products

Magdalene College, University of Cambridge, UK, Wednesday 21 October 2015 Organised by the RSC's Formulation Science and Technology Group (FSTG), SCI's Colloid & Surface Chemistry Group and the RSC's Colloid & Interface Science Group, together with the Academy of Pharmaceutical Sciences (APS), with valuable assistance from the Knowledge Transfer Network (KTN)
https://www.soci.org/Events/Display-Event?EventCode=COLL456

'You're Hired!' Careers for Chemists in New Company, Contract and Charity sectors

BioPark, Welwyn Garden City, Wednesday 4 November 2015. Organised by SCI's Fine Chemicals Group and The Royal Society of Chemistry
https://www.soci.org/Events/Display-Event?EventCode=FCHEM455

Fireworks and Waterworks - Spectacular Chemistry Demonstration Lecture

Bristol Myers-Squibb lecture theatre, University of Cambridge, 5 November 2015, 19:00-20:30, Organised by SCI's Cambridge and Great Eastern Group & RSC
https://www.soci.org/Events/Display-Event?EventCode=SCGE051115

The nature of energy

Charterhouse School, Godalming, 12 November 2015, 18.30, Organised by SCI's Thames and Kennet Regional Group
https://www.soci.org/Events/Display-Event?EventCode=STAK121115

Can We Afford Not to Monitor Priority Pollutants

The Royal Society of Edinburgh, Edinburgh, Scotland, 24-25 November 2015 Organised by SCI's Environment, Health and Safety Group in partnership with the RSC Water Science Forum, RSC Environment, Health and Safety Committee and Highlands and Islands Enterprise

https://www.soci.org/Events/Display-Event?EventCode=GENV241115

The life of an analytical chemist - rushing about the world!

Charterhouse School, Godalming, 26 November 2015, 18.30, Organised by SCI's Thames and Kennet Regional Group
https://www.soci.org/Events/Display-Event?EventCode=STAK261115

Future RSC Events (Editors Selection)

Nanostructured Electromaterials for Energy Applications

11 September 2015, Newtownabbey, United Kingdom
http://www.rsc.org/events/detail/19686/nanostructured-electromaterials-for-energy-applications

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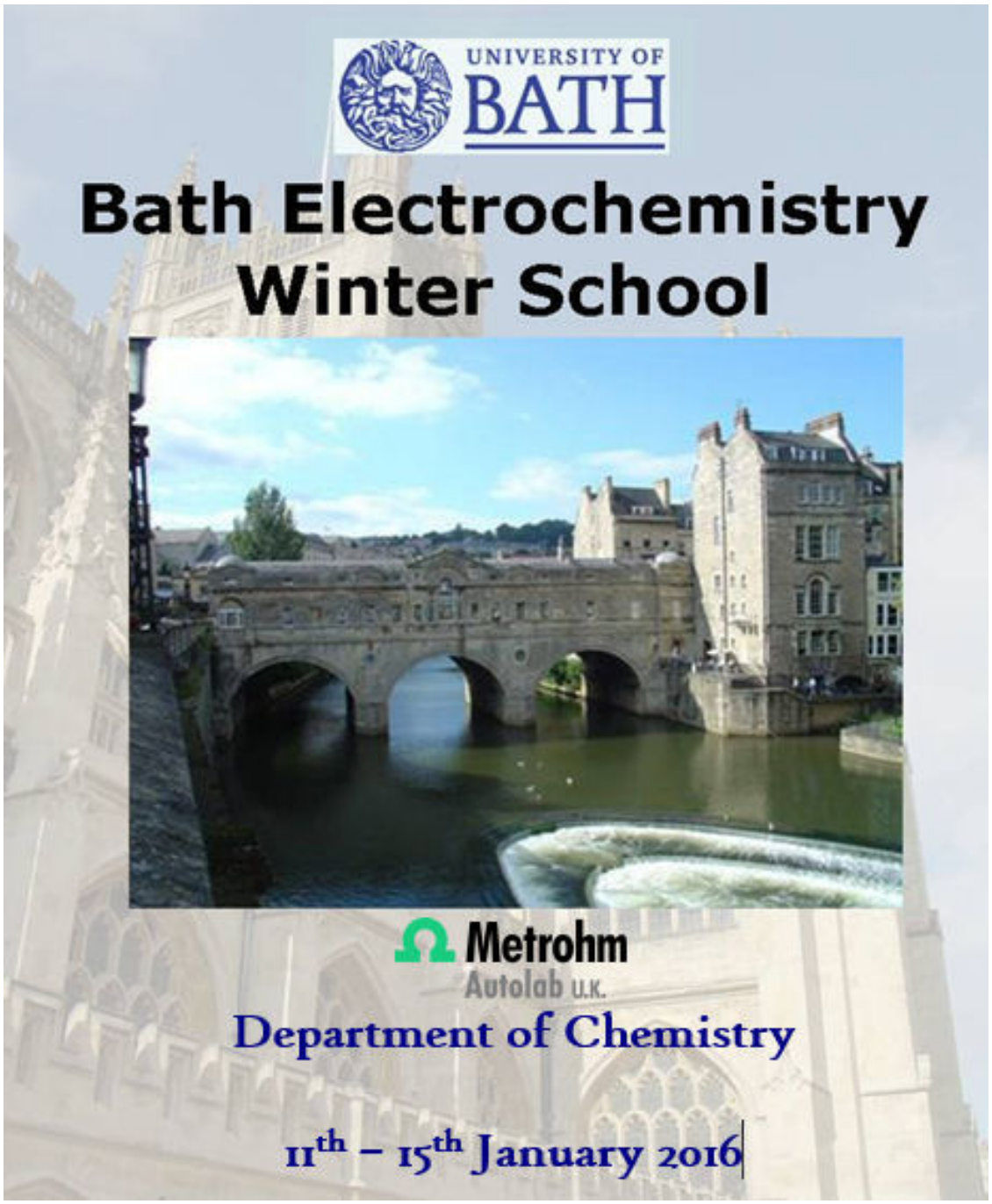
Summer and Winter Schools



http://www.bath.ac.uk/chemistry/extracurricular/summer_and_winter_schools/
Email: F.Marken@bath.ac.uk

Summer and Winter Schools

http://www.southampton.ac.uk/chemistry/business_partnership/summer_school.page

Summer and Winter Schools

The 3rd International Summer School Spectroelectrochemistry will take place at the Center of Spectroelectrochemistry, Leibniz Institute for Solid State and Materials Research (IFW Dresden), in Dresden, Germany

from 28th August to 4th September 2015.

The summer school will be focused on the theoretical background and practical training in spectroelectrochemistry and give an overview on the development of spectroelectrochemical techniques like:

In situ ESR spectroelectrochemistry
In situ NMR spectroelectrochemistry
In situ UV-vis-NIR spectroelectrochemistry
In situ ESR/UV-vis-NIR spectroelectrochemistry
In situ Luminescence spectroelectrochemistry
In situ IR spectroelectrochemistry
In situ Raman spectroelectrochemistry

The course presents tutorial lectures on the methods by renowned scientists and an experimental training in all methods given above. Each participant can join the practical training in spectroelectrochemical techniques and their applications for applied research. The summer school provides opportunities to discuss recent results and first experience in spectroelectrochemistry by a poster presentation.
All participants will receive a special certificate confirming the participation in the summer school.

We are looking forward seeing you in Dresden.

Location

The lectures will held in a conference site in Dresden (full information will be given in the second circular).

The experimental training will take place at the Center of Spectroelectrochemistry, Leibniz Institute for Solid State and Materials Research (IFW Dresden).

Registration

Registration will be open by **December 1st, 2014.**

Please send your registration form
by email: **summerschool@ifw-dresden.de**
or fax: **+49-351-4659-745**

to the organizers **before May 1st, 2015**

The number of participants is limited to 25. Therefore the principle "first come, first served" is applied. A waiting list will be installed if needed.

The participation fee is 920 € for each participant (single room accommodation). Fee includes accommodation, daily breakfast and lunch, dinner in a conference site at the weekend, Gala-dinner, theoretical and practical courses and the cultural program.

Deadline for payment is **June 1st, 2015.**

After payment, participation will be finally confirmed.
The payment has to be made by bank transfer *only in EURO*. Bank transfer charges are not included in the fee. We do not accept payments in cash, by bank card, credit card or personal cheque.

Organizing committee: Prof. Dr. Peter Rapta
Dr. Alexey Popov
Dr. Evgenia Dmitrieva

Contact:

Local organizing committee:
Alexey Popov
Evgenia Dmitrieva
IFW Dresden
Helmholtzstrasse 20
01069 Dresden, Germany

e-mail: summerschool@ifw-dresden.de
phone (+49-351-4659-658), fax (+49-351-4659-745)

For further information please see the website:
https://www.ifw-dresden.de/institutes/iff/events/3rd-summer-school-spectroelectrochemistry

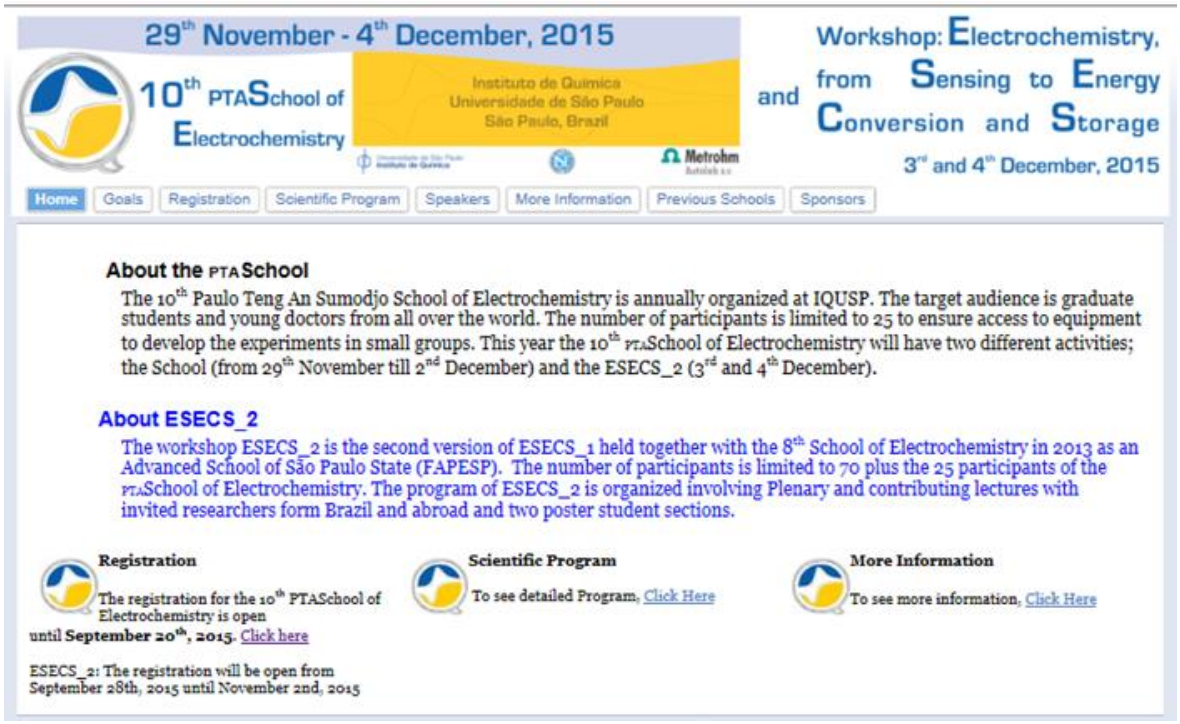
Information for companies:

For presentations of your products we offer:

- A exhibition area with all auxiliary materials (tables, stands etc.), including participation fee that covers the visits of all theoretical and practical courses, full board at the weekend as well as the fixation of the company's logo at the website and program band of Summer School.
- A distribution of information materials in the welcome packets for participants.
- Advertisement published in the abstract band, sponsors will be presented on the Summer School website, including a company's logo.

For further details please contact the organizing committee.

Summer and Winter Schools



29th November - 4th December, 2015

10th PTASchool of Electrochemistry

Instituto de Química
Universidade de São Paulo
São Paulo, Brazil

and

Workshop: Electrochemistry, from Sensing to Energy Conversion and Storage

3rd and 4th December, 2015

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About the PTA School

The 10th Paulo Teng An Sumodjo School of Electrochemistry is annually organized at IQUSP. The target audience is graduate students and young doctors from all over the world. The number of participants is limited to 25 to ensure access to equipment to develop the experiments in small groups. This year the 10th PTASchool of Electrochemistry will have two different activities; the School (from 29th November till 2nd December) and the ESECS_2 (3rd and 4th December).

About ESECS_2

The workshop ESECS_2 is the second version of ESECS_1 held together with the 8th School of Electrochemistry in 2013 as an Advanced School of São Paulo State (FAPESP). The number of participants is limited to 70 plus the 25 participants of the PTASchool of Electrochemistry. The program of ESECS_2 is organized involving Plenary and contributing lectures with invited researchers form Brazil and abroad and two poster student sections.

Registration

The registration for the 10th PTASchool of Electrochemistry is open until **September 20th, 2015**. Click here

ESECS_2: The registration will be open from September 28th, 2015 until November 2nd, 2015

Scientific Program

To see detailed Program, Click Here

More Information

To see more information, Click Here

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Echem Book REV (new)

Electrochemistry: Volume 12: Nanosystems Electrochemistry (A Specialist Periodical Report); Edited by R. G. Compton and J. D. Wadhawan; RSC Publishing 2013; ISBN: 978-1-84973-581-0.

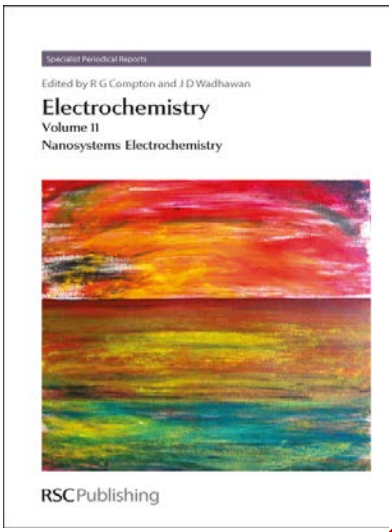
Description

Approaching the literature in a subject such as electrochemistry can be daunting. Specialist Periodical Reports present comprehensive and critical reviews of the current literature, with contributions from across the globe, providing the reader with an informed digest of the most important research currently carried out in the field. Re-launched in 2012 with a new editorial team (Compton and Wadhawan), this latest volume covers a broad range of topics, all with an emphasis on the nano aspects of electrochemistry. Aside from the applied chapters, contributions have also been submitted which examine electrochemistry in specific regions; China and India are covered in this volume.

Echem Book REV

Electrochemistry: Volume 11: Nanosystems Electrochemistry (A Specialist Periodical Report); Edited by R. G. Compton and J. D. Wadhawan; RSC Publishing 2013; ISBN: 978-1-84973-401-1; £299.95

It has been almost 30 years since Volume 10 of the specialist periodical reports in electrochemistry was published and Richard Compton and Jay Wadhawan should be congratulated for re-launching a much-valued and missed series. This volume (and the as-yet unpublished following one) focuses on *nanosystems electrochemistry*, in which charge transfer occurs at interfaces or materials of sub-micron dimensions. The editors have done an excellent job in selecting each topic and the 6 chapters contained within this volume illustrate the breadth and pace of research in this field.



The opening chapter, by Xiao-Shun Zhao and Emmanuel Maisonhaute, focuses on the electrochemistry of single events, ranging from the electrochemical detection of individual molecules to electroanalysis of single nanoparticles. The second chapter, by Carlos Sánchez-Sánchez, Jose Solla-Gullón and Vicente Montiel looks at electrocatalytic reactions at nanoparticles. In the third chapter, Gabriel Loget and Alexander Kuhn describe the resurgent field of bipolar electrochemistry. The fourth chapter, by Martin Pumera, is on nanocarbon electrochemistry. The fifth chapter, by Mathieu

Etienne and Alain Walcarius, focuses on electrochemistry within template systems and the final chapter, by Jonathan Halls and Jay Wadhawan, looks at electrochemistry in liquid nanosystems.

Each chapter can be read as a stand-alone review of the area in question and each is carefully written and constructed; a gentle introduction to the field is quickly followed by an in-depth review of the relevant primary literature that will appeal to specialists, as well as electrochemists with a passing interest in nanoelectrochemistry. The text is well referenced and up to date (almost 1,000 references are listed). The use of figures from the literature is, in general, very good although the absence of colour does detract somewhat from the usefulness of some of the images; in some instances, figures containing multiple signals are hard to interpret in black and white and scanning electrochemical microscopy (SECM) imaging data loses some usefulness when presented in black and white. Minor gripes about the absence of colour images notwithstanding, this volume is very highly recommended. I expect that it will end up on the shelves of a wide range of electrochemistry laboratories, where it will be an extremely valuable source of information for years to come. I look forward to the next volume.

Darren A. Walsh, The University of Nottingham

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Developments in Electrochemistry:

Science Inspired by Martin Fleischmann

Editors: *Derek Pletcher, Zhong-Qun Tian and David Williams*

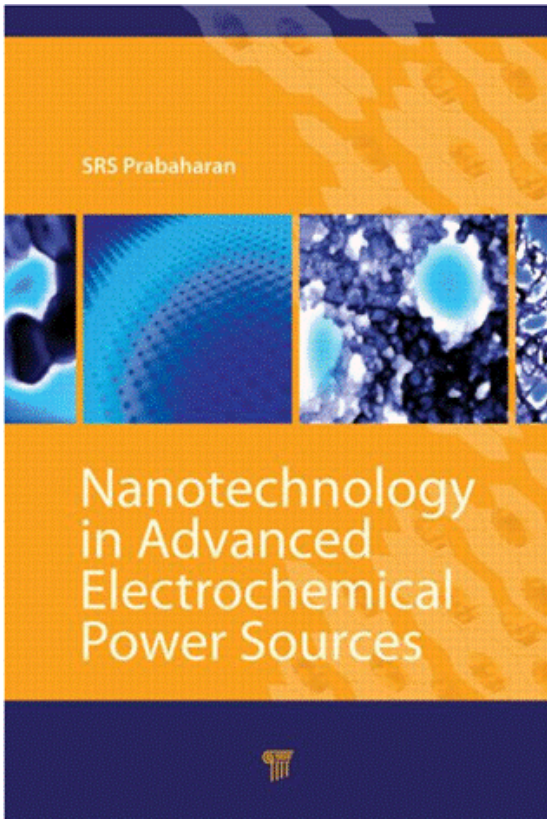
While this book was written as a tribute to Martin Fleischmann to mark his many contributions to electrochemical science, it is not a historical document and is intended reflect the state of electrochemical research in 2014. Each of the chapters covers a topic where Martin Fleischmann contributed and the chapters are written by ex-coworkers of Martin Fleischmann, now established experts in their fields. The chapters are:

1. Martin Fleischmann – The Scientist and the Person
2. *Alan M. Bond, Elena A. Mashkina and Alexandr N. Simonov* (Monash University, Australia), A Critical Review of the Methods Available for Quantitative Evaluation of Electrode Kinetics at Stationary Macrodisk Electrodes
3. *Morteza Y. Abyaneh* (University of Uppsala, Sweden) Electrocrystallization: Modeling and Its Application
4. *Benjamin R. Scharifker and Jorge Mostany* (Universidad Simon Bolıvar, Venezuela), Nucleation and Growth of New Phases on Electrode Surfaces
5. *Derek Pletcher* (University of Southampton, UK), Organic Electrosynthesis
6. *Derek Pletcher and Frank C. Walsh* (University of Southampton, UK) Electrochemical Engineering and Cell Design
7. *Zhong-Qun Tian and Xue-Min Zhang* (Xiamen University, China), Electrochemical Surface-Enhanced Raman Spectroscopy (EC-SERS): Early History, Principles, Methods, and Experiments
8. *Marco Musiani* (IENI-CNR, Italy), *Jun-Yang Liu and Zhong-Qun Tian* (Xiamen University, China), Applications of Electrochemical Surface-Enhanced Raman Spectroscopy (EC-SERS)
9. *Bing-Wei Mao* (Xiamen University, China), *In-Situ* Scanning Probe Microscopies: Imaging and Beyond
10. *Richard J. Nichols* (University of Liverpool, UK), *In-Situ* Infrared Spectro-electrochemical Studies of the Hydrogen Evolution Reaction
11. *Claude Gabrielli* (Université Pierre et Marie Curie, France) *and David E. Williams* (University of Auckland, New Zealand), Electrochemical Noise: A Powerful General Tool
12. *Salvatore Daniele* (University of Venice, Italy) *and Guy Denuault (University of Southampton, UK)*, From Microelectrodes to Scanning Electrochemical Microscopy
13. *Melvin H. Miles* (University of LaVerne, USA) *and Michael C.H. McKubre* (SRI International, USA), Cold Fusion After A Quarter-Century: The Pd/D System
14. *Andrea E. Russell, Stephen W.T. Price and Stephen J. Thompson* (University of Southampton, UK), *In-Situ* X-Ray Diffraction of Electrode Surface Structure
15. *Robert J.K. Wood* (University of Southampton, UK), Tribocorrosion
16. *Hubert H. Girault*,(EPFL, Switzerland) Hard Science at Soft Interfaces
17. *Philip N. Bartlett* (University of Southampton, UK), Electrochemistry in Unusual Fluids
18. *Laurence Peter* (University of Bath, UK), Aspects of Light-Driven Water Splitting
19. *Samin Sharifi-Asl and Digby D. Macdonald* (University of California at Berkeley, USA), Electrochemical Impedance Spectroscopy

Length of Book (pages): 392, Publisher: Wiley
Publication Year: 2014, ISBN: ISBN: 978-1-118-69434-3
Language: English: Cost: 80 – 70 euros (hardback), 64 – 99 euros (e-version)

Nanotechnology in Advanced Electrochemical Power Source

By: Prabaharan, S. R. S.; Michael, M. S.; Editors



Features

- Contains contributions based on the recent research outcomes of leading experts in the field
- Focuses on energy storage device performance, with a special emphasis on nanoscale advantages
- Considers synthesis, characterization, physical and electrochemical properties, and applications
- Discusses electrochemical power sources employing electrode materials at nanoscale
- Includes current processing techniques and a bibliography for further reading

Summary

The challenge of providing adequate power on an indefinite basis without causing long-term damage to the environment requires a versatile means of energy conversion and storage. As such, electrical energy storage is becoming more vital today than at any time in human history. Electrochemical systems, such as batteries, supercapacitors, fuel cells, and photoelectrochemical cells, can help meet this objective. Future generations of rechargeable lithium batteries will be required

to power portable electronic devices, store electricity from renewable sources, and serve as a vital component to pursuing electric mobility in the future to reduce fossil fuel demand and mitigate environmental issues. In this context, engineering of new materials, especially at the nanoscale, has become imperative to achieve enhanced energy and power density to meet the future challenges of energy storage.

This book outlines the state of the art of nanoscale aspects of advanced energy storage devices, such as lithium-ion batteries, including microbatteries and electrochemical supercapacitors. It focuses on various fundamental issues related to device performance of various positive and negative electrode materials, with special reference to their nanoscale advantages. It also includes fundamentals and processing techniques with regard to synthesis, characterization, physical, and electrochemical properties, and applications of nanoscale materials pertaining to advanced electrochemical power sources. A variety of advanced nanomaterials, such as transition metal oxides, phosphates, silicates, and conversion electrodes, together with some special nanomaterials such as carbon nanotubes, nanorods, and mesoporous carbons are discussed by many notable authorities in the field.

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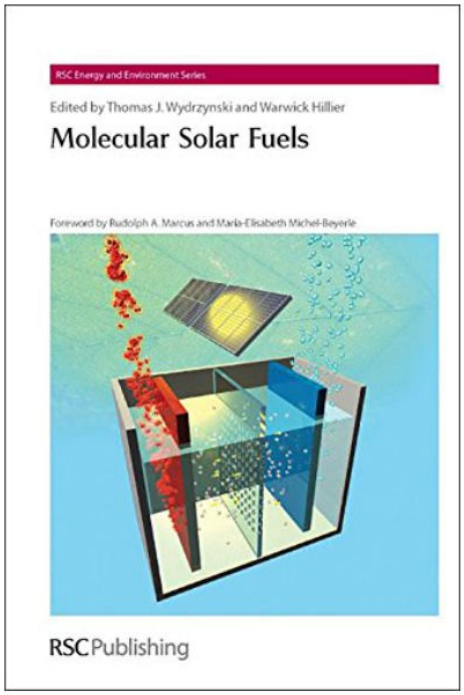

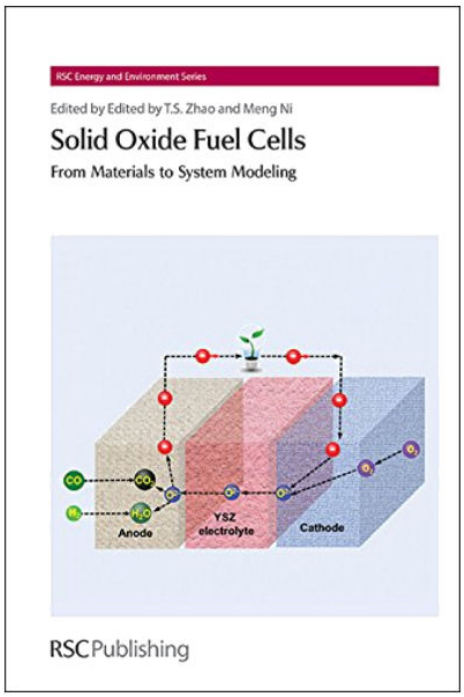

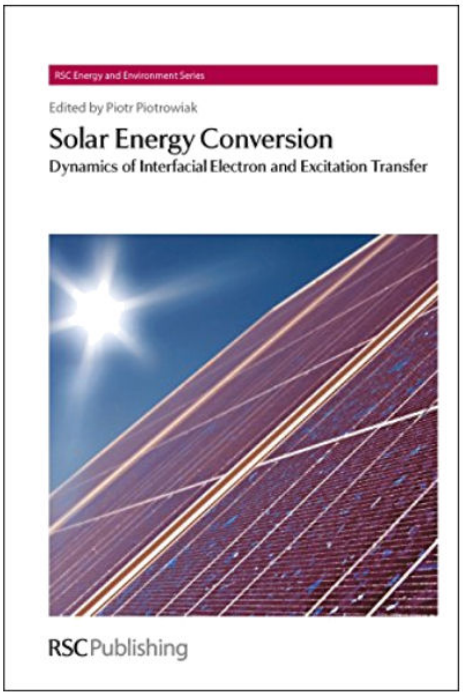

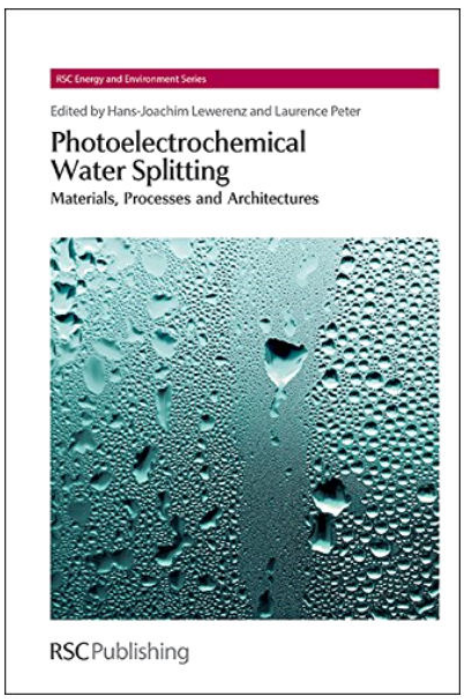

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Diffusion des Savoirs: Electrochemistry Calendar

23-25 September 2015
8th International Workshop on Impedance Spectroscopy (IWIS)
Chemnitz, Germany
Co-Chairs: Olfa Kanoun, Norbert Wagner
Secretariat: iwis@tu-chemnitz.de
http://www.tu-chemnitz.de/iwis

1-3 October 2015
New Devices for Energy Conversion and Storage
Hong Kong, China
Chair: Guohua Chen
kechengh@ust.hk
http://www.cbme.ust.hk/ISE2015HK/

4-9 October 2015
66th Annual Meeting of the International Society of Electrochemistry
"Green Electrochemistry for Tomorrow's Society"
Taipei, Taiwan
Chair: Bing Joe Hwang
Secretariat: events@ise-online.org
http://annual66.ise-online.org/

9-13 October 2015
8th International Workshop on Scanning Electrochemical Microscopy
"Microsystems, Micromanipulation and Microfabrication"
Xiamen, China
Chair: Dong-Ping Zhan
Secretariat: SECM8@xmu.edu.cn
http://SECM8.xmu.edu.cn

11-15 October 2015
228th Meeting of The Electrochemical Society (ECS)
Phoenix, AZ, USA
Secretariat: meetings@electrochem.org
http://www.electrochem.org/meetings/biannual/228/

18-22 October 2015 ** (Sponsored by Division 3)
6th International Symposium on Carbons for Energy Storage and Environment Protection (CESEP' 2015)
Poznan, Poland
Co-Chairs: François Béguin, Elzbieta Frackowiak
Secretariat: cesep2015@put.poznan.pl
http://www.cesep2015.put.poznan.pl

21-23 October 2015
10th International Frumkin Symposium on Electrochemistry
Moscow, Russia
Chair: A.Yu. Tsivadze
Contact: Alexander A. Nekrasov
alexander.nek@gmail.com
http://frumkinsymp.ru/

21-23 October 2015
XX Meeting of the Portuguese Electrochemical Society
Braga, Portugal
Secretariat: xxspe@quimica.uminho.pt
http://xxspe.quimica.uminho.pt

26-29 October 2015
International Conference on Capacitive Deionization and Electrosorption
(CDI&E 2015)
Saarbrücken, Germany
Chair: Volker Presser
Secretariat: cdi@inm-gmbh.de
http://www.cdi2015.de

6-10 November 2015
7th Workshop on Surface Modification for Chemical and Biochemical Sensing (SMCBS'2015)
Warsaw, Poland
Chairs: Wlodzimierz Kutner, Marcin Opallo
Secretariat: smcbs11@ichf.edu.pl
http://www.smcbs2015.pl/index.php

8-11 November 2015
International Conference on Innovative Electrochemical Energy Materials and Technologies
Nanning, China
Chair: Yanlin Zhao
Secretariat: Guoqiang He
heguoq@163.com
http://www.fuelcellscn.com/EEMT/

15-19 November 2015
Catalysis Society of South Africa Conference 2015
Kleinmond, Cape Town, South Africa
Chair: Selwyn Mapolie (smapolie@sun.ac.za)
Electrocatalysis: Pieter Levecque (pieter.levecque@uct.ac.za)
Secretariat: Sylette May (smay@sun.ac.za)
http://www.catsa2015conference.co.za

17-10 November 2015
3rd Zing Hydrogen & Fuel Cells Conference
Cancun, Mexico
Chairs: Bruno G. Pollet, Walter Mérida
info@zingconferences.com
http://www.zingconferences.com/conferences/3rd-zing-hydrogen-fuel-cells-conference/

29 November – 4 December 2015
10th School of Electrochemistry and 2nd Workshop on Electrochemistry: From Sensing to Energy Conversion and Storage
São Paulo, Brazil
Contact: Roberto Torresi
rtorresi@iq.usp.br
https://sites.google.com/site/schoolofelectrochem/home

14-17 December 2015
4th International Conference "Corrosion Mitigation and Surface Protection Technologies" (Egycorr2015)
Hurghada, Egypt
Secretariat: info@egy-corr.org, info@egycorr.net, egycorr2012@yahoo.com
http://www.egycorr.net, http://www.egy-corr.org/

7-9 January 2016
Nanoparticle Assembly: From Fundamentals to Applications (Faraday Discussion)
Mumbai, India
http://mxm.mxmfb.com/rsps/ct/c/1127/r/16879/l/2396626

9-11 March 2016
18th Topical Meeting of the International Society of Electrochemistry "Oxygen Electrocatalysis in Chemical Energy Conversion and Storage Technologies"
Gwangju, Korea
Secretariat: events@ise-online.org
http://topical18.ise-online.org/

20-25 March 2016
International Battery Association 2016 Meeting (IBA2016)
Nantes, France
Chair: Dominique Guyomard
Secretariat: iba2016@cnrs-imn.fr
http://iba-2016.sciencesconf.org/

17- 20 April 2016
19th Topical Meeting of the International Society of Electrochemistry "Electrochemistry at Modified Interfaces"

Auckland, New Zealand
Secretariat: events@ise-online.org
http://topical19.ise-online.org/

23-27 May 2016
2016 International Conference on Advanced Capacitors (ICAC2016)
Otsu, Shiga, Japan
Co-Chairs: Katsuhiko Naoi, Chisato Marumo
Secretariat: capatech@electrochem.jp
http://capacitor.electrochem.jp/

28-29 April 2016 ** (Sponsored by Executive Committee)
Chemistry and Chemical Technology 2016
210th Anniversary of Theodor Grotthuss' Electrolysis Theory
Vilnius, Lithuania
Chair: Rimantas Ramanauskas, *Contact*: Rasa Pauliukaite
pauliukaite@ftmc.lt
Secretariat: cct2016@ftmc.lt
http://cct2016.ftmc.lt

16-18 May 2016
International Symposium on Coatings & Corrosion (ISCC2016)
Kuala Lumpur, Malaysia
http://mte-mails.com/ISCC3-18JUN15.pdf

29-31 May 2016
2nd NACE European Area Conference & Expo
Genoa, Italy
Secretariat: segreteria@studiobc.it

29 May-3 June 2016
229th Meeting of The Electrochemical Society (ECS)
San Diego, CA, USA
Secretariat: meetings@electrochem.org
https://ecs.confex.com/ecs/229/cfp.cgi

15-17 June 2016
6th Baltic Electrochemistry Conference
Electrochemistry of Functional Interfaces and Materials
Helsinki, Finland
Chair: Lasse Murtomäki
Secretariat: baltic2016@aalto.fi
http://chemistry.aalto.fi/en/current/6th_electrochemistry_meeting/

19-24 June 2016
10th International Symposium on Electrochemical Impedance Spectroscopy

A Toxa, Spain
Chair: Ramon Nóvoa
Secretariat: eis10th@uvigo.es
http://eis10th.webs.uvigo.es

3-8 July 2016
International Conference on Electrified Interfaces (ICEI 2016)
Singapore
Contact: Harry Hoster
h.hoster@lancaster.ac.uk

17-19 August 2016
Electrochemical Methods for Nanotechnology
Brussels, Belgium
Contact: Herman Terryn
herman.terryn@vub.ac.be
http://www.surfgroup.be/events/electrochemical-methods-for-nanotechnologyconference

21-26 August 2016
67th Annual Meeting of the International Society of Electrochemistry
"Electrochemistry: from Sense to Sustainability"
The Hague, The Netherlands
Secretariat: events@ise-online.org
http://annual67.ise-online.org/

9-13 October 2016
4th Ertl Symposium on Chemical Processes on Solid Surfaces
Berlin, Germany
Contact: Jaeyoung Lee
ertl@gist.ac.kr
http://env1.gist.ac.kr/ertl/new/ERTLCenter/

9-14 October 2016
PRiME 2016
Honolulu, HI, USA
Secretariat: meetings@electrochem.org

27 August – 1 September 2017
68th Annual Meeting of the International Society of Electrochemistry
Providence, RI, USA

1-6 October 2017
232nd Meeting of The Electrochemical Society (ECS)
National Harbor, MD, USA
Secretariat: meetings@electrochem.org

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Opportunities

Description

Following the second consecutive year of growth BlueScientific have created a new position of Product Specialist for the Ametek Products, and have hired Mark Hampton PhD to fil this role. Mark completed his doctorate at Cardiff in the Physics department, where he was exposed to a range of instrumentation, and went on to work at AWE for a short period until he realised he was looking for a more commercial role.

Mark will be at the Electrochemistry meeting in Durham Sept 13-15 and can be reached by telephone at our Cambridge address.

Please contact:
Tom Warwick (tom.warwick@blue-scientific.com)
Director, Blue Scientific Ltd
Blue Scientific Ltd
St. John's Innovation Centre
Cowley Road
Cambridge CB4 0WS
Tel: +44 (0)1223 422269
Mobile: +44 (0)7564 905808
www.blue-scientific.com

PhD vacancy – VITO doctoral grant

Title

Development of electrochemical technology for the recovery critical metals and production of crystalline metallic nano-composites

Preferred education

Electrochemistry / Electrochemical engineering / Chemical engineering / Metallurgical engineering

Description

Recovery of critical metals and metalloids contained in dilute aqueous matrices by transformation into marketable products is at the cutting edge of advanced separation and conversion technologies aiming at resource recovery. In this respect, much work has been performed on technologies targeting removal of the said elements mostly to meet discharge limits; yet, factual transformation into products that overcome the cost of processing is incipient due the challenges associated to the dilution of the metals, complexity of the matrices, selectivity and energy efficiency constrains of the best available technologies. VITO has recently contributed to overcome these challenges with a proposed pipeline in which extraction, phase-transformation (diluted to solid) and recovery are achieved through a series of electrochemical steps, in a so-called gas-diffusion electrocrystalisation process. The dilute metals and metalloids can then be upgraded to valuable crystalline materials in a one-step processing method. Greater knowledge of the fundamentals of this process can enable a highly specific, high rate extraction, recovery and transformation technology which is ecologically safe with a relatively low energy input. The present doctoral research aims to better understand the core phenomena that drive and limit the said process from a combined theoretical (via numerical modeling) and practical perspective. Ultimately, the goal of this work is to further develop capacitive electrocrystallisation consistently with industrial relevance.

We seek candidates with a strong background on Electrochemistry / Electrochemical Engineering / Metallurgical Engineering, to develop the proposal and execute the proposed research primarily at VITO but in close collaboration with the KU-Leuven. An experimental approach is preferred, although good modelling skills are considered an asset. Previous experience with modeling is preferred. This project will reinforce the work of new electrochemical technology which is intertwined with a vibrant research environment.

Promotor:	**Prof. Jan Fransaer (KU Leuven)**	***jan.fransaer@mtm.kuleuven.be***
Co-promotor:	**Dr. Xochitl Dominguez (VITO)**	***xoch@vito.be***

Application procedure:

Please contact Dr. Dominguez by e-mail (including a pdf copy of your CV) no later than the 3rd of July, 2015. Upon appropriateness of your profile, you will be contacted to prepare a research proposal which will be presented to the VITO doctoral jury. The deadlines and guidelines for the VITO doctoral grant are described in the following link: ***https://vito.be/en/join-us/phd-vito***

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Sales and Marketing Product Specialist

Based within travelling distance of Slough
Basic salary plus commission scheme
Private medical insurance

We seek a suitably qualified person with practical experience of electrochemistry to join a highly successful sales team involved in the marketing, sales and support of Bio-Logic instrumentation in the UK & Ireland.

ec-lab was set up four years ago to distribute this range of electrochemical instrumentation and has achieved spectacular year on year growth. Our product portfolio features single channel and multi-channel instruments with dc and ac capability which address applications in energy storage and generation, sensors and corrosion research. A newly introduced product range targets the quality control and quality assurance requirement for extremely large numbers of channel in battery research and manufacture.
Bio-Logic are the world leaders in spatial resolved electrochemical measurements and their scanning probe products feature patented techniques able to differentiate between electrochemical and topographic features.
We work closely with colleagues from Windsor Scientific who sell a diverse range of instrumentation for surface science R&D.
The candidate must be able to demonstrate a strong commitment to succeed, apply practical experience in one of the application/markets highlighted, have organisational skills and the ability to innovate and show initiative.
This is an ideal opportunity for a candidate who wishes to start a career in a commercial company where commitment, success and achievement are rewarded. The job involves travel in the UK & Ireland.
In the first instance, please contact us directly or send your CV to the address below, marked for the attention of Dr. Keith Dawes.

264 Argyll Avenue, Slough Trading Estate, Slough, Berkshire SL1 4HE
Tel:+44 (0)1753-822522 Fax:+44 (0)1753-822002
Email: sales@ec-lab.co.uk; www.ec-lab.co.uk

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ALVATEK

Electrochemistry Product News

BaSyTec
Battery Test Systems

BASYTEC Battery cyclers and capacity testing systems

We are delighted to announce that we have signed an exclusive UK distribution agreement with BaSyTec GmbH.

BaSyTec is a leading supplier of high quality battery test systems with installations worldwide. BaSyTec systems have proven, superior capabilities – such as 3-electrode measurements as standard – excellent accuracy, powerful software, and all at lower cost.

(Shown here, the 32 Channel Test System 32 x 5A channels. Parallel operation capability)

The BaSyTec range extends to high channel counts (to 480 channels) and also to high power systems to 1000V and 1000A in both stand-alone and networked configurations.

Finally, BaSyTec offers the portable, low cost Battery Capacity Test instruments (BCT) range which extends to 32A and 600W.. These provide an in-situ measurement of battery capacity and internal resistance using a defined discharge test. Please contact us for more information or to arrange a demonstration.

Nanjing Jartul Electronics Co., Ltd

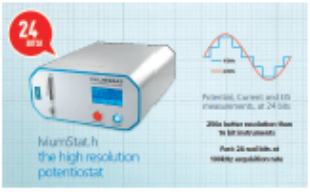
Jartul Electronic Loads

Alvatek is now the exclusive distributor for Nanjing Jartul Electronics. Jartul offers a broad range of electronic loads from low power laboratory loads up to a powerful 500V/240A/6kW unit. These are surprising low-cost and range from around £500 for 30A/150V to around £6,000 for the most powerful unit. Please contact us for more information or to arrange a demonstration.

IVIUM TECHNOLOGIES

IviumStat.h - 256x Resolution Improvement

Ivium's new models with 24-bit measurement and 20-bit output resolution delivers:



- Ability to measure small signals on top of large background signals
- Faster speed (less switching and internal adjustments
- Reduced discontinuities / noise due to switched ranges
- Better linearity
- 20 bits output – 20uV resolution over a full 10V sweep.

IVIUM TECHNOLOGIES

Ivium "DataSecure" Module

Network and protect your vital data in the event of a PC crash. Used with any Ivium potentiostat, this is a USB-connected data store with WiFi and LAN connection to the outside world. IviumSoft then runs on a PC networked to the instrument by WiFi or LAN. Should the pc connection be lost, or the PC crash, data will continue to be recorded onto the integral SD and, when the connection resumes, the data will be recovered and the system resynchronised.

Tel: 01666 500991 Email: info@alvatek.co.uk

www.alvatek.co.uk

New Product Information

New Product Information

PalmSens
Compact Electrochemical Interfaces

PalmSens3

Potentiostat / Galvanostat / Impedance Analyser

EmStat3 and 3+

Potentiostat

EmStat3 MUX8

EmStat3 with integrated
8 channel multiplexer (MUX8)

EmStat3 MUX16

EmStat3 with integrated
16 channel multiplexer (MUX16)

MultiEmStat3

4 channel multipotentiostat
with EmStat3 modules

MultiEmStat3 and 3+

4, 8 or 12 channel multipotentiostat
with EmStat3 or EmStat3+ modules

EmStat3 4WE

Polypotentiostat for use with up to 4
working electrodes.

Distributed in the UK by

ALVATEK

Tel: 01666 500991
Email: info@alvatek.co.uk
www.alvatek.co.uk

New Product Information

ALVATEK

Tel: 01666 500991
Electrochemistry, Fuel Cell & Battery Research & Test Solutions

April 2013:
ALVATEK and BASi sign UK distribution contract

A Selection from the BASi range of electrochemistry accessories. These can be found at www.basinc.com/products/ec.html

Electrochemical Cell Packages
- C-3 Cell Stand for Voltammetry
- Controlled Growth Mercury Electrode (CGME) for Polarography
- RDE-2 Rotating Disk Electrode
- Bulk Electrolysis Cell
- Thin-Layer Cross-Flow Cell
- Spectroelectrochemical Cell
- Glucose Sensor Interface

Electrodes
- Working Electrodes for Voltammetry
- Working Electrodes for Bulk Electrolysis
- Microelectrodes
- Reference Electrodes
- Auxiliary Electrodes
- Wired Enzyme Electrode
- Polishing Kit and Supplies

Cells
- Cell Vials
- Cell Tops
- Gas Sparging & Magnetic Stirring
- VC-2 Voltammetry Cell
- Low Volume Cell

For more information on any of the above products please contact Steve Fryatt at Alvatek

ALVATEK

Tel: 01666 500991 Email: info@alvatek.co.uk

www.alvatek.co.uk

New Product Information

WHISTONBROOK TECHNOLOGIES LIMITED

'experts in electrochemical equipment'

Tel: 01582 434252 **www.whistonbrook.com**

Whistonbrook Technologies design, manufacture and supply a full range of standard and custom potentiostats and other electrochemical instrumentation to meet all your needs.

Analogue Potentiostats

- Low noise analogue potentiostats
- Single channel and dual channel units
- Current ranges from 1nA to 10mA

Prices from £1990

Point of Care (POC) and Medical Diagnostic Instrumentation

- Instruments and software developed for medical diagnostic sensors

Electrochemical Instruments for Student Experiments

- Potentiostats
- Amplifiers for Neuroscience
- Galvanostats
- High impedance buffer amplifiers
- Loads for fuel cells
- Analogue and Digital

Prices from £325* *cost of 20off

Digital Instrumentation with PC software packages

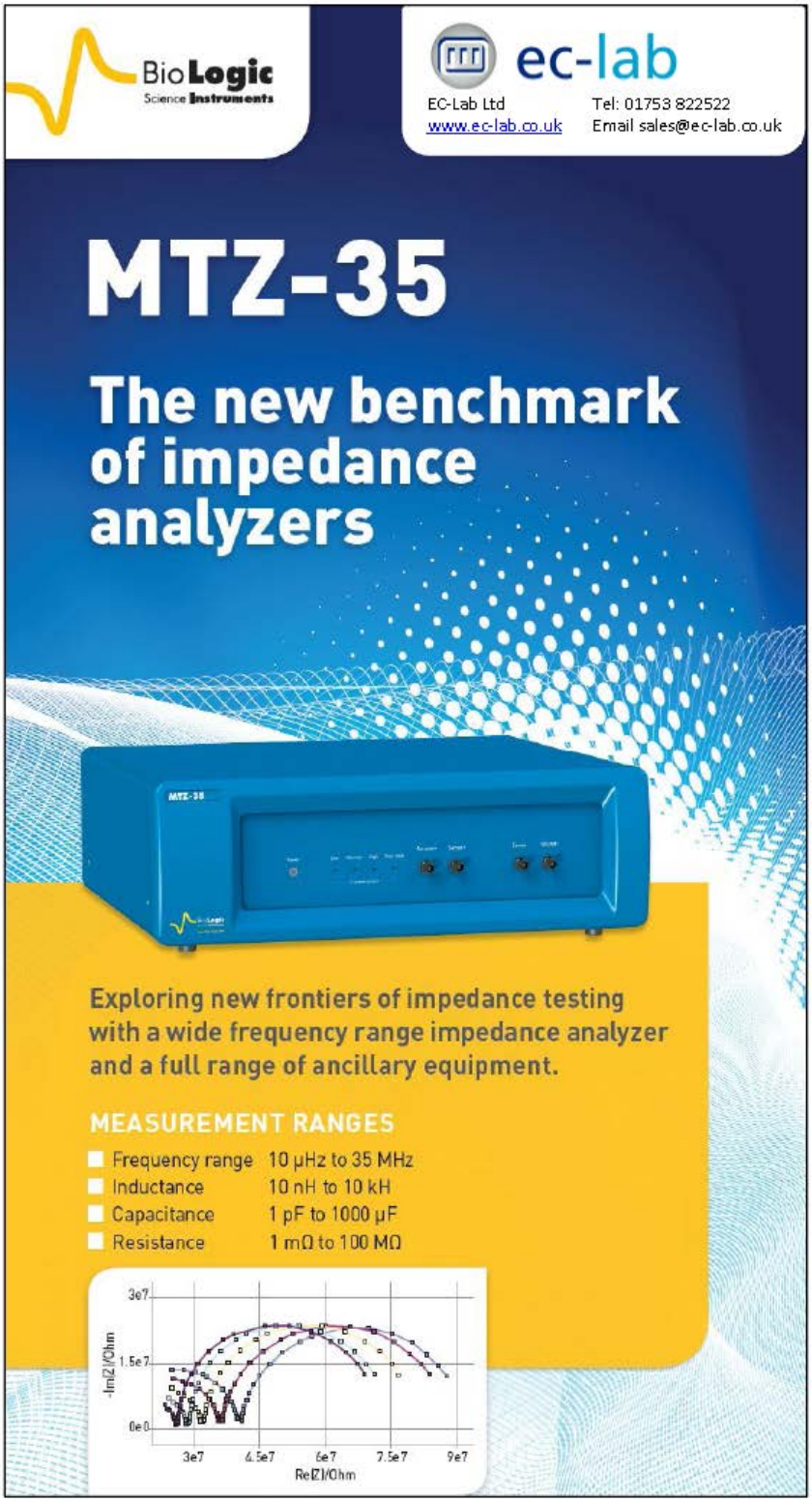
- EzeScan 4 – entry level potentiostat
- EzePG – potentiostat/galvanostat
- Quad potentiostat – four channel potentiostat
- EzeTouch – portable touch screen potentiostat

Prices from £2470

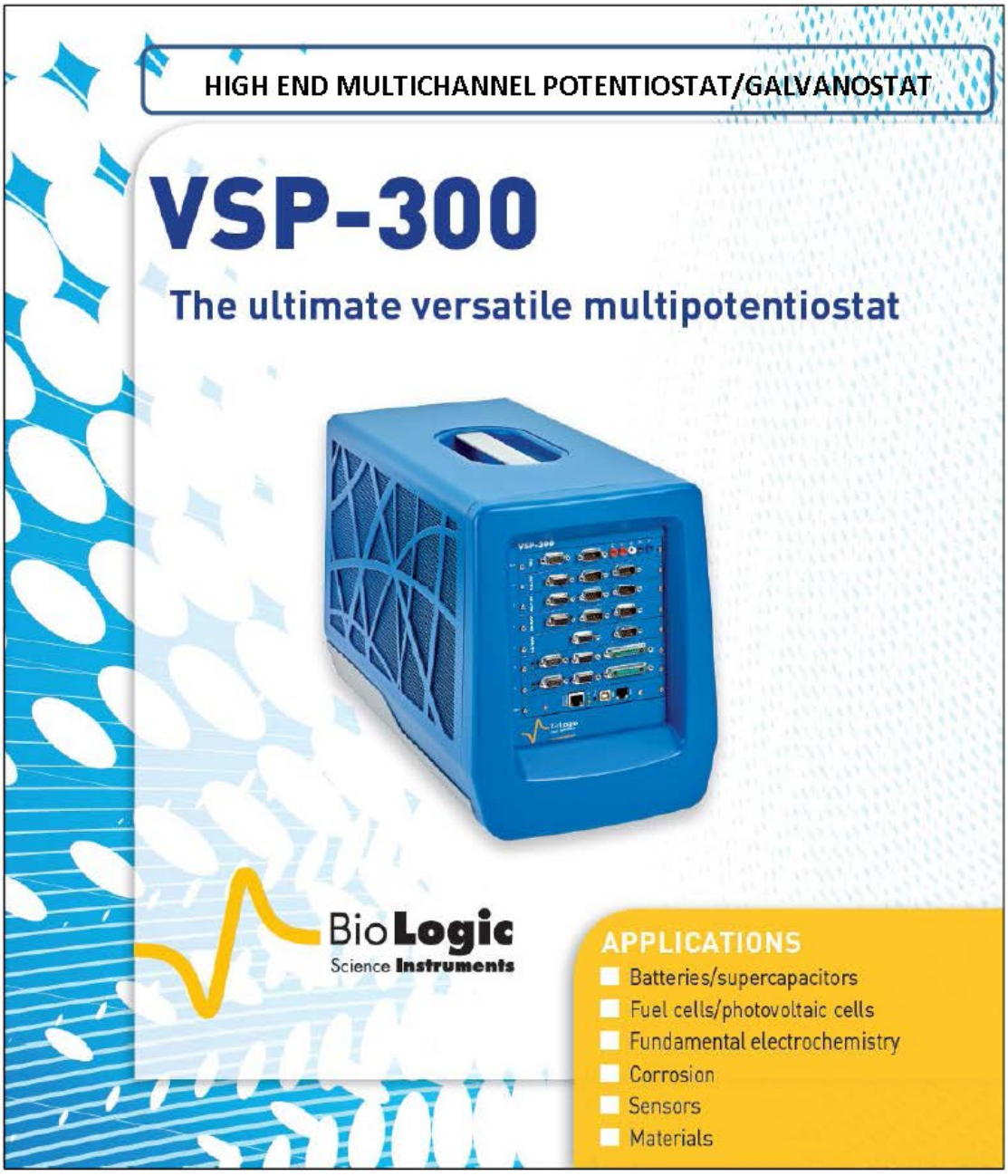
Website	www.whistonbrook.com
Telephone	01582 434252
Email	info@whistonbrook.com

Whistonbrook Technologies Limited, Unit C24, 110 Butterfield, Great Marlings, Luton, Beds, LU2 8DL

New Product Information



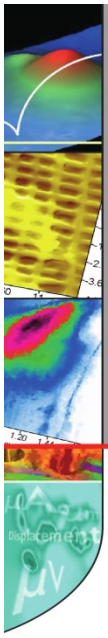
New Product Information



ec-lab

EC-Lab Ltd
www.ec-lab.co.uk
Tel: 01753 822522
Email sales@ec-lab.co.uk

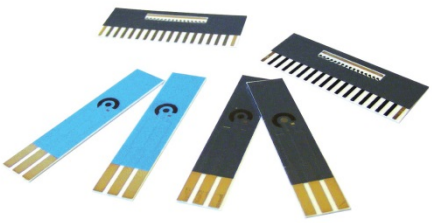
New Product Information



SensorSTAT

uniscan instruments

The Uniscan SensorSTAT™ is a high quality digital scanning multi-channel potentiostat system. The modular design provides a user configurable system for demanding research applications.



- Configurable for 8 to 14 channels
- Single USB connection controls all channels
- Ultra low noise current performance
- UiEChem™ software supplied with system
- Analogue triggering
- 5-WE multiplexing on each channel
- Interfaces to commercial electrochemical sensors
- User programmable techniques via macro programming
- ActiveX software for LabView™ applications

Uniscan instruments
A BioLogic company
Science Instruments

Represented by:

ec-lab

Web: www.ec-lab.co.uk
e-mail: sales@ec-lab.co.uk

Tel: +44(0)1753 822522
Fax: +44(0)1753 822002

Metrohm Autolab

Metrohm Autolab has been a member of the Metrohm Group since 1999. Metrohm Autolab customers can look expect excellent sales and service support from a dedicated team of Electrochemists based at Metrohm's prestigious laboratories at Daresbury near Runcorn.

Metrohm Autolab produces four different potentiostat/galvanostat lines for a wide range of electrochemical applications, as well as modular extensions, software and accessories.

Metrohm Autolab U.K.
www.metrohm-autolab.co.uk
Tel: 01928 579 600
Email: autolab@metrohm.co.uk

New Product Information

DROPSENS

Metrohm U.K. Ltd.

µStat 8000P Multi Potentiostat

Ref. STAT8000P

DropSens is proud to announce the launch of the NEW portable Multi Potentiostat µStat 8000P.

Our brand new instrument, of only 22x20x7 cm, includes 8 channels that can act at the same time as 8 independent potentiostats; it also includes one multichannel that can act as a potentiostat where up to 8 working electrodes share an auxiliary and a reference electrode.

With µStat 8000P users can perform up to 8 different electrochemical techniques at the same time; or carry out the study of one technique's parameter in just one step by applying the same electrochemical technique in several channels but selecting different values for the parameter under study. These are just examples of the enormous capabilities that our new instrument offers.

µStat 8000P can be applied for Voltammetric or Amperometric measurements, including 11 electroanalytical techniques. In addition, µStat 8000P owners can later upgrade their instrument to a µStat 8000 by just purchasing an extension. This self-upgrade does not require any hardware modification, but it is implemented by means of a Galvanostat software update kit.

The NEW portable Multi Potentiostat is Li-ion Battery powered (DC charger adaptor also compatible), and can be easily connected to a PC via USB or Bluetooth®.

µStat 8000P is controlled by the powerful software "DropView 8400" which allows plotting of the measurements and performing the analysis of results. DropView software provides powerful functions such as experimental control, graphs or file handling, among others.

Available techniques:

POTENTIOSTAT

Voltammetry

LSV	Linear Sweep Voltammetry
CV	Cyclic Voltammetry
SWV	Square Wave Voltammetry
DPV	Differential Pulse Voltammetry
NPV	Normal Pulse Voltammetry
NDP	Differential Normal Pulse Voltammetry
ACV	AC Voltammetry

Amperometry

AD	Amperometric Detection
FA	Fast Amperometry (t_{int} < 0.1 s)
PAD	Pulsed Amperometric Detection
ZRA	Zero Resistance Amperometry

Contact us:

email: dropsens@metrohm.co.uk | website: dropsens.co.uk | Tel: 01928 579 600

New Product Information

DROPSENS

Metrohm U.K. Ltd.

µStat 8000P Multi Potentiostat

Ref. STAT8000P

Instrument Specifications		
Power		Li-ion Battery (3500 mAh) USB DC charger adaptor compatible (5 V, 15 W)
PC interface		Bluetooth® USB
Operating modes		8x 1 Channel Potentiostat 1x 8 Channel Potentiostat
DC-Potential range	±4.096 V	
Current ranges (potentiostat)		±1 nA to ±100 mA (9 ranges)
Maximum measurable current	±80 mA	
Rise time	20 µs	
Applied Potential Resolution:	1 mV	
Measured Current Resolution	0.025 % of current range	(1 pA on lowest current range)
Potential Accuracy		±0.2 %
Current Accuracy		≤0.5 % (current range dependent)
External inputs/outputs		· 5 Digital Input/Output pins [PIO 1, PIO 2, PIO 3, PIO 4, PIO 5] · 3 Analog Inputs multiplexing PIO 1, PIO 2, PIO 3 · 2 Analog Outputs (configurable I-out or E-out)
Indicators		LCD display in front panel
Dimensions		22.2 cm x 20.5 cm x 7.5 cm (L x W x H)
Weight		1.6 kg

Control Specifications			
General Pretreatment	Conditioning stage duration:	0 – 1300 s	
	Deposition stage duration:	0 – 1300 s	
	Equilibration stage duration:	0 – 1300 s	
General Parameters	Begin, End, Base, Vertex potentials:	-4.096 V to +4.096 V	
	Step potential:	1 mV to 500 mV	
	Pulse potential:	1 mV to 250 mV	
	Scan rate:	1 ms up to 1.3 s per step	
Specific Parameters	SWV	Frequency:	1 Hz to 400 Hz
		Amplitude:	1 mV to 250 mV
	DPV, NPV, NDP	Modulation time:	1 ms to 1300 ms
		Pulse time:	1 ms to 1300 ms
	ACV	Frequency:	2 Hz to 250 Hz
		Amplitude:	5 mV to 250 mV (RMS)
	Chrono. Methods (AD, ZRA)	Interval time:	0.1 s to 1300 s
		Run time:	Hours (65000 points)
	Fast Chrono. Methods (FA)	Interval time:	1 ms to 1300 ms
		Run time:	Hours (65000 points)
	PAD	Pulse time:	1 ms to 1300 ms
		Interval time:	10 ms to 1300 ms
		Run time:	Hours (65000 points)

Specifications are subject to change without previous notice

Related products


CABSTAT1


CABSTATMULTI


CAST


CAST8X


8X110

Contact us:

email: dropsens@metrohm.co.uk | website: dropsens.co.uk | Tel: 01928 579 600

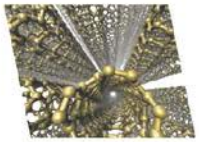
PARSTAT™ MC

multichannel potentiostat/galvanostat

Protect Your Experiment From the Unexpected

Designed to protect your experiment from the unexpected, the PARSTAT™ MC is the most modular and robust multi-channel electrochemical testing platform on the market. It builds on our industry-leading 50+ years of experience in potentiostat development and software user-interface design.

- The *ultimate* in modular design
- Widest dynamic current range of 2 Amps to 4 nA (120 fA resolution) as standard - No need for expensive hardware options



- Hot-swappable channels allow potentiostats to be added or removed without interruption of experiments on other channels
- Fast data acquisition at 500 kS/sec allows for a wide range of high speed applications

- Features the most popular electrochemical acquisition and analysis software solution, VersaStudio
- Floating ground allows testing of multiple samples in the same cell

Princeton Applied Research

www.princetonappliedresearch.com
pari.info@ametek.com
P: 865.425.1289 F: 865.481.2410

AMETEK

New Product Information

New Product Information

micrux TECHNOLOGIES

Think & Innovate

Thin-film microelectrodes

» POTENTIAL IN ELECTROCHEMISTRY

Thin-film technologies enable the manufacture of **standard** and **customized** (micro)electrodes with a **low-cost**, **high precision** and **resolution**. Micrux can adapt the electrochemical system to the requirements of the customers applications.

Thin-film accessories: **flow cell** and **universal connector** have been developed to use in combination with these electrodes.

Flow cell

» PROFICIENCY IN MICROFLUIDICS

Micrux has experience in developing capillary Electrophoresis microchips with electrochemical detection and the small and totally portable instrumentation to use them: Holder, iHVStat, miniPump, etc.

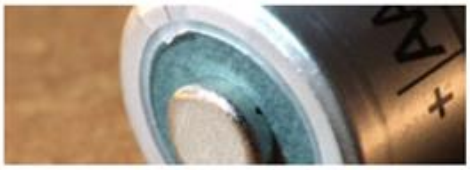
www.micruxfluidic.com

sales@micruxfluidic.com

SCI

Where science meets business

Electrochemical Technology



The Electrochemical Technology Technical Interest Group is involved in all aspects of the application of electrochemical science and engineering. The Group's aim is to promote research and development of electrochemistry which leads to the production of appropriate technologies and industrial and consumer products. The Group provides an interface between academia and industry and is a forum for promoting research and collaboration between a range of scientific and engineering disciplines.

Industrial sectors

Electrochemical activities cut across all industrial sectors, including chemical, pharmaceutical, electrical, electronic and micro-electronic, information technology, mining and metallurgical, biotechnology, transportation, medical, water and wastewater. As such, the Group's interests include applications of electrochemistry in:

- sensors and monitors
- energy conversion and storage
- synthesis of chemicals, pharmaceuticals, biochemicals, polymers and electronic materials
- materials protection, processing and fabrication
- environmental protection and control

Join at:
http://www.soci.org/membership-and-networks/technical-groups/electrochemical-technology-group

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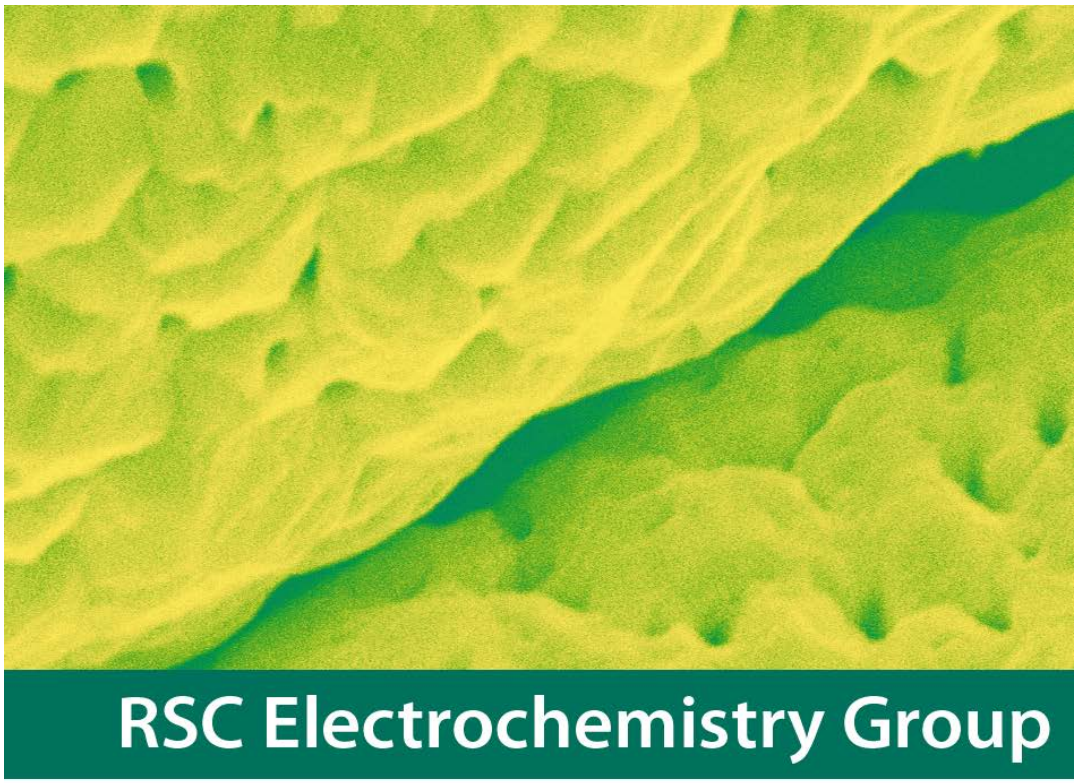
RSC Electrochemistry Group



This RSC Group is part of the Faraday Division, involved in all aspects of electrochemical processes (fuel cells, energy sources, analytical devices and sensors, electrochemical planting and synthesis, fundamental research etc).

Activities:

- The Group organises the annual 'Electrochem' meetings (Faraday Medal) to reward outstanding international scientists. For up-to-date information, go to the RSC's web pages for the Electrochemistry Group.
- The Electrochemistry newsletter: available quarterly, in pdf, from our RSC web pages, it highlights events' reports and general sector's news and insights.
- Student bursaries: to support/encourage graduate students giving lectures on their PhD work at national and/or international conferences.
- Outreach: activities involving the public and schools to raise awareness of the fundamental importance of electrochemical processes today.

RSC | Advancing the Chemical Sciences

www.rsc.org/electrochemistry

Registered Charity Number 207890

Join at:
http://www.rsc.org/Membership/Networking/InterestGroups/Electrochemistry/

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The Electroanalytical Sensing Systems Group

The Electroanalytical Sensing Systems Group is one of the RSC's many Interest Groups. The Interest Groups are member driven groups which exist to benefit RSC members, and the wider chemical science community, in line with the RSC's strategy and charter.

Join at:
http://www.rsc.org/Membership/Networking/InterestGroups/Electroanalytical/

END

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