two 2010

NEWSLETTER

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International Journal of Electrochemistry

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Aims and Scope

International Journal of Electrochemistry is a peer-reviewed, open access journal that publishes original research articles as well as review articles in all areas of electrochemistry.

Open Access Support

Open access publishing proposes a new model for scholarly journal publishing that provides immediate, worldwide, barrier-free access to the full-text of all published articles. Open access allows all interested readers to view, download, print, and redistribute any article without a subscription, enabling far greater distribution of an author's work than the traditional subscription-based publishing model. International Journal of Electrochemistry does not require any page charges, color charges, or article-processing charges.

International Editorial Board

The journal has a distinguished Editorial Board with extensive academic qualifications, ensuring that the journal will maintain high scientific standards and have a broad international coverage.

Electronic Submission

The journal employs an electronic Manuscript Tracking System located at http://mts.sage-hindawi.com/ to enable a rapid turnaround time from submission to publication. Manuscripts are invited and should be submitted by one of the authors of the manuscript through this electronic system.

Peer Review

All manuscripts are subject to peer review and are expected to meet standards of academic excellence. Submissions will be considered by an editor and—if not rejected right away—by peer-reviewers, whose identities will remain anonymous to the authors.

Professional Publishing Services

The journal provides professional copyediting, typesetting, graphics editing, and reference validation to all accepted manuscripts.

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Contact Information

Editorial Office: ijelc@sage-hindawi.com

ISSN: 2090-3529; e-ISSN: 2090-3537; doi:10.1155/IJELC

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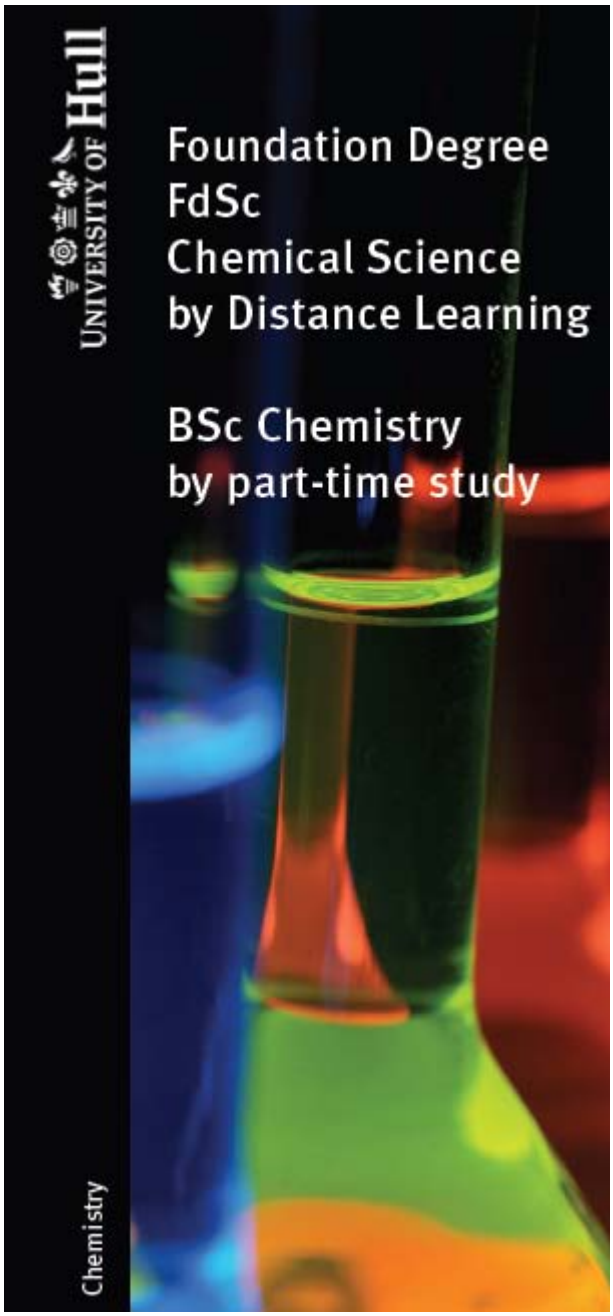
Editorial Board



Entry Requirements

Students with a wide range of qualifications have successfully studied for a chemistry degree at Hull. Our typical entry requirement is A-level Chemistry or equivalent, such as AVCE Science, BTEC National Certificate or a Diploma in which Chemistry is the major subject. However, applications from those with other qualification or from students with appropriate experience are welcome. Anyone thinking about doing the course, but is unsure if their qualifications and experience are appropriate should contact the course director for advice (see below).

Direct entry to advanced year of the course is possible for applicants with suitable experience or relevant qualifications such as a HNC or HND, and applicants are advised to contact the course director for further advice (see below)

Students studying the distance learning course must have regular access to a PC with internet connectivity.

Professor T Overton
Department of Chemistry
The University of Hull
Hull, HU6 7RX

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F: 01482 465475 (secretary)
F: 01482 466410
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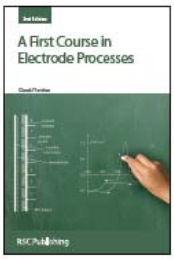

A First Course in Electrode Processes

Author: Derek Pletcher

Series: A First Course in Electrode Processes
Publisher: Royal Society of Chemistry
ISBN: 9781847558930
Price: £39.99
Publication date: 2009
Target audience: Professional and Scholarly

Format: BB Hardback
Size: 234mm x 156mm
Pages: 316
Illustrations: Black & White
BIC: PNRH, PNF, PN

Synopsis

This book provides a basis for an introductory course on electrochemistry. Uniquely, little or no background knowledge of mathematics is required to follow the course, as concepts are clearly emphasised throughout. The first edition has been adopted by university course across the globe and remains highly sought after. This second edition has been completely revised and expanded, and will continue to appeal to undergraduate and postgraduate students of chemistry and related disciplines, Professionals wishing to apply electrochemical methods in their work will also find the book invaluable.

The text is supported by a large number of figures which illustrate key points. A final chapter contains problems with fully worked answers to test reader's understanding.

Brief Contents

For more information please contact:

Book Sales and Marketing | Royal Society of Chemistry
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A First Course in Electrode Processes	9781847558930		£39.99	

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Solutions for electrochemical research

NEWSLETTER

Ivium Technologies keeps innovating: Latest news for 2010!

New and Improved:

CompactStat & **IviumStat**

New features:

- *Increased frequency range: 10µHz - 3 MHz*
- *Increased compliance: ±8 V to ±10 V*
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The external Plus-module is replaced by an optional power booster that is integrated inside the CompactStat:

- Better performance, higher accuracy, less noise
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3 ex-factory configurations available:

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ii.	**±20 V @ ±250 mA**
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- *Improved high and low frequency performance*
- *Better noise reduction*

New instruments:

In addition to the already known IviumStat.XR (±20V@±5A) the IviumStat extended-range-family now also includes:

- IviumStat.XRi: **±10 V @ ±10 A** *Now available*
- IviumStat.XRe: **±50 V @ ±2 A** *Expected in Q3*

More for less:
The first affordable multi-channel high performance instrument!

Ivium-n-Stat:

- 1-8 channels per frame, stackable up to 64 channels
- Independent floating operation
- Modules encapsulated for easy handling

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- ±2.5 A @ ±10 V (expandable to ±5 A @ ±10 V)
- Each channel with integrated impedance analyser: 10µHz to 250 kHz
- Data acquisition rate: 100 kHz
- Current ranges 10 nA – 10 A; min. resolution: 1 pA
- Peripheral analog/digital channels

ModuLight

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- Extensive Solar cell applications in the Ivium software, including E/I curves as function of the light intensity, IMVS/IMPS, and solar cell modelling resulting in all characteristic values of the studied object.

FastScan module

Coming soon!

sampling: 20MHz
scanrate: 10 MV/s

Data recorder and ultrafast scan generator add on module for CompactStat & IviumStat

Data sampling:
- 2 channels, 16 bits
- Max acquisition speed: 20,000,000 samples/sec
- Data memory: 10,000,000 data points
- Input bandwidth > 8 MHz

Scan generator:
- Max scanrate: 10,000,000 V/sec
- Vertex resolution: 0.125 mV at ±4 V scanrange

Ivium Technologies frequently visits conferences and meetings all over the world. Check our website at "www.ivium.nl/Upcoming events" to see when we are attending an event near you.

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News

FUEL CELL EDUCATIONAL KITS

Alvatek has been appointed as the UK distributor for Pragma Industries of France. Pragma manufactures fuel cell educational kits and research tools for universities and other higher educational establishements. Pragma's Clear-Pak Experiment Kit is a complete solution for teaching and learning the physics, chemistry and engineering of fuel cells. Pragma's CCU—Cell Compression Unit, is a single unit to control compression, force and temperature applied to a single PEM fuel cell during a run test.

ClearPak Experiment Kit

Cell Compression Unit

For More Information:

Contact: Steve Fryatt

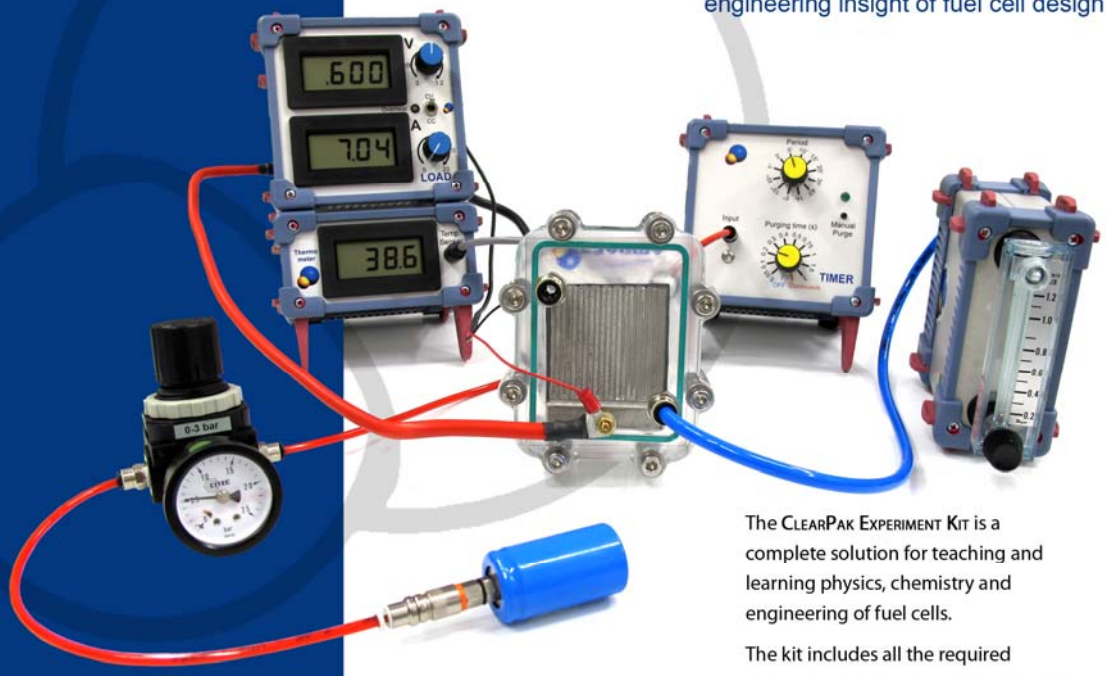
Alvatek Ltd, Tel 01666 500991

Email info@alvatek.co.uk

PRAGMA INDUSTRIES

ClearPak Fuel Cell Experiment Kit

Complete hardware set to get an engineering insight of fuel cell design



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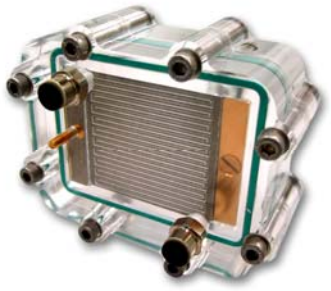
ClearPak Fuel Cell is a 25cm² single cell with see-through design allowing observation of water behaviour inside the cell. It gives the user a comprehensive insight into the engineering of fuel cell stacks, their performance and water management.

ClearPak is a real fuel cell capable of delivering more than 10 amps. Combined with the components of the experimentation kit, it addresses the beginner as well as the advanced user.

The ClearPak Experiment Kit is a complete solution for teaching and learning physics, chemistry and engineering of fuel cells.

The kit includes all the required components to operate and assess the performance of ClearPak: adjustable electronic load, air supply with adjustable flowmeter, hydrogen supply with chemical storage and automatic purge.

The components are designed to be robust, practical, easy-to-operate and to be representative of commercial fuel cell systems. ClearPak is also a take-apart fuel cell that can be customized by the user with various flowfield designs or different Membrane-Electrode Assemblies in order to expand the scope of experimentation.



IVIUM TECHNOLOGIES

Solutions for electrochemical research

Ivium-n-Stat

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Stackable up to 8 frames with 64 channels

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Each channel with integrated impedance analyser!

Ivium-n-Stat:

- *1-8 channels per frame, stackable up to 64 channels*
- *Independent floating operation*
- *Modules encapsulated for easy handling*
- *2-mode software:*
  IviumSoft: for independent operation per channel
  IviumNcontrol: synchronous control of multiple channels

s-Module:

- *±2.5 A @ ±10 V (expandable to ±5 A @ ±10 V)*
- *Each channel with integrated impedance analyser: 10µHz to 250 kHz / 1MHz*
- *Data acquisition rate: 100 kHz*
- *Current ranges 10 nA – 10 A; min. resolution: 1 pA*
- *Peripheral analog/digital channels*

Alvatek Ltd.
Tel. 01666 500991 E-mail: sales@alvatek.co.uk

Ivium Technologies was founded in 2001 and is based in the Netherlands.
Our mission is to provide the latest electronics and technology to electrochemical research and facilitate the advancement in science. We develop and supply equipment for electrochemical research all over the world and we have grown to where we are today by combining modern design techniques and state-of-the-art components with efficient manufacture and swift customer service. Our dedication to developing solutions for electrochemical research has resulted in high performance instrumentation for a wide variety of applications. The cornerstone of our product range is a potentiostat/galvanostat platform that is available in a high power general-purpose device (IviumStat), and a low-power portable device (CompactStat).

CompactStat — Mobile measurement station

Ivium Technologies is best known for its development of the **CompactStat™:** the only true mobile potentiostat/galvanostat with built-in impedance analyser on the market. It is powered directly from the USB port of a PC/laptop and does not need a power-cord.

Portable: < 600 gram
No power supply required!
With integrated impedance analyser

IviumStat — All purpose potentiostat /galvanostat

Wide dynamic range

- **Max 5A @ ± 20V**
- **Expandable to 40A**

CompactStat&IviumStat:

- ***Potentiostatic/galvanostatic operation***
- ***Integrated impedance analyser: 10μHz to 2 MHz***
- ***Data acquisition rate: 100 kHz***
- ***High resolution: 0.15 fA***
- ***Peripheral analog/digital channels***
- ***Expandable with modules***
- ***High performance data analysis software included***

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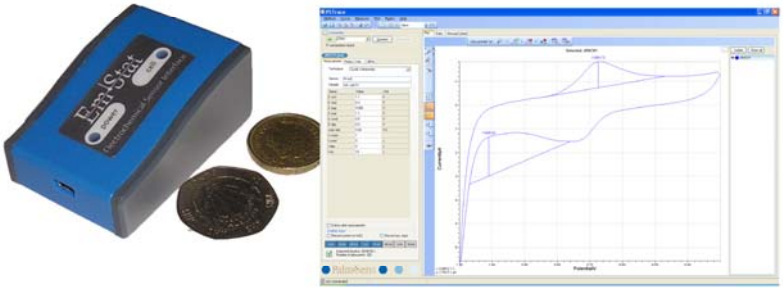

- USB-powered
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Entry level

AUTOLAB/PGSTAT101

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The small footprint allows you to place a high quality potentiostat/galvanostat on a crowded workbench. Analog and digital inputs and outputs for interfacing and controlling external devices are available. The Autolab/PGSTAT101 comes with an internal dummy cell.

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• Electrode connections	2, 3 and 4
• Potential range	+/- 10 V
• Compliance voltage	+/- 10 V
• Maximum current	+/- 100 mA
• Current ranges	10 mA to 10 nA, in 7 decades
• Potential accuracy	+/- 0.2 %
• Potential resolution	3 µV
• Current accuracy	+/- 0.2 %
• Current resolution	0.0003 % (of current range)
• Input impedance	> 100 GOhm
• Potentiostat bandwidth	1 MHz
• Computer interface	USB
• Control software	NOVA

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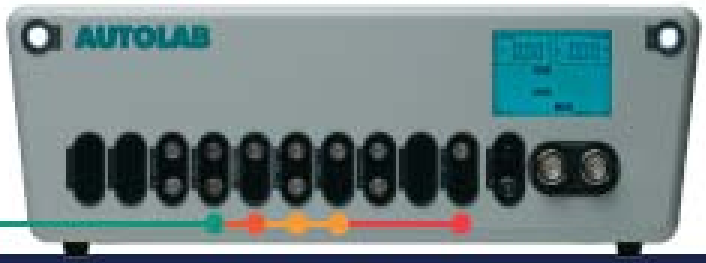
AUTOLAB



- AUTOLAB/PGSTAT302N
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  Shortest interval time 100 ns /1 Million points
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  Scan rates up to 250 kV/s
- FRA2 - FREQUENCY RESPONSE ANALYZER
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- BA - DUAL MODE BIPOTENTIOSTAT
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NOVA

Electrochemical

Software

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Contents

Editorial

Oh how WONDERFUL! that only a week after Professor Anny Jutand presented electrochemical investigations with Honorary RSC Fellow Professor Christian Amatore unravelling and highlighting the multiple rôles played by hydroxide ions within the Suzuki-Miyaura coupling reaction, at the ISE meeting in Nice, it was announced that Professor Suzuki will be awarded, in part, the 2010 Nobel Prize for Chemistry. Futher, as readers may be aware (*q.v.* this magazine, number 105, May 2003, p.13), the only previous ISE meeting I attended, saw Professor Amatore giving a "particularly memorable lecture" on the mechanism of the Heck reaction. How delightful it is that both Professors Heck and Suzuki will be awarded the Nobel Prize this year.

With the main conference season for this year now essentially over, and the new Academic Year well-underway, I am reminded that this is the start of the sixth year that I have been in my current university position, but the first since my election to a fellowship of the Higher Education Academy. What enthuses me most about the academic job is exactly how much I learn from my students, especially those students who work exceptionally hard, and, thereby, with whom, it is a real privilege and pleasure to interact. I had not fully realised experientially, until relatively recently, by just how much even one stunningly-superb student (forgive the alliteration) can change and challenge my own perspectives, by fostering much excitement, enlightenment and enjoyment. So it is with much warmth and heartfelt gratefulness that I feature several people within this issue - electrochemists whose generosity, dedication to their work, perspicacity, intellectual strength, and shear *joie de vivre* have enriched, at least, my life.

It remains for me to thank all those who have contributed material and ideas for, and advice on, the content of this issue, and in noting the lateness of this issue, to wish you all an enjoyable bonfire and Happy Diwali.

Jay Deep WADHAWAN

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 at:

electrochemistry.newsletter@googlemail.com

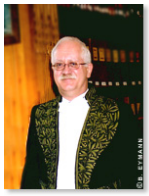
Missed a copy? You can catch up on all the news *via* our webspace hosted by the Royal Society of Chemistry at the following URL.

http://www.rsc.org/Membership/Networking/InterestGroups/Electrochemistry/news.asp

Congratulations to....

Dr. Tim ALBRECHT of **Imperial College, London**, and the ECS representative of the RSC Electrochemistry Group Executive Committee, on his recent marriage.

Professor Christian AMATORE, *Honorary Fellow of The Royal Society of Chemistry,* of **Ecole normale supérieure, Paris, France**, on his election to one of the Vice-Presidents of *The International Society of Electrochemistry.*



Professor Fraser A. ARMSTRONG, FRS, of **Oxford University**, winner of the **2010 RSC Joseph Chatt Award** for "his development of protein-film electrochemistry, and the invention of technologies that utilize metalloenzymes as components of catalysts to harness sunlight to convert water to hydrogen and to capture carbon dioxide.

Professor Allen J. BARD of **The University of Texas at Austin, USA**, on his election to an *Honorary Fellowship* of *The Royal Society of Chemistry.*

Dr. Craig E. Banks of **Manchester Metropolitan University**, on his election to a *Fellowship of The Royal Society of Chemistry*.

Professor Richard G. COMPTON of **Oxford University**, on publishing over 1000 research papers, and on his induction into the *Fellowship of The International Society of Electrochemistry*.

Dr. Soren DENIM of **The University of Cambridge**, recipient of **2010 RSC Ronald Belcher Award**, for his "work in the area of bioelectrochemistry, and specifically, for his use of the catalytic effect of an enzyme to improve charge transfer rates." The following has been taken from the RSC website.
"Soren Demin studied for his M.Phil. and Ph.D. degrees at the University of Cambridge in the Department of Chemical Engineering and Biotechnology under the supervision of Professor E. A. H. Hall in the Analytical Biotechnology group. His Ph.D. thesis entitled *Breaking the barrier to fast electrochemistry* is a look at the deeply buried redox site of glucose oxidase *in situ via* direct fast electrochemistry. This research is aimed at helping the understanding of how biology can be interfaced with electronic components and is applicable in areas of biosensing, photovoltaics and organic computing. He has been previously awarded the Future Leaders in Biotechnology Prize, and is a multiple Cambridge Blue. Currently, he works on technical due-diligence for tier 1 investment banks and hedge funds in the Biotechnology and pharma (*sic*.) industries."

President Professor A. Robert HILLMAN, of Leicester University, *President of The International Society of Electrochemistry*, on his appointment to the **Chair of the Electrochemistry Division of The European Association for Chemical and Molecular Sciences (EuCheMS)**.

Jason J. HORN, Esq. on obtaining a Master of Science (Research) degree at **The University of Hull**, and for his appointment to a Research Scientist position at **Belzona, Ltd.**

Professor Alexei KORNYCHEV of Imperial College, London, recipient of the **2010 RSC Interdisciplinary Prize** for "his many outstanding contributions at the interfaces of Chemistry with both Physics and with Biology."

Dr. Nathan S. LAWRENCE, Senior Research Scientist at **Schlumberger Cambridge Research**, recipient of the **2010 RSC Harrison-Meldola Prize** for "research originality and innovation in the field of applied analytical electrochemistry".

Professor Robin N. PERUTZ, FRS of **York University** on his election to *Fellow of The Royal Society*.

Dr. Neil V. REES of **The Physical and Theoretical Chemistry Laboratory** at **Oxford University** on his election to a *College Lectureship in Physical Chemistry* at **Lady Margaret Hall, Oxford**.

Professor Patrick R. UNWIN of **The University of Warwick**, winner of the **2010 Geoffrey Barker Medal** of *The Royal Society of Chemistry Electrochemistry Interest Group*.

Dr. Andrew J. Wain of **The National Physical Laboratory**, on his promotion to a Senior Research Scientist.

The Editor warmly congratulates **Professor Emmanuel MAISONHAUTE** (pictured with Professor Richard G. Compton) of **Université de Pierre et Marie Curie (Paris VI), France** on his appointment within the group UPR 15 CNRS: Laboratoire interfaces et systems électrochimiques (LISE), and wishes him the very best of success in his new rôle.

The Editor warmly congratulates **Professor Marc ROBERT** of **Université Paris Diderot (Paris VII), France** on his election to Professeur Classe 1.

The Editor warmly congratulates **Professor Uwe SCHRŐDER** of **Technische Universität Braunschweig, Germany** on his new position, and wishes him the very best of success in his new rôle.

The Editor warmly congratulates **Professor Irina SVIR** (pictured mid-right with Sergeant Gabriel Amatore, Dr. Muriel Amatore, Professor Christian Amatore and Professor Richard Compton) on being awarded a four-year grant from Paris ANR.

The Editor warmly congratulates **Dr. Laurent THOUIN** (mid-left, pictured with Dr. Issa Tapsoba, Professor Jean-Noël Verpeaux and Dr. Leila Boubekeur) of **Ecole normale supérieure, Paris, France**, on his election to Directeur adjoint UMR 8640-"PASTEUR", and wishes him the very best of success in his new rôle.

The Editor very warmly congratulates **Jonathan E. HALLS, Esq.**, on graduating with a *Class I (with Honours) degree in Chemistry with Nanotechnology*, from **The University of Hull**, and for being awarded the prestigious *Hopkins Prize for Chemical Sciences* of the Department of Physical Sciences (Chemistry *and* Physics) at The University of Hull, for "excellence during the course of [his] degree".

The Editor further congratulates Jonathan on producing a Company Report during his recent, , internship at **Schlumberger Cambridge Research**.

In addition, the Editor warmly, and sincerely, wishes him simply the very the best of success in his new position at **The University of Bath**.

Puits de Science

WARNING! Some of the following material is in French.

The French Chemical Society sends out bi-monthly electronic newsletters which include important technology news from across Europe; the following caught the Editor's eye in the May 15, 2010 newsletter (sent out at 23H38 (Paris time) on May 16, 2010)……

Dr. Frank MARKEN (top, linguist extraordinaire*) with Dr. Petra CAMERON (bottom left) and Dr. David FERMIN (bottom right).*

« Du carburant automobile à partir de l'air ambiant »

« Des chercheurs du Sud-Ouest de l'Angleterre travaillent actuellement sur un projet d'1,4 M£ qui pourrait permettre de récupérer le dioxyde de carbone de l'air et le transformer en carburant automobile. Le projet, dirigé par **l'Université de Bath**, est réalisé en collaboration avec des scientifiques et des ingénieurs de **l'Université de Bristol** et de **l'UWE** (University of the West of England).

« Le projet vise à élaborer des matériaux poreux pouvant absorber le gaz responsable du réchauffement climatique et le convertir en produits chimiques qui peuvent être utilisés pour fabriquer du carburant automobile ou de la matière plastique, le tout au cours d'un processus alimenté par l'énergie solaire.

« Plus concrètement, les chercheurs :
i) développeront des réseaux métallo-organiques (MOF [1] : Metal Organic Frameworks), sortes de matériaux nanoporeux aux capacités d'absorption phénoménales qui peuvent stocker des gaz comme le CO_2 ;
ii) utiliseront des catalyseurs pour transformer les MOFs en carburant ou en matières plastiques.
Les chercheurs espèrent qu'à l'avenir les matériaux poreux seront utilisés dans les cheminées d'usine afin de récupérer des polluants tels que le dioxyde de CO_2, et ainsi, réduire les effets du changement climatique. **Selon le Dr Frank MARKEN, maître de conférences en chimie à l'Université de Bath : « Les procédés actuels reposent sur des technologies distinctes pour capturer et utiliser le CO_2, ce qui rend le processus très inefficace. En combinant les processus, il est possible d'en améliorer l'efficacité et de réduire au minimum l'énergie nécessaire pour conduire à la réduction de CO_2. Ce sera un énorme défi, mais nous avons une très bonne équipe interdisciplinaire comprenant des chimistes, des ingénieurs chimistes, des biologistes, et des analystes du cycle de vie ». Dr Petra CAMERON**, RCUK Fellow, de la faculté de chimie de Bath, espère : « que l'utilisation des énergies renouvelables pour recycler le CO_2 sera un moyen efficace de réduire la quantité de CO_2 dans l'atmosphère ».

« La collaboration entre les universités de Bath et Bristol réunit des scientifiques de diverses disciplines, y compris des chercheurs de l'I-SEE (Institute for Sustainable Energy & the Environment, Institut pour l'énergie et l'environnement durable), de la faculté de chimie de l'Université de Bristol, du laboratoire de robotique de Bristol (BRL, Bristol Robotics Laboratory), et de la faculté des sciences de la vie de l'UWE. D'après le **Dr Ioannis IEROPOULOS**, du BRL : « l'un des grands avantages de ce projet est qu'il va exploiter les capacités naturelles des micro-organismes à réduire les émissions de CO_2 dans l'atmosphère et dans le même temps produire de l'électricité ou de l'hydrogène ». **Dr David FERMIN** de l'Université de Bristol indique : « qu'à l'heure actuelle, il n'existe pas de technologies à grande échelle disponibles pour la capture et le traitement du CO_2 de l'air. Cela est dû au fait que le CO_2 est plutôt dilué dans l'atmosphère et que sa réactivité chimique est très faible. En combinant un matériau conçu intelligemment à la catalyse hétérogène, l'électrocatalyse et la biocatalyse, notre objectif est de développer une technologie verte efficace ».

« Bien que ce projet, financé par l'Engineering & Physical Sciences Research Council (EPSRC, Conseil de recherche pour les sciences physiques et de l'ingénieur), n'en soit qu'à ses débuts, les chercheurs prédisent déjà que cette nouvelle technologie pourrait faire une réelle différence dans la lutte contre le changement climatique.

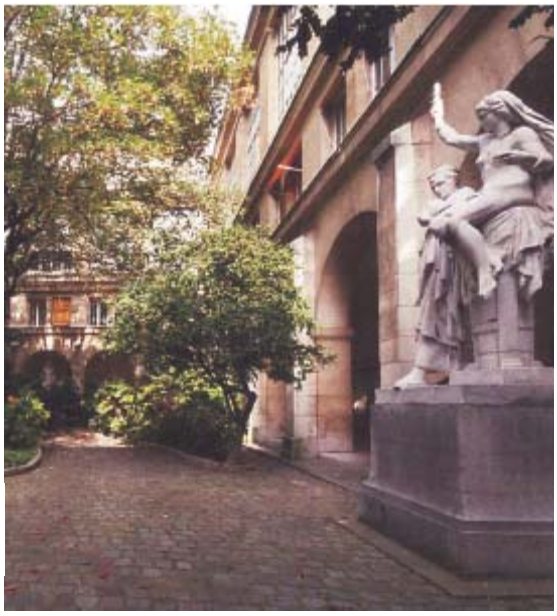
[1] Les MOF sont des échafaudages d'ions ou d'agrégats métalliques reliés par des molécules organiques. Le tout forme une structure poreuse, contrôlable à l'échelle du nanomètre, qui leur confère une surface spécifique phénoménale, souvent supérieure à celle des zéolithes conventionnelles ou du charbon actif, dont c'est pourtant la principale caractéristique. Du coup, ces MOF peuvent capturer beaucoup plus de molécules que les composés conventionnels, qui absorbent typiquement 1% de leur masse. »

Source - University of Bath, 24/03/2010, http://www.bath.ac.uk/news/2010/03/24/carbon-capture/
- USINENOUVELL.COM,18/12/2008, http://redirectix.bulletins-electroniques.com/ZWCJb
ADIT, BE Royaume-Uni (N° 103, 07 mai 2010)

In Pictures...

Professor Christian AMATORE was elevated to Knight of the Legion of Honour on June 29, 2010 at the Campus des Cordeliers, Paris, France.

M. Christian Amatore receiving his medal from M. Pierre Léna.



The beautiful Campus des Cordeliers is part of Paris VI and is in the 5th district in Paris, opposite Paris V; it used to be a convent.

Professor Amatore spoke of the inspiration he received as a student from the late Professor Marc Julia (who tragically passed away earlier that week), and was particularly eloquent in highlighting the admiration he has of Dr. Issa Tapsoba (left), a young lecturer at The University of Ouagadougou, Burkina Faso.

Later that evening, over dinner, Professor Amatore celebrated with family and friends.
Above left: Mme. Amatore (Professor Amatore's mother) with Professor Richard Compton (Oxford University, UK).
Above right: Professor Christian Amatore with Professor Zineb Mekhalif (Namur University, Belgium).

Echem.NET

Electrochemical Science and Technology Information Resource (ESTIR)

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

Currently only 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#United Kingdom

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

A message from the President of the Bioelectrochemical Society.

Bioelectrochemistry includes a broad variety of scholarly approaches leading to a better understanding of all living things at the macroscopic, microscopic/single-cell and nanoscopic/molecular level, leading to beneficial applications in medicine, agriculture, industry, and ecology.

As President of the Bioelectrochemical Society (BES) I would like to inform you that the Bioelectrochemical Society has a new webpage http://www.bioelectrochemical-soc.org to keep you continuously informed on all the Bioelectrochemical Society activities:

- organization of the biennial symposia, in which several prizes are awarded;
- support of scientific meetings organized by its members,
- publication of the society's official journal Bioelectrochemistry to foment and disseminate bioelectrochemistry research
- the long-term cooperation agreement between BES and ISE and maintaining close relationships with other scientific societies in related fields
- enabling BES membership payment online.

You and your colleagues can become members of BES using the online application form: http://www.bioelectrochemical-soc.org/members/new_members.php. The membership fee for 2010 is 40 Euro (10 Euro for age 30 and below).

The benefits of being a member of our Society are a reduced registration fee to attend BES meetings and schools and a reduced-rate subscription to the journal "Bioelectrochemistry".

I cordially invite you to participate in the **XXI BES-2011 Meeting in Cracow, 8-12 May 2011**: www.bes2011.krakow.pl
Download the leaflet: http://www.bioelectrochemical-soc.org/general/BES-2011-Cracow.pdf

The Conference follows the aims of previous conferences featuring all aspects of the highly interdisciplinary area of bioelectrochemistry and bioenergetics, with contributions from the disciplines of biophysics, biotechnology and medical biophysics, and will bring together scientists working at the frontiers of bioelectrochemistry and electrophysiological research. It is hoped that XXI BES-2011 will foment fruitful exchanges of ideas and open up new perspectives for future advances.

Professor Ana Maria Oliveira Brett
President of the Bioelectrochemical Society

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 (*q.v.* page 32)**. The local ISE Regional Representative *(Professor Robert A. W. DRYFE of The University of Manchester, 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.

Want to know more?

http://www.ise-online.org

APPLICATION FORM FOR SPONSORSHIP OF REGIONAL STUDENT MEETINGS

Send the filled in form by e-mail to the ISE OFFICE : info@ise-online.org

ALL the parts of this form, including the bank details, must be filled by the meeting organizer, in collaboration with the local Regional Representative. Incomplete forms will not be processed.	
ISE REGIONAL SECTION:	
SCIENTIFIC THEME(S) OF THE MEETING:	
MEETING DATES (day-month-year**):**	
MEETING VENUE:	
MEETING ORGANIZER First Name: Last Name: Institution: E-mail:	
FACULTY SPONSOR First Name: Last Name: Institution: E-mail:	
REGIONAL REPRESENTATIVE First Name: Last Name: Institution: E-mail:	
EXPECTED NUMBER OF PARTICIPANTS - **From the local Region** - **From other Regions**	
REQUEST OF FINANCIAL SUPPORT - **Support requested (maximum 600 €)** - **Proposed use of funds (itemized)**	
OTHER EXPECTED SPONSORS, if any	

BANK DETAILS:
FOR TRANSFER OF FUNDS:
Beneficiary's details

Name and address:
Postcode:
City:
Country:
Bank Account number / IBAN:

Details of beneficiary's bank

Name and address:
Postcode:
City:
Country:
SWIFT address:

Student Notice - bis

The Electrochemical Technology Group of the Society of Chemical Industry (SCI) is developing a post-graduate network for students involved in all areas of electrochemistry and electrochemical engineering.

The network will provide a forum for discussions, symposia and networking events and seeks to engage it's members with the wider activities of the SCI.

Current students (Masters or PhD level) who may wish to join the network may contact the organiser (*vide infra*) directly to join and with any queries.

p.shearing@imperial.ac.uk<p.shearing@imperial.ac.uk>

Paul Shearing
Postgraduate Representative
Society of Chemical Industry Electrochemical Technology Group

For further information on the SCI and the Electrochemical Technology Group, please visit our website:

http://www.soci.org/Membership-and-Networks/Technical-Groups/Electrochemical-Technology-Group.aspx

2010 Postgraduate Research Topics Meeting in Electroanalysis

8th December 2010 at Birkbeck, University of London

The Electroanalytical Sensing Systems Group, Analytical Division, RSC in collaboration with The School of Biological and Chemical Sciences, Birkbeck is organising the 9th Annual Meeting for Postgraduate Research Topics in Electroanalysis.

We would like to invite a contribution from your Group and/or attendance at the meeting – contributions of work in progress are particularly welcome as are posters.

• The meeting will be free of charge to all attendees but advance registration of interest by e-mail is requested so any changes to the program or venue can be communicated.

• The Electroanalytical Sensing Systems Group will pay travel costs (equivalent to a 2nd class off-peak rail fare with student rail card) for speakers.

• The program of talks will start at 2.00pm with an anticipated finish by 5.00pm.

• Contributors are requested to offer a title as soon as possible and will receive rapid confirmation regarding speaking slots. Presentations should be no longer than 20 minutes with the opportunity of 5 minutes questions.

• The meeting will take place in Birkbeck Main Building, Birkbeck, University of London Malet Street, Bloomsbury, London WC1E 7HX.

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 (download from http://www.rsc.org/lap/rsccom/dab/fara005bursary.htm),
(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. **The Editor asks applicants and their supervisors to note this particular condition, and respectfully requests that successful applicants send in their report** *quam primum*.

Candidates should submit their applications directly to the Dr. Frank Marken, the Group Secretary (f.marken@bath.ac.uk).

Job Opportunity

1-year postdoctoral position

Synthesis of organic and organometallic redox probes for the development of electrochemical amphetamine sensors based on aptamer recognition.

Employer: CNRS
Contract type: Contract/Project (1 year)
Workplace: Paris, Laboratoire d'Electrochimie Moléculaire (LEM), Université Paris Diderot
Skill area: Organic Chemistry – Surface Modification
Years of experience: ≤ 2 years after PhD
Salary range: 2500 euros/month
Starting date : 01/02/2011

Employer:

A postdoctoral position is available for 1 year at the department of Chemistry , Université Paris Diderot in the field of organic chemistry and electrochemistry. This postdoctoral is funded by the ANR (Agence Nationale de la Recherche). The research team from LEM/ITODYS participating in this project have recognised skills in the fields of organic and organometallic synthesis, and more specifically in the chemical modification of redox probes and their use in analytical applications.

Mission – Description of the project:

In the past 10 years, identification and rapid screening of amphetamine-based drugs have become a major public health issue as a consequence of their increasingly frequent and commonplace consumption. Today, the screening techniques used for amphetamines and their associated metabolites are performed on urine samples, using spectroscopical methodst. In order to progress in this direction, we plan to replace antibodies with aptamers having enantioselective recognition properties with respect to amphetamine derivatives, and to change the optical measurement of an enzyme label activity by the electrochemical detection.

The project is multi-disciplinary and requires complementary competences of several teams recognised in the respective distinct domains, ranging from the selection of aptameric sequences to the chemical labelling of nucleic acid sequences with redox active compounds, including the functionalisation of conducting surfaces and the development of bioanalytical techniques, as well as the modelling of physicochemical processes occurring at interfaces.

The heart of the present proposal is centred on the design and the implementation of an electrochemical aptasensor having enantioselective recognition properties with respect to a class of amphetamine derivatives.

In this project, the post-doc will be in charge of 1) The design and synthesis of the redox markers, 2) The modification of aptamers and 3) The functionalisation of target molecules by redox markers. An important objective will be also to develop a generic synthesis methodology for the bi-functionalisation of nucleic acids with labels and surface anchoring groups.

Candidates profiles

This position requires a PhD in chemistry obtained for no longer than 2 years. The successful candidate should have a strong background in organic and organometallic chemistry. Knowledges in functionalisation of nucleic acids and purification using chromatographic techniques and also electrochemistry would be appreciated as well. The candidate has to be familiar with a range of experimental and characterization techniques, and has good communications skills (ability to communicate fluently in French or English).

If you are interested, please send your application containing CV and motivation letter to Dr. Claire Fave (claire.fave@univ-paris-diderot.fr)

Future Events

www.regonline.co.uk/electrochem_2011

contact: F.Marken@bath.ac.uk

http://www.bath.ac.uk/chemistry/summerschool/

Bath Electrochemistry Winter School

10th – 14th January 2011

Intensive Hands-on Training and Lectures

A five-day intensive course given by Professor Laurie Peter and his colleagues in collaboration with Windsor Scientific

http://www.bath.ac.uk/chemistry/summerschool

UNIVERSITY OF BATH

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Nanomatériaux pour les Batteries Lithium et les Supercondensateurs
25 nov. 2010
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Maison des Micro et Nanotechnologies
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Genève ou Chambéry par l'autoroute A41 : prendre la Rocade Sud et suivre «Lyon par l'autoroute». Sortir à Europole et suivre «Minatec».
Lyon par l'autoroute A48 : sortir à Europole et suivre «Minatec».
En avion :
Aéroport de Lyon-St. Exupéry - www.lyon.aeroport.fr
Aéroport de Genève-Cointrin - www.gva.ch
Aéroport de Grenoble Isère : www.grenoble-airport.com
En train :
TGV Grenoble-Paris 3 heures – 7 trains chaque jour
(d'autres TGV depuis Lille, Nantes, ..).
Minatec est à 5 min de marche de la gare TGV.
Inscriptions
L'inscription s'effectue en ligne sur : http://www.omnt.fr/
Toutes les informations pour s'inscrire sont fournies en ligne. Une facture pro-forma électronique sera envoyée après validation de l'inscription. Les frais de participation incluent : l'inscription, les actes du séminaire sous forme de CD, la liste des participants, le déjeuner et les pauses café. Les annulations d'inscription doivent être envoyées par écrit avant le 12 novembre 2010. Après cette date aucun remboursement ne sera possible.
Etudiants : 40 € HT
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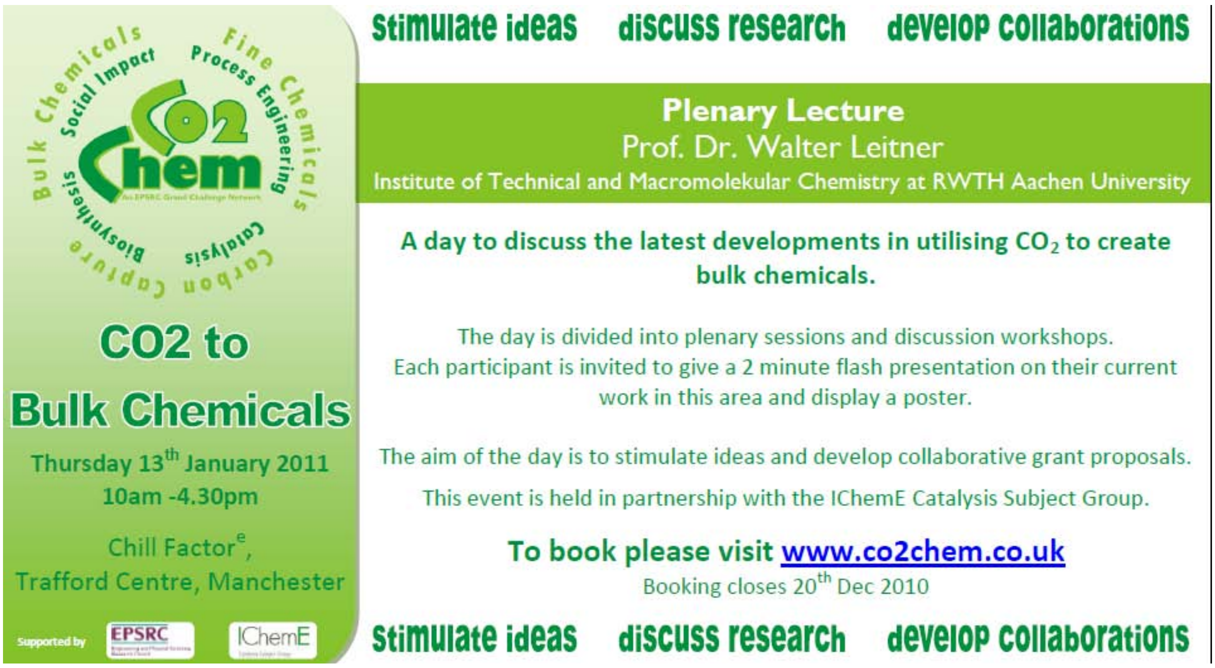
Bulk Chemicals
Social Impact
Fine Chemicals
Process Engineering
Biosynthesis
Catalysis
Carbon Capture
CO2 Chem
CO2 to
Bulk Chemicals
Thursday 13th January 2011
10am -4.30pm
Chill Factor^e,
Trafford Centre, Manchester
Supported by
EPSRC
IChemE
stimulate ideas discuss research develop collaborations
Plenary Lecture
Prof. Dr. Walter Leitner
Institute of Technical and Macromolekular Chemistry at RWTH Aachen University
A day to discuss the latest developments in utilising CO2 to create bulk chemicals.
The day is divided into plenary sessions and discussion workshops.
Each participant is invited to give a 2 minute flash presentation on their current work in this area and display a poster.
The aim of the day is to stimulate ideas and develop collaborative grant proposals.
This event is held in partnership with the IChemE Catalysis Subject Group.
To book please visit www.co2chem.co.uk
Booking closes 20th Dec 2010
stimulate ideas discuss research develop collaborations

Novel Electroanalytical Sensing Systems in Biomedical and Environmental Applications

Organised by
The Electroanalytical Sensing Systems Group (EASSG) of the Analytical Division
Royal Society of Chemistry
Sponsored by NPL, Sensors KTN, SWIG

25 & 26 January 2011

National Physical Laboratory (NPL), Teddington, London, TW11 0LW

Programme

Tuesday 25 January

12.30 Registration
13.00 Lunch
13.50 Introductory Remarks
14.00 *Overview of Voltammetry in the Application Areas*. **Richard Jacobs**, Metrohm UK
14.45 *Breath Sensing in Medical Diagnosis and Monitoring*. **Prof. David Walton**, Coventry University
15.20 *Sensors and Metrology for Fuel Cells*. **Dr Dan Brett**, University College London
15.55 *Electroanalytical Sensing at a Liquid - Liquid Interface*. **Dr Ritu Kataky**, University of Durham
16.30 Tea & Exhibition

Wednesday 26 January

09.15 Registration & Coffee
09.50 Introductory Remarks
10.00 *Overview of pH in the Application Areas*. **Dr Nathan Lawrence**, Schlumberger UK
10.45 *Trace Metal Determination and Speciation in the Marine Environment using Gold Solid Electrodes*. **Dr Salaun Pascal**, University of Liverpool
11.20 *Protein Engineering in Electroanalytical Sensors*. **Prof. Lisa Hall**, University of Cambridge
11.55 *Electrochemical Sensing of Volcanic Plumes*. **Dr Tjarda Roberts**, Norwegian Polar Institute, Tromsø
12.30 Lunch & Exhibition
14.00 *The electrochemical detection of wound infection using micro fibres*. **Prof. James Davis**, University of Ulster
14.35 *Nanostructured conducting polymer-modified electrodes for environmental monitoring and industrial detection*. **Dr Tony Killard**, Dublin City University
15.10 *The use of metal nano-particles in electroanalytical immunoassays*. **Dr Robert Porter**, Argento, UK
15.50 Closing Remarks
16.00 Tea & Exhibition

Exhibitors

Metrohm UK, Uniscan, Whistonbrook Technologies, Palmsense, Windsor Scientific

Costs: RSC Member £250 Non Member £320 Student £100
Early Bird (before 1st Oct) RSC Member £225 Non Member £300 Student £80

Please make cheques to the EASSG and send to the Hon.Treasurer:
Prof. Brian Birch, 4 Kynnesworth Gardens, Higham Ferrers, Northants, NN10 8NH
Payments may be made by BACCS (Bank details supplied on request).
We cannot accept credit/debit cards.
For directions and accommodation, please visit http://www.npl.co.uk/contact-us/directions-to-npl/
Further Information: Prof. Brian Birch. Email: mailto:b-birch@sky.com

Elecnano^4 - 7th ECHEMS

Paris, France

23 - 26 May 2011

Following the success of the previous editions of ElecNano **1-3** (2006, 2008 and 2009) and ECHEMS **1-6**, the electrochemistry group of the French Chemical Society, the electrochemists of the University Denis Diderot Paris and the Scientific committee of the ECHEMS decided to join their effort to sort out a **joint meeting ElecNano^4 - 7th ECHEMS**. This edition will be held in Paris from **May 23 to 26 of year 2011**.

The main topic of the meeting is:

Electrochemistry in Nano Structuration of Substrates and Energy

The major goals of the meeting are to show the contribution of electrochemistry in **nanostructuration of substrates** for energy with a special emphasizes into **molecular electrochemistry for photovoltaic, artificial photosynthesis and CO_2 reduction/valorisation**. The purpose of **ElecNano^4 - 7th ECHEMS** is to bring the leading scientists in electrochemistry and the scientists working in nanosciences and nanotechnology for energy to stimulate intensive discussion, initiate cooperation, and improve the personal links in these fields. Participation of young scientists (PhD, Students and Post-Docs) is particularly encouraged.

The following invited speakers will be present in this meeting:

R. CROOKS, University of Austin, USA

A. DERONZIER, Institut de Chimie Moléculaire de Grenoble, France

M. GRAETZEL, Ecole Polytechnique Federale de Lausanne, Switzerland

S. PALACIN, CEA, France

G. WHITESIDES, Harvard University, USA

Deadline: March 15, 2011 for Abstract Submission

http://www.univ-paris-diderot.fr/elecnano/

The Southampton Electrochemistry Summer School

Instrumental Methods in Electrochemistry

Sunday, June 26 – Friday, July 1, 2011

A one-week residential course presented regularly since 1969

by the Southampton Electrochemistry Group

The course comprises a combination of lectures and laboratory work. The objective is to teach the application of modern electrochemical techniques to problems in *Chemistry, Biology, Sensors, Materials Science and Industrial Processing.*

Understanding electrode reactions and electrochemical techniques

Theory, practice, applications, data presentation and analysis

Lectures with a textbook, lecture notes (hardcopy and .pdf) provided

Hands-on practicals with a choice of 5 out of 12 experiments

Experience a range of modern PC based instrumentation

One-to-one discussions of electrochemical problems

For Booking and enquiries, contact:

Derek PLETCHER or **Guy DENUAULT**

Tel.: +44 (0) 23 80 59 31 19
email: D.Pletcher@soton.ac.uk

Tel.: +44 (0) 23 80 59 21 54
email: gd@soton.ac.uk

Postal address:
School of Chemistry, University of Southampton, Highfield, Southampton, SO17 1BJ, UK
Fax: +44 (0) 23 80 59 37 81

Website URL

http://www.soton.ac.uk/~gd/summerschool.html

Bath Electrochemical Impedance Spectroscopy Summer School 2011

Theory and Practice of Electrochemical Impedance Spectroscopy

19th—22nd July

http://www.bath.ac.uk/chemistry/eissummerschool/

4th ISEAC International Discussion Meet on Electrochemistry and its Applications

(DM-ISEAC-2011)

February 7-10, 2011

Mascot Hotel,
Thiruvananthapuram, Kerala, India

Organized by

Indian Society for ElectroAnalytical Chemistry (ISEAC),
Mumbai, India
(www.iseac.org)

IMPORTANT DEAD-LINES

Manuscript submission	**: November 30, 2010**
Registration for participation	**: December 31, 2010**
Request for booking of accommodation	**: December 31, 2010**

Note : *The manuscript must be submitted through the link provided in ISEAC web site (www.iseac.org). No submission through e-mail will be accepted. The template of manuscript is available on www.iseac.org. The registration form is also available on www.iseac.org and must be submitted online.*

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SCOPE

To celebrate 2011 as International Year of Chemistry (IYC), 4th ISEAC International Discussion Meet on Electrochemistry and its Applications (DM-ISEAC-2011) is being organised under the aegis of Indian Society for ElectroAnalytical Chemistry (ISEAC) at Mascot Hotel, Thiruvananthapuram, Kerala, India during February 7-10, 2011. The DM-ISEAC-2011 is aimed at updating the scientists with the latest developments in the field and exposing the participants to new developments in the electroanalytical techniques and innumerable applications of electrochemistry in different areas. The Scientific Programme of DM-ISEAC-2011 would consist of tutorials as well as lectures on advanced electrochemistry and its applications by Specialists from Universities, Industries and R&D Establishments from within India and Overseas. The Discussion Meet will also include oral and poster presentations of contributed papers. The scientific program will cover the following domains:

- Electroanalytical chemistry
- Electrocatalysis
- Electrochemical modeling and simulations
- Electrochemical sensors
- Electrochemistry for solar cells and fuel cells
- Electrochemistry in health and environmental sciences
- Electrochemistry in nanoscience and nanotechnology
- Electrochemistry in nuclear science and technology
- Electrodeposition and corrosion science
- Electrophoresis
- Solid state electrochemistry

A special open-forum interacting session will be organized during the Discussion Meet to discuss about the interesting success stories of the research groups for overcoming any experimental difficulties in electrochemistry. This session will also provide a scope to invite any plausible solutions from the delegates to overcome any existing experimental problem in electrochemistry.
(Submit half-page write up by email to **editoriseac@gmail.com** for inclusion in this session)

MANUSCRIPT PREPARATION AND SUBMISSION

Important notes on manuscript preparation and submission:

- The manuscript to be prepared in MS-Word by strictly following the template file "**Template of manuscript**" available on ISEAC web site (www.iseac.org).
- The manuscript of invited speakers should not exceed 15 pages. The manuscripts of contributed papers (posters/orals) should be prepared within 4 pages (including Figures and Tables).
- Manuscripts under four different sections viz. Invited Talks (National Delegates), Invited Talks (Foreign Delegates), Contributed Papers and Research Scholars' Presentations must be submitted via specified links available on www.iseac.org (**Follow the path :** DM-ISEAC-2011>Submission of manuscript (including the passport details of the Foreign delegates)>Personal data (submit)>Next>Article submission).

POSTER & ORAL PRESENTATIONS

Selected Contributed Papers will be presented as either Posters (~1m×1m) or A4 Glossy papers (Max. 9 pages). The author(s) will have to be present for discussions during the time specified for poster session. The posters will be evaluated by a panel of judges for awards.

Research Scholars who are working in the area of electrochemistry are encouraged to present their work in the Discussion Meet. The duration of the presentation would be 15 minutes. A panel of judges will evaluate the Research Scholars' oral presentations for awards.

VENDORS' ORAL PRESENTATIONS

A special oral session (strictly technical) will be organized for the Vendors / Instrument manufacturers to highlight the latest developments in the electroanalytical instrumentation and applications.

EXHIBITION

An exhibition will be held in conjunction with the DM-ISEAC-2011 at the same venue for electrochemical equipments, material characterization instruments and other products like chemicals, apparatus etc. Please contact Chairman, Organising Committee at Mumbai for information about exhibition stalls and charges.

ADVERTISEMENTS

Advertisements from different companies / vendors will be included in the bound Volume to be released during the inauguration of the Discussion Meet and will be given to all the registered delegates. Please contact Chairman, Organising Committee for further information and charges. The printed material should fit into a size of 12 cm×20 cm. Please send advertisement material by email to editoriseac@gmail.com.

INSURANCE

The Organising Committee is not responsible for the insurance of participants against personal injuries, sickness, theft or property damage incurred during DM-ISEAC-2011. Concerned participants may obtain insurance coverage.

AWARDS

A panel of judges will evaluate the poster and oral presentations for awards. The person who wins the **Best Oral Presentation Award** would be provided with financial support for attending the next Scientific Meeting organised by ISEAC, provided he/she presents a paper. This includes waiver of registration fee, free boarding and lodging as well as free travel (in AC II Tier) within India.

PARTICIPATION FEE

Affiliation	On or before December 31, 2010		January 1, 2011 January 31, 2011	On site
	Life- Members	Others		
Universities & Government Institutes	Rs.5,000	Rs.6,000	Rs.8,000	Rs.10,000
Industries / Public Sector Undertakings	Rs.8,000	Rs.10,000	Rs.12,000	Rs.15,000
Overseas	Euro 500	Euro 600	Euro 600	Euro 600

Participation fee for the students presenting paper is 50% of the amount mentioned and this concession is not applicable to accompanying person(s).The participation fee is non-transferable and non-refundable.

The participation fee should be sent by a Demand Draft drawn in favour of **"ISEAC"** payable at Mumbai to the Convener, Organising Committee. Direct electronic transfer can also be done to ISEAC account. For Indian participants, participation fee for the accompanying person will be the same as that paid by the individual. For overseas delegates, participation fee for the accompanying person will be 50% of that paid by the participant. Accommodation for all the Indian delegates (who pay in advance for accommodation) and for all the overseas delegates will be arranged by ISEAC at Mascot Hotel, Thiruvananthapuram, Kerala.

Registration form for participating in DM-ISEAC-2011 is available on www.iseac.org and should be filled online. A scanned copy of the cheque/DD/electronic transaction receipt should be submitted during online submission.

The participation fee includes the Conference material and bound Volume, Coffee/tea during Sessions, Conference lunches and dinners. *Accompanying person will not be entitled to any registration material, except for the registration badge, unless working in electrochemistry area.*

Details for Direct Electronic Transfer of Money to ISEAC Account

Name of the Bank	State Bank of India, BARC Branch, Branch Code 1268, Trombay, Mumbai – 400 085, India.
Beneficiary	Indian Society for ElectroAnalytical Chemistry (ISEAC)
Account No.	10536132966
BIC (Swift-Code)	**S B I N I N B B 508**
IFSC CODE (For NEFT)	**S B I N 0001268**

ACCOMMODATION

Accommodation for all the delegates will be arranged by ISEAC at Mascot Hotel. The accommodation charges are Rs.5,000/Rs.10,000 per person on double/single occupancy, respectively. Accommodation will be arranged only for those Indian delegates who send the accommodation charges in advance. *No request for accommodation will be entertained after January 20, 2011*. There are no charges for accommodation for overseas delegates. Package offered by ISEAC starts on February 6, 2011 (evening) and ends on February 11, 2011 (morning). Delegates may plan to leave on February 11, 2011 in the morning. Any additional stay expenses will have to be borne by individuals.

TRAVEL FORMALITIES

It is expected that the invited speakers and the participants will make their own travel arrangements. Each delegate should make her / his own travel arrangement to reach the Conference site. The organizers do not take any responsibility for local travel arrangement. **All overseas participants must have a valid VISA to enter India. The overseas participants must apply for CONFERENCE/BUSINESS VISA.** ***The overseas participants should send the passport details along with one passport size coloured photograph and photocopy of the passport online in www.iseac.org well in advance.*** Similar information about the accompanying person should also be submitted.

Nearest bus terminal	: Thiruvananthapuram, about 4 km.
Nearest railway station	: Thiruvananthapuram, about 4 km.
Nearest airport	: Thiruvananthapuram International Airport, about 7 km.

FINANCIAL ASSISTANCE

It may be possible to provide financial assistance for travel by sleeper class (train) to a limited number of young participants and research scholars where sponsoring institution is unable to arrange, provided they are presenting either a poster or oral. Request for this must reach Convener, Organising Committee on or before December 31, 2010 along with recommendation by the Research Guide.

GET-TOGETHER

Registration and a social get-together are planned for all the delegates in the evening of February 6, 2011 (Sunday) at Mascot Hotel, Thiruvananthapuram, Kerala.

TOURIST ATTRACTIONS

- **Kovalam Beach** : Fringed by headlands that rise steeply above the shore, Kovalam is almost completely covered by coconut palms.
- **Thiruvallam** : This serene backwater stretch, enroute to Kovalam, is famous for its canoe rides, kayaking and cruises in kettuvalloms.
- **Kanyakumari** : At the southernmost tip of India, where the Arabian Sea, the Indian Ocean and the Bay of Bengal meet, lies Kanyakumari, an important pilgrim center. Kanyakumari is famous for watching spectacular sunrises and sunsets, especially on full moon days.
- **Ponmudi** : A salubrious hill station just 61 km away from Thiruvananthapuram.

freshEYES

The Editor is delighted to feature **Dr. Sarah L. HORSWELL** (right) in this issue. Sarah has been a **Lecturer in Physical Chemistry** at **The University of Birmingham** since October, 2004, where her research group actively participates in the *EU Seventh Framework Programme of Surface Electrochemical Reactivity in Electrocatalysis (ELCAT)*. ELCAT is a Marie Curie Initial Training Network that provides young scientists with a range of research experience, with emphasis on the combination of theoretical and experimental approaches, and networking opportunities.

Having first obtained a Bachelor of Arts degree in Natural Sciences (Chemistry specialism) at King's College, Cambridge, in 1994, Sarah undertook postgraduate training at The University of Liverpool, first obtaining a Master of Science degree in Surface Science and Heterogeneous Catalysis, followed by doctoral research in the area of *The electrochemistry of platinum-isocyanide nanostructured systems*, working under the auspices of **Professor David J. SCHIFFRIN** and defending her thesis via *viva voce* examination in 1999. Following a fifteen-months post-doctoral research stage in the group of **Professor Jacek LIPKOWSKI** at The University of Guelph based in Ontario, Canada, Sarah returned to Europe to consolidate her educative experience in the group of **Professor Dr. Bruno PETTINGER** at the Fritz Haber Institut der Max Planck Gesellschaft in Berlin, Germany, first as a Marie Curie Research Fellow for two years, followed by a year as a Guest Scientist.

Sarah's research is focused on the application of *in situ* **optical techniques**, particularly infra-red spectroscopy, to study adsorption processes at metallic electrode surfaces. Of particular and topical interest is the effect of the electric field on the conformation adopted by phospholipid bilayers assembled on electrode surfaces, with other interests including the **fundamental study of the interfacial processes** involved in, *inter alia*, **electrocatalysis** and the **modification of surfaces with organic molecules and/or nanoparticles**. The underlying theme of Sarah's research is thus in the transformation and translation of the physicochemical insights obtained *via* rigorous investigation into potential exploitation *via* the development of new materials, sensors or catalysts.

Find out more at the following URLs.

http://www.chem.bham.ac.uk/staff/horswell.shtml

http://www.elcat.org.gu.se/

freshEYES - bis

It is with the greatest of pleasure that the Editor features **Dr. Nathan S. LAWRENCE** (left), a **Fellow of the Royal Society of Chemistry** and a **Senior Research Scientist** at **Schlumberger Cambridge Research** where he is **Co-Leader of the Physical Chemistry Special Interest Group** within the Global Schlumberger Corporation, within this Portal.

Born in April, 1978, Nathan was awarded a Bachelor of Arts (with unclassified Honours) degree in Chemistry at St. John's College, Oxford in June, 1999, and a Class I (with Honours) Master of Chemistry Degree with Quantum Chemistry Supplementary Subject in July, 2000. He authored a Physical Chemistry textbook aimed at easing the transition from Advanced Level to University Chemistry with Professor Richard G. Compton and Jay Wadhawan (*Foundations of physical chemistry: worked examples*, **Oxford Chemistry Primer 68, Oxford University Press, Oxford, 1999**) *during the second year of his undergraduate study*, during which period he was recipient of five College Book Prizes for performance in Collections between 1998 - 2000, the ICI Physical Chemistry Practical Prize in July, 1999, and was awarded the Part II Physical Chemistry Thesis Prize in July, 2000, for his work on the *Electroanalysis of sulfhydryl species*, supervised by **Professor James DAVIS** and **Professor Richard G. COMPTON**. Nathan remained at Oxford University to experience doctoral research under the auspices of **Professor Richard G. COMPTON** on the *Electrochemical detection of hydrogen sulfide*, completing after *viva voce* examination by **Professor Damian ARRIGAN** in August, 2003, having been elected to the **Royal Society of Chemistry Ronald Belcher Lectureship in Analytical Chemistry** in April, 2001. Following one year of post-doctoral study in the group of **Professor Joseph WANG**, then based at New Mexico State University in Las Cruces, New Mexico, United States of America, Nathan obtained a position at **Schlumberger Cambridge Research**, in September, 2004. In 2007, Nathan was elected to the Editorial Board of *The Open Electrochemistry Journal*.

Nathan's research (approximately 110 publications, leading to an Hirsch-index of twenty-seven, over twenty company reports, and eight separate patent family applications, two of which have been granted) is primarily within the field of applied analytical electrochemistry, but he has a penchant for the rigorous and erudite investigation in isolating and understanding key physicochemical and mechanistic aspects of the electrochemical system under his study. This insightful and heuristic strategy has enabled him to translate his innovations into the development of highly sensitive and robust chemical sensing protocols, *and* transform those into reliable and durable oilfield sensors (for environmentally toxic and corrosive gases such as hydrogen sulfide), or for the measurement of pH. The underpinning value of his research is thus in highly sophisticated analyticophysical chemistry problem-solving for complex real-world applications, and which has seen the augmentation of wealth-creation within the United Kingdom and beyond.

Nathan is a natural leader in research, whose perspicacity in his science has additionally been recognised in the form of invited tutorial lectures to undergraduate and postgraduate audiences at several universities, including the prestigious Universities of Cambridge, UK, and Milan, Italy, and is highlighted by one of his recent honours as recipient of the **2010 Harrison-Meldola Prize of The Royal Society of Chemistry**. This is further compounded by his successes in leveraging grant income for research from internal funds, external bodies (including EPSRC-KTS), and for chemical education and development from the UK Higher Education Academy. His desire to disseminate his knowledge and experiences in both research activities and in educational training is especially admirable given his current position within a corporate environment.

Find out more at the following URLs.

http://www.slb.com/about/rd/research/scr.aspx

http://www.bentham.org/open/toelecj/

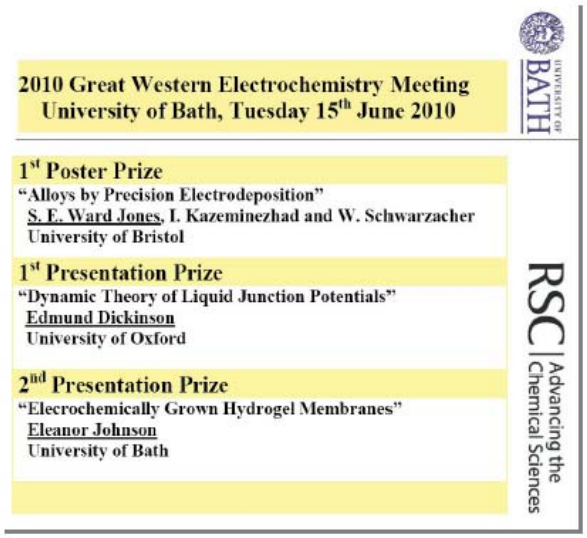
Meeting Reports

2010 Great Western Electrochemistry Meeting

June 15, 2010, The University of Bath, Bath Spa

The Great Western Electrochemistry meeting was held in Bath with postgraduate student presentations from the South-West and beyond. The day started with a few coffees and 10.30 kick off with a presentation by Gabriela Kissling from the University of Bristol entitled "Photoelectrochemistry of Alkane Thiol Assemblies at Single Crystal Semiconductors as a Model for Ligand Stabilised Quantum Dots". In her talk Gabriela described the effects introduced by ligand coatings on CdSe quantum dots. The first session continued with two presentations from the Oxford group with Chris Batchelor-McAuley talking about "The Electrochemistry of Biologically Relevant Molecules; Analysing Complex Mechanistic Pathways" and Edmund Dickinson presenting "Dynamic Theory of Liquid Junction Potentials". Both presentations provided a fundamental level insight into important mechanisms. Chris Batchelor-McAuley discussed quinone based redox systems with complex multi-step electron transfer reactivity. Edmund's presentation shed new light on the physical reality behind liquid junction potentials, which have confused electrochemists back to the days of Planck.

After a short break, Dr. Javier Del Campo from the National Microfabrication Centre at the Universidad de Barcelona in Spain presented the guest lecture entitled "Microfabrication of Electrodes". In his talk Javier explained the processes involved in modern lithographic processes and the design of novel HIV biosensors with micro-electrode arrays. Next, Juan Limon-Petersen from Oxford University presented a talk entitled "Cyclic Voltammetry under Weakly Supported Conditions". Juan's work is aimed at the fundamental understanding of migration processes and their effect on complex electrode processes. With new computer simulation tools he is able to quantitatively dissect cyclic voltammetry data for processes involving multi-step electron transfer and dispro-portionation. He convinced the audience that changing the concentration of the supporting electrolyte provides a new powerful tool for mechanistic analysis on par to experimentally more difficult diffusion geometry analysis.



The first of two contributions from the Bath team was given by Naing Tun Thet entitled "Interaction of Bacterial Toxins with Lipid Bilayer Membrane: An Electrochemical Impedance Study". In his work Thet is identifying and quantifying the presence of dangerous bacteria, for example in wound dressings. An impedance method based on a lipid modified gold electrode is demonstrated to detect the ion-channels induced by bacterial toxins. Eleanor Johnson presented a talk on "Electrochemically Grown Hydrogel Membranes". Dipeptide hydrogels are intriguing assemblies and in this presentation electron microscopy and spectroscopic analysis of electrochemically grown hydrogel films were discussed.

After lunch, Lucy Gilbert from the University of West England (UWE) presented "Development of a Biosensor Based on Screen-Printed Carbon Electrodes for the Determination of Inorganic Phosphate for Applications in Biomedical and Environmental Samples". This enzyme based detection method was then contrasted to a novel dual electrode method introduced by Kevin Honeychurch from UWE. In his talk "Cyclic Voltammetric Behaviour of Rohypnol, Ativan and Valium and Its Exploitation for Their Determination in Serum Using a Novel Method involving Liquid Chromatography-Dual Electrode Detection" Kevin described an end-column detector method where analyte is first electrolysed at a fixed pre-treatment potential and then detected at a second electrode. This results in much improved selectivity and sensitivity. Jonathan Winfield from the UWE Robotics Laboratory introduced the concept of microbial electrochemistry in his talk entitled

"Electricity Production from Wastewater Treatment Using a Cascade of Microbial Fuel Cells". The potential for electricity generation based on municipal waste was shown to be excellent when based on a step-by-step process with microbial communities adapted to certain waste components.

Daniel Staff from the Department of Physics at the University of Bath presented his work on "Using Nanotubes to Represent Pores in Nanocrystalline TiO_2". In a combination of experimental and computer simulation work exploring the mechanism of dye ingress into mesoporous media. Next, Wiphada Hongthani from the University of Bristol presented "Electrochemistry of Undoped High Pressure High Temperature Diamond Assemblies". In this talk surface redox chemistry and effects of bulk states in pure diamond nanoparticles were contrasted and the intriguing behaviour of self-assembled films analysed with voltammetric methods. Huaining Hu from the University of Bath presented "A Green Approach to Energy-Biophotovoltaic Cells". In her talk the colonisation of specifically designed substrates for algal growth and the resulting light-harvesting effects were demonstrated. Similar to the microbial energy generation from waste water, this talk opens up intriguing possibility for energy production based on entirely new bio-technology.

After a coffee break the final session of the day was started by Elena Guillen, visiting from Seville University, with a presentation entitled "ZnO Dye-Sensitised Solar Cells". The effects of ZnO materials and new sensitizer dyes were discussed. Next, Wilman Septina, visitng from Osaka University, presented "Fabrication of Cu_2O/AZO Heterojunction Solar Cells based on Electrodeposited Cu_2O Thin Films". In contrast to the work on dye sensitised cells, these heterojunction cells are purely solid inorganic devices using Cu and Al as benign sustainable materials. The day ended with two contributions from the University of Bath. Andrew Collins presented a talk on "Photo-Voltammetry of Reactions at the Microdroplet Triple Phase Boundary" in which potential light harvesting processes based on rhodamine dye in a microdroplet array were investigated. John Watkins discussed the "Synthesis, Characterisation, and Applications of Cationic Carbon Nanoparticles" which provide new building blocks for nano-structures and sensor assemblies. The day concluded with a wine reception and further discussion and refreshments off campus.

Eleonor K. Johnson and Dr. Frank Marken
University of Bath

The Editor thanks the authors of the winning poster for allowing its reproduction on the following page, and gratefully thanks Dr. Frank MARKEN for communicating this poster.

Alloys by Precision Electrodeposition

S. E. Ward Jones, I. Kazeminezhad and W. Schwarzacher
H. H. Wills Physics Laboratory, Tyndall Avenue, Bristol BS8 1TL, United Kingdom

University of BRISTOL

Abstract

Alloys can be electrodeposited by depositing alternating submonolayer quantities of two different metals under computer control. This technique is illustrated by the pulse deposition of Cu-Ni alloys.

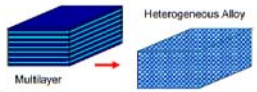
Multilayer Films

Metal A /Metal B multilayer films may be deposited from a single electrolyte containing ions of both species by switching between a less negative potential at which only the more noble metal, A is deposited and a more negative potential at which both metals are deposited. If the electrolyte contains only a low concentration of A ions, at the latter potential the deposition of A will be diffusion limited and a B-A alloy will be obtained that is predominantly B.

Typical example: 0.05 M Cu^{2+}; 2.3 M Ni^{2+}
- -0.4V vs. SCE pure Cu
- -1.5V vs. SCE Ni-rich ferromagnetic Ni-Cu alloy

Alloys by Precision Electrodeposition

What happens as layer thickness is further reduced?
If the quantity of B-A and A, *tB* and *tA*, deposited per cycle is reduced sufficiently, these metals no longer form complete layers, and so a heterogeneous alloy is obtained. By varying the ratio of *tB* to *tA*, the composition of the alloy may be varied. Since this is possible during growth under computer control, it is possible in principle to prepare films with arbitrary composition profile along the growth axis.



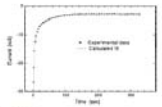
When *tNi* and *tCu* are very small it is necessary to compensate for processes such as Ni dissolution during deposition of the Cu layer, electrolyte depletion, current efficiency < 100% and non-faradaic charge. We therefore assume that the Cu partial current at any time is given by its diffusion-limited value, and that the Ni partial current is given by the total current flowing in the cell, corrected for current efficiency, minus the Cu partial current.

The use of the computer to calculate the partial currents in real time during growth is what principally differentiates the present work from previous alloy pulse electrodeposition studies. Control of the process has been implemented using LabVIEW software to control an analog potentiostat through a National Instruments data acquisition card with the program reading and analyzing ~10000 samples per second, giving real-time control over the process.

Precision Electrodeposition

Partial Current for Cu, I_{Cu} $\quad I_{Cu} = At^{-1/2} + B\left(1 - e^{-Ct}\right)$

The form of the first term comes from the Cottrell equation for planar diffusion. $I(t) = kt^{-1/2}$ where $k = nFAD^{1/2}C^{*}\pi^{-1/2}$
The second term is an additional contribution due to natural convection. There is excellent agreement between experimental data and the calculated fit as shown below.



Partial Current for Ni, I_{Ni}
A number of factors complicate the calculation of I_{Ni} during the sequential deposition of submonolayer quantities of Cu and Ni.

At -1.9 V (Ni deposition)
- Cu is still being deposited at its mass transfer limited rate
- Current efficiency is expected to be less than 100% (measured as 93% at -1.9V)

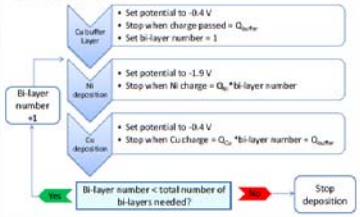
At -0.4 V (Cu deposition)
- Ni dissolution
- Double layer discharge
- Current efficiency is assumed to be 100%

I_{Ni} = Corrected current - I_{Cu}

Pre-calculation
The input values are combined with constants for the system to calculate the output values of the pre-calculation, which will control when the potential is changed.
- Thickness of Cu per layer → Q_{Cu} = Charge for Cu per bi-layer
- Thickness of Ni per layer → Q_{Ni} = Charge for Ni per bi-layer
- Total alloy thickness → N = Number of Ni/Cu bi-layers needed
- Cu buffer layer thickness → Q_{buffer} = Charge for Cu buffer layer

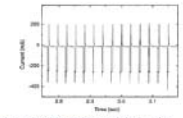
For each time step the program
- Records the experimental current
- Corrects for current efficiency
- Calculates the Cu current at that time
- Calculates the Ni current (Corrected I – I_{Cu})
- Updates the running total for the charge for Cu passed (+I_{Cu}*dt)
- Updates the running total for the charge for Ni passed (+I_{Ni}*dt)

When to switch potential?

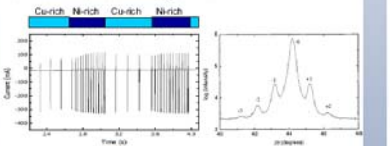


Results

Current-time transients



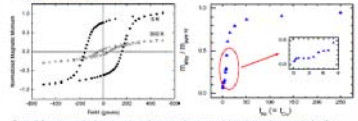
Above is a typical current-time transient measured during the deposition of a $Ni_{0.52}Cu_{0.48}$ alloy film. The high negative current corresponds to deposition at -1.9 V which is predominately Ni deposition. The low currents correspond to deposition at -0.4 V. When the deposition potential is switched from -1.9V to -0.4 V the current is initially positive. Although it is not completely clear whether this current is due to dissolution of Ni or non-faradaic processes such as double layer discharge, in either case it represents a reduction in the charge that should be attributed to metal deposition in the preceding layer. SEM-EDX measurements confirm that the composition achieved is very close to that programmed.



Above is a current-time transient for the deposition of a 100×($Ni_{0.81}Cu_{0.19}$ 6nm/ $Ni_{0.23}$ $Cu_{0.77}$ 2nm) alloy/alloy superlattice. The fact that up to third order satellite peaks corresponding to the period of the superlattice are observed in the high angle X-ray diffraction pattern demonstrates that a sharp modulation of the composition has been achieved.

Magnetic Properties

The Cu-Ni system was chosen, because it is well-studied electrochemically, and because it is an example of an alloy system in which the physical properties vary dramatically with composition. Ni_xCu_{1-x} alloys are ferromagnetic above x ~ 0.43, and their Curie temperature and moment increase almost linearly with Ni content between this value and x =1.

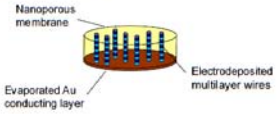


Small hysteresis loops are observed even at temperatures and alloy compositions where ferromagnetic behaviour is not expected. This indicates the presence of Ni-rich clusters within the alloy meaning that it is heterogeneous. The extent of Ni clustering was also found to decrease as more negative deposition potentials for the Ni-rich alloy deposition were used and thinner layers of metal were deposited.

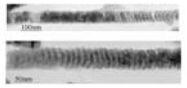
Magnetic data can give insight into the transition between multilayer and (heterogeneous) alloy as shown on the right above. Decreasing the thickness of the layers deposited while keeping the composition the same leads to a decrease in the magnetic moment relative to that in pure Ni. This occurs as the number of Ni interface atoms, which are assumed to have zero magnetic moment, increases relative to those in bulk Ni.

Nanowires

Multilayer, alloy and alloy superlattice nanowires can be fabricated by depositing into a template using the same technique used for electrodeposition of films.



Below are two bright field TEM images of a multilayer Ni-Cu/Cu nanowire after removal of the template. The separate layers are clearly visible.



Below is a bright field TEM image of a $Ni_{0.81}Cu_{0.19}$ alloy nanowire. The wire is polycrystalline and the contrast along the wire due to the existence of multiple grains is clearly visible. Magnetic measurements show that the wire is heterogeneous on an atomic scale.

Conclusions

- Alloy films of arbitrary composition can be grown from a single electrolyte using computer control.
- Superlattices consisting of alternating layers of different alloy composition can also be electrodeposited.
- Nanowires with tailored magnetic profiles along the growth axis can be grown using a template.
- Magnetic data gives an insight into the structure of the (heterogeneous) alloy formed and indicates that there is some clustering of Ni.

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Acknowledgments

EU 7th Framework Program Grant CP-FP 228673-2

MAGNONICS

8th Annual Meeting of Electrochem North West: Electrochemical Applications

June 21, 2010, The University of Bangor, Bangor

The student speakers: how many can you name?

The Electrochem North West 8th annual workshop was held in Bangor, Wales, organised by Dr. Chris Gwenin. The symposium, entitled 'Electrochemical applications', highlighted the diversity of research exploiting similar techniques with hugely different intent, from assessing the effectiveness of biological membrane mimics to surface decontamination in nuclear power plants. The people who attended the day event were treated to six talks starting with John Jones from the host Welsh university, giving a fine definition and discussing select parts of top secret investigations into electro-coagulation. He was following by the limping, yet still glamorous, Miss Daniela Plana all the way from the University of Manchester. Daniela gave an excellent talk entitled 'Oxidation of Dimethylamine Borane on Single Crystal Electrodes: Implications for Electroless Deposition and Borohydride Fuel Cells' (a snappier title I cannot imagine), disproving many assumptions regarding the mechanism of this much used yet poorly understood reducing agent.

The next talk, given by Richard Wilbraham from Lancaster University, was the award winning presentation of the day, earning him free registration and a slot at the Electrochem 2010 meeting, so anyone unfortunate enough to have missed out has the opportunity to learn more about his work, 'Surface Decontamination by Photocatalysis'. The topic was interesting and novel research well presented so well done him! This proved a tough act to follow but was done so by James Dickinson from the same institution. His presentation of research developing photoelectrochemical sensors entitled 'Graphene based Microelectrodes' raised many queries from the academics in the audience but luckily they were hungry so had to let him escape so we could break for lunch.

Richard Wibraham with Dr. Chris Gwenin.

After taking in some excellent views and nibbles, the meeting resumed with Gita Sedghi from the University of Liverpool leading us through the interesting world of porphiryn molecular wires in her talk entitled 'Single Molecule Electrochemistry'. Wrapping up the day's talks was Matej Velicky from the University of Manchester with 'Permeability Measurements under Hydrodynamic Control' showing his adaptation of a rotating disk electrode set up being used to mimic the conditions in the small intestine. Inspirational!

After all this excitement the considerate hosts provided some wine to aid relaxation and after a while marvelling at the tiny potentiostat (exhibited by sponsors Alvatek), adopting some free stationary and discussing the many ideas shared during the course of the workshop it was all over with just enough time left for a jaunt to the beach. An excellent occasion, thanks to everyone involved, including the meeting organisers at Bangor and its sponsors (Alvatek, Windsor Scientific and the RSC Electrochemistry group).

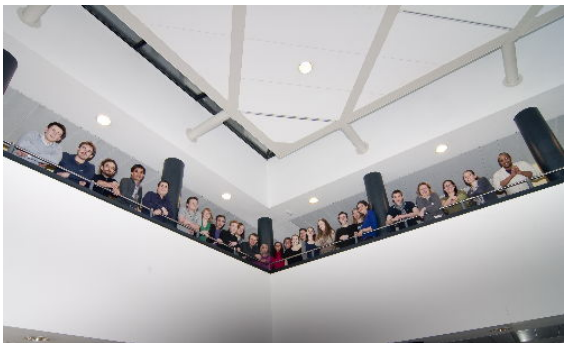
Briony Setterfield-Price
School of Chemistry, University of Manchester

2010 Warwick Analytical Group Electroanalytical Chemistry Workshop

September 16-17, 2010, The University of Warwick, Coventry

In previous years, my supervisor encouraged his students to attend the Winter or Summer Schools for training based at Bath University or Southampton University, respectively, so I was keen to try something different, and this meeting, hosted by Professors Patrick Unwin and Julie Macpherson, presented an appealing new opportunity. Moreover, the very generous hosts very kindly waived the registration charge, for which I am extremely grateful.

With the weather being somewhat overcast on arrival, it presented an opportunity to network with fellow students and workshop speakers over luncheon, whilst excitingly buzzing with anticipation to listen, learn and enjoy the forthcoming talks. The latter commenced promptly at 14H00, after a short welcome by Professor Macpherson, with an interesting talk by Professor Alan Bond of Monash University, Australia on *Electrochemistry of Ionic Liquids*. These so-called "neoteric solvents" appear to have many applications for a diverse range of electrochemical processes. Following this, Professor Danny O'Hare of Imperial College, London energised the audience with his simply wonderful presentation on *Life Sciences Applications*, extolling the virtues of measurements at microelectrodes to study the chemical reactions *within* biological cells, *via* a series of exquisitely-elegant experiments (forgive the alliteration). The talks for the first day concluded with a fascinating talk by Professor Robert Dryfe of the University of Manchester on *Electrochemistry at Liquid | Liquid Interfaces*. This hugely engaging talk commenced with the key concepts underpinning this type of interfacial charge transfer, eloquently translating the mathematical expressions into key physicochemical insights, and provided an overview of the applications of these delicate manipulations.



How many of the Warwick Electrochemistry and Interfaces Group (pictured above), who hosted the meeting, can you name?

The evening of the first day presented an opportunity for the graduate learners to communicate their latest research findings *via* an impressive poster session. I found this knowledge exchange forum to be a simply superb opportunity to enhance my understanding of the subject, whilst enabling me to improve my presentation skills. This session was followed by a walk to the university restaurant for a delicious dinner with wine – an opportunity for social communication that I enjoyed so much that I almost forgot to book into my accommodation!

The addressing of "information asymmetry" continued the following morning, after a brief introduction by Professor Unwin, with an impressive talk by Professor Hubert Girault of EPFL in Lausanne, Switzerland on *Electrochemical Mass Spectrometry*. This was followed by two hugely enjoyable talks from the host institution: Professor Mark Dowsett on *Synchrotron Electrochemistry* and a delightful presentation by Professor Macpherson on the applications of SECM to understand and unravel *New Forms of Carbon Electrochemistry*.

After lunch, we were presented with the opportunity of listening to Dr. Andy Wain (of the National Physical Laboratory) and Dr. Chris Slevin (of Alere Technologies). These talks emphasised the utilisation of academic research *beyond* the Graduate School, *via* the industrial applications of electrochemistry. Dr. Slevin spoke about the varied opportunities for electrochemists within industry, with Dr. Wain presenting, in a magnificent talk, perspicacious insights into electrochemical measurement science.

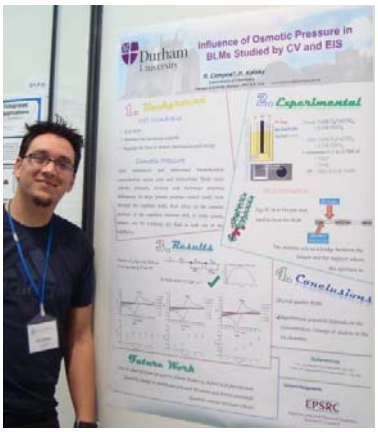
Professor Macpherson concluded the meeting, and, refreshingly-energised, better educated, and utterly-ephoric from the event, we all left, having made new acquaintances and improved our understanding and skill-set. This workshop, which covered a huge range of electrochemical expertise, has been a smashing opportunity for, at least, this Ph.D. student, and I once again thank Professor Macpherson and Professor Unwin (and the Warwick Electrochemistry and Interfaces Group) for organising the meeting, and for so very generously allowing me to attend with a waived registration fee.

Yan Zhou
The University of Hull

61st Annual Meeting of The International Society of Electrochemistry

Electrochemistry: From Biology to Physics

September 26 – October, 1, 2010, Nice, France



Rui Campos, Esq. with his nice poster at the ISE meeting in Nice.

This is a brief report regarding the 61st Annual Meeting of the ISE that I attended as a delegate. The meeting took place in the French Riviera, more precisely Nice. The ISE Annual Meeting is a major international conference, the scope of which was extended to all topics in electrochemistry research.

The conference was attended by 1820 delegates who had 16 symposiums to choose from, such as Analytical Electrochemistry, Bioelectrochemistry, Energy conservation and storage, Corrosion science, Electrodeposition, Electrochemical processes, Molecular and Interfacial Electrochemistry, Sensors and Biosensors, Electrochemistry on a local scale, Surface Functionalization and Modelling and Simulation of processes, with the purpose to highlight all the recent advances in electrochemical research.

The meeting started on Sunday, the 26th of September, with the registration and two Tutorial Lectures,

- Redox Protein and Redox Enzyme Electrochemistry: Fundamental Studies and Applications, and
- Electrochemical Quartz Crystal Microbalance.

All the days started with a plenary lecture from which I must highlight the one delivered by Professor **Andrew Ewing** (Department of Chemistry, University of Gothenburg, Gothenburg, Sweden) where he presented some of the work that he and his team have developed during the last few years, and the one by Professor **Allen Bard** (The University of Texas, Austin, USA). It is always a pleasure to listen to such enthusiastic speakers.

My days were divided between different symposiums but I dedicated more time to Symposiums 2 (**Environment, Water and Analytical Electrochemistry**), 3 (**Bioelectrochemistry. From Fundamentals to Applications with a Special Focus on Nanostructured Material**) and 11 (**Sensors and Biosensors**).

One topic that really interests me is Electrochemical Impedance Spectroscopy and it was fullfiling to attend keynotes and inveted speakers talking about this technique applied to the diferent areas of electrochemistry. Dr Isabelle Frateuer (CNRS, Chimie Paris Tech, Paris, France) presented the incentives for using Local Electrochemical Impedance Spectroscopy (LEIS) in a simple, yet very complete, way.

The two posters sessions, Monday and Tuesday were excellent opportunities for informal discussions. My poster (presented on Tuesday) garnered considerable interest from the attendees.

I gratefully acknowledge the financial support from the Electrochemistry Group of Royal Society of Chemistry (RSC) for attending the conference

Rui Campos,
Department of Chemistry, Durham University

61st Annual Meeting of The International Society of Electrochemistry

Electrochemistry: From Biology to Physics

September 26 – October, 1, 2010, Nice, France

The 61st Annual Meeting of the International Society of Electrochemistry was held in Nice, France from 26 September to 1 October 2010. Nice is the fifth largest town in France. The weather was very pleasant during the period of the conference was held *i.e.* sunny and temperate climate. The atmosphere in there was very comfortably with the beauty of the seaside and some interesting places.

The theme for this year was *Electrochemistry from Biology to Physics*. Officially, the conference kicked off on Monday morning at Acropolis with the opening ceremony followed by first plenary lecture given by Andrew Ewing. He explained three important aspects of electrochemical analysis of neurotransmitter release. Furthermore, he mentioned the important of making smaller sensor (micro and nanosize) for monitoring neurotransmitter. Everybody was then moved to various rooms for the parallel sessions. Before that, the organisers made an announcement that photographs and video recording were not permitted during the conference held.

Yusran Sulaiman, Esq. outside the Acropolis Conference Centre, Nice.

There were 16 parallel symposia related to electrochemistry which consist interdisciplinary research such as electroactive polymers, inorganic electroactive solids, nanocomposite, surface functionalisation, interfacial electrochemistry, sensor and biosensor *etc*. In each symposium, there were keynote and invited speakers that well-known among electrochemists.

The main subject that I interested in the most was electroactive polymers and sensor and biosensor symposium, which are related to my research. There were many new electroactive polymers have been synthesised and presented in this conference such as poly(benzopyrene), poly(1,8-diaminocarbazole) and poly(3,4-butylenedioxythiophene). However, poly(3,4-ethylenedioxythiophene) is still the most commonly investigated. Due to the intrinsic feature of conducting polymers, the application is mainly focus on fabricating organic semiconductors, solid state capacitors, chemical sensor and solid-state ion-selective electrodes. A professor from Åbo Akademi University, Prof. Johan Bobacka introduced a solid-contact reference electrode using carbon cloth. This reference electrode has resulted good performance.

How many truly-English electrochemists can you spot enjoying walking at the solid | electrolyte interface?

The poster sessions were held on Monday and Tuesday evening, after the oral presentation end on that day. There were hundreds of people in the poster session area which make the atmosphere very hot. Supposedly, the air conditioning would be switch on this time, which I think this is one of the lacking in this conference. However, the posters presented were very informative. I did manage to

The fountains in the eastern part of the city are surely the nice-est!

ask a couple of questions to some of the poster presenters which can enhance my knowledge in electrochemistry.

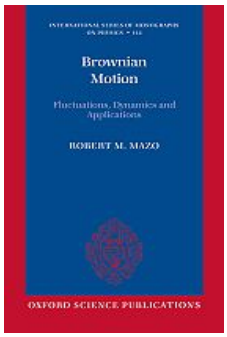
On Wednesday afternoon, the conference organisers arranged some social programmes which include a trip to Grasse, Monte Carlo, Tourrettes/Loup/St Paul de Vence, Cimiez and Marc Chagall Museum. Due to the financial constraint, I was not able to join any trip. Hopefully, everybody enjoyed the conference and the trips. There were also attendance from instrument manufacturers and exhibitors in this conference such as Princeton Applied Research/Solartron Analytical, Uniscan Instruments, Springer, Elseveir, *etc.* that show their support to the electrochemistry community.

Finally, I would like to express my gratitude to Electrochemistry Group for financial support.

Good luck to Niigata for 62nd Annual Meeting of the International Society of Electrochemistry.

Yusran Sulaiman
Department of Chemistry, Durham University

EbookREV



Brownian Motion: Fluctuations, Dynamics and Applications
International Series of Monographs on Physics: 112
R. M. MAZO
Oxford University Press, Oxford 2009
ISBN: 9780199556441 (pbk)
Cost: 41.25 €
289 pages

My daily commute to work starts at the train station in Beverley, East Yorkshire, as, having failed the driving practical exam five times, it is better that I stay off the roads! It always amuses me that since the train tracks in the direction north-to-south are particularly straight (for a considerable distance), and since the area is reasonably flat, a few minutes before the train arrives, as I look towards the approaching train (vying to get the most unperturbed view, only sacrificing this so as to try to ensure that I do not topple head-first into the pathway of the incoming train!) I see merely a distant yellow spot (the approaching terminal end of the Northern Trains train), which, whilst straining my eyes so that they are always focussed on this spot, appears only to get more and more INTENSE! as the train approaches. The effect is most dramatically-surreal at this time of year when the fog from the River Hull heavily suffocates the bare surrounding waste grounds and fields. The fascination I have is not due to some innate desire to empathise intimately with the square in Reverend Abbott's *Flatland*, but rather to seek to experience dimensionality (without having to measure my expanding waistline). Of course, reading does help, and, having, some years ago, been sufficiently aroused by Berg's biological boulderings, Rice's volume in Compton's CCK, and Wilmott's exotic futures, I felt it was time to purchase a book to answer the questions I had....

This is a hugely enjoyable book which starts with a well-researched historical and anecdotal account of the scientific discovery of the incessant motions of pollen particles (derived from *Clarkia pulchella*) when suspended in fluids, moving to an overview of the protagonists in the field, highlighting their discoveries, and is followed by a chapter recapping the basics of probability theory. After an introduction to stochastic processes, the author provides an eloquent overview of Einstein-Smoluchowski theory, emphasising the physical aspects.

The following two chapters then cover more mathematical topics – stochastic differential equations, Weiner integrals, with analytical solutions provided to several cases of physical interest presented in the subsequent chapter. It is here that Mazo notes "as it is in most branches of science, many problems of interest do not fall into the category of 'exactly soluble'. To make progress with them, we must resort to approximation methods...", and leading into a chapter considering the Brownian particle acted upon by a general force.

After an anecdotal chapter on the random walk which allows the reader to develop the trajectory of the Brownian particle, Mazo covers the stochastic equations *via* statistical mechanics, so as to discover previously-introduced phenomenological expressions, with five following chapters covering applications of this theory, encompassing diffusion-controlled chemical reactions, colloid coagulation, rotational diffusion and polymer solutions.

The penultimate chapter then enlightens the reader for the case of multiple and interacting particles, at least for semi-dilute particle solutions, going from basic principles to exciting current research in the area. The last chapter covers the numerical processes involved in Brownian dynamics calculations, and highlights the fractal nature of Brownian systems and deterministic chaos in those systems, and leaves the reader somewhat enthused about this fascinating subject.

Overall, this is an excellent book which I recommend for every electrochemistry library. It is very well written and captivating *via* numerous brushes with history, emphasising, for the main part, the physical significance of the covert mathematics.

jw
Kingston-upon-Hull

pseudoMATHS: Winner Announcement

The Editor is delighted to announce the winner of the su-do-ku competition featured in the last issue.

Many, MANY CONGRATULATIONS to.....

Dr. Andrew J. WAIN

of The National Physical Laboratory, UK

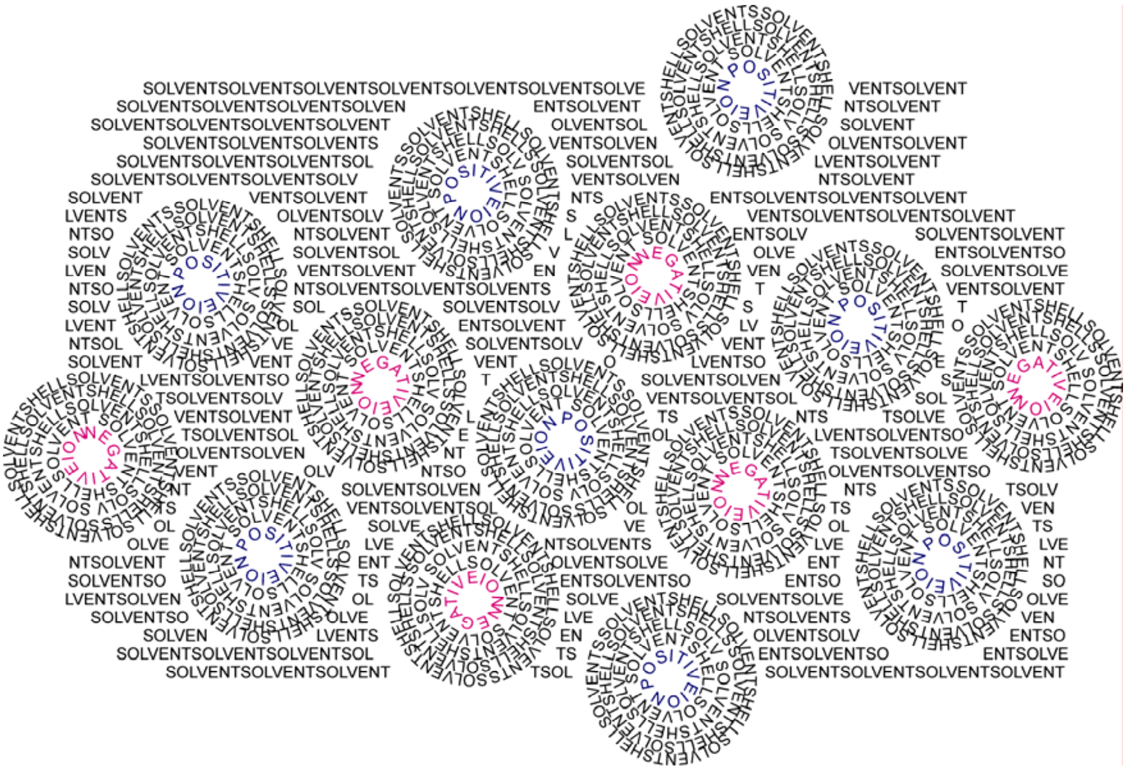
Andy wins a copy of *Understanding Voltammetry* by R. G. Compton and C. E. Banks.

The Editor thanks Professor Richard G. COMPTON of Oxford University for so very generously donating the prize, a Chemistry Bestseller at World Scientific, for this competition.

The Editor further notes that the second edition of this popular book by Professor Compton and Dr. Banks will soon be available; find out more: http://www.worldscibooks.com/chemistry/6430.html

EchemRT

With due acknowledgement to Ferdinand Kriwet's *ZUVERSPAETCETERANDFIGURINNENNENSWERT OLLOS"*.



jw
Kingston-upon-Hull

EchemHIST

To honour the election of Professor Derek PLETCHER, Southampton University, to Emeritus status, it gives the Editor great pleasure to feature him here.

Professor Pletcher (left) was born in North London during the Second World War, and harboured childhood ambitions to become a golfer or open the batting for the England cricket team. Fortuitously, he chose to read Chemistry at The University of Sheffield, graduating in 1964 with a Class II (with Honours) Bachelor of Science degree, after having met his future wife during one of his first practical classes. Following his PhD at Sheffield, he joined Professor Fleischmann to work within the Southampton Electrochemistry Group in 1967, principally engaging in research of industrial and technological importance: electrosynthesis, plating, cell design, sensors and electrochemical techniques.

Professor Pletcher (current age-normalised Hirsch index of 0.64 yr^{-1}), Fellow of the Electrochemical Society and Fellow of the Royal Society of Chemistry, was appointed as Professor of Chemistry in 1993, and became Emeritus Professor in the autumn of 2008. His current work still focuses on research of societal benefit, with interests that range from fundamental electrochemistry to electrochemical engineering, with significant emphasis on industrial applications, *viz.* electrosynthesis, gas sensors, electrochemical systems for energy conversion and storage, metal deposition and effluent treatment. He has written over 350 research papers and reviews, several books targeting the various key stages of an electrochemist's education (including a second edition of *A First Course in Electrode Processes* published by the Royal Society of Chemistry in 2009), as well as being a former editor of *Journal of Applied Electrochemistry*. His awards include the Henry Linford Medal and the 2010 Vittorio de Nora Award of the Electrochemical Society.

As an educator, Professor Pletcher pioneered the development of short, residential tutorial courses within Electrochemical Science and Technology. The popular "Southampton Summerschools" (*sic.*) have been well-attended by mature scientists and engineers for over forty years, with franchises exported to North and South America, Asia, Africa and even continental Europe. Perhaps it is this that is his legacy to us all. Indeed, in a contribution to this magazine, sixteen years ago, Professor Pletcher wrote "...perhaps the most pleasant production of an academic career, is the many ... students who leave University with PhDs to [work within] the Chemical Industry". With almost 100 post-graduate students who have trained under his auspices, his work continues to impact substantially on all of our lives.

We all wish Professor Pletcher enjoyment, contentment and happiness in his new position.

jw
Kingston-upon-Hull

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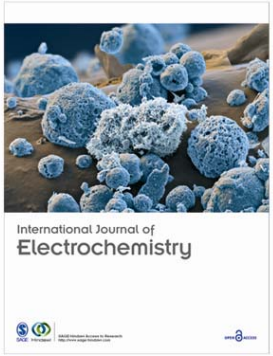

Aims and Scope

International Journal of Electrochemistry is a peer-reviewed, open access journal that publishes original research articles as well as review articles in all areas of electrochemistry.

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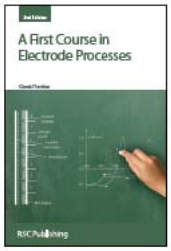

A First Course in Electrode Processes

Author: Derek Pletcher

Series: A First Course in Electrode Processes
Publisher: Royal Society of Chemistry
ISBN: 9781847558930
Price: £39.99
Publication date: 2009
Target audience: Professional and Scholarly

Format: BB Hardback
Size: 234mm x 156mm
Pages: 316
Illustrations: Black & White
BIC: PNRH, PNF, PN

Synopsis

This book provides a basis for an introductory course on electrochemistry. Uniquely, little or no background knowledge of mathematics is required to follow the course, as concepts are clearly emphasised throughout. The first edition has been adopted by university course across the globe and remains highly sought after. This second edition has been completely revised and expanded, and will continue to appeal to undergraduate and postgraduate students of chemistry and related disciplines, Professionals wishing to apply electrochemical methods in their work will also find the book invaluable.

The text is supported by a large number of figures which illustrate key points. A final chapter contains problems with fully worked answers to test reader's understanding.

Brief Contents

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- Max scanrate: 10,000,000 V/sec
- Vertex resolution: 0.125 mV at ±4 V scanrange

Ivium Technologies frequently visits conferences and meetings all over the world. Check our website at "www.ivium.nl/Upcoming events" to see when we are attending an event near you.

Alvatek
excellence in electrochemical solutions

Tel: 01666 500991

News

FUEL CELL EDUCATIONAL KITS

Alvatek has been appointed as the UK distributor for Pragma Industries of France. Pragma manufactures fuel cell educational kits and research tools for universities and other higher educational establishements. Pragma's Clear-Pak Experiment Kit is a complete solution for teaching and learning the physics, chemistry and engineering of fuel cells. Pragma's CCU—Cell Compression Unit, is a single unit to control compression, force and temperature applied to a single PEM fuel cell during a run test.

ClearPak Experiment Kit

Cell Compression Unit

For More Information:

Contact: Steve Fryatt

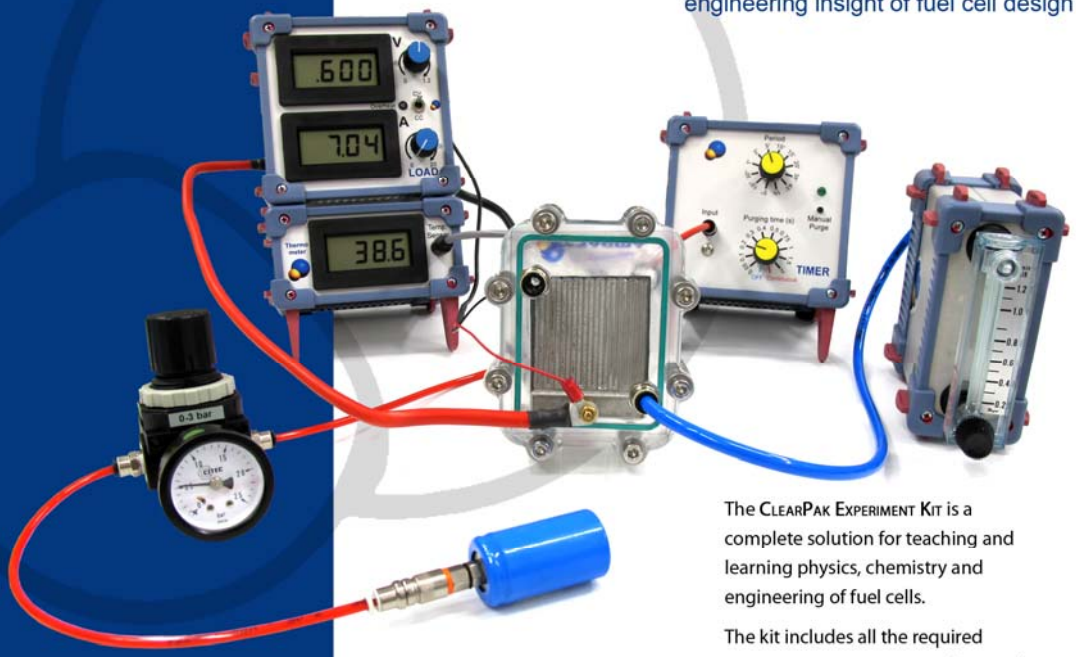
Alvatek Ltd, Tel 01666 500991

Email info@alvatek.co.uk

PRAGMA INDUSTRIES

ClearPak Fuel Cell Experiment Kit

Complete hardware set to get an engineering insight of fuel cell design



Complete solution

Robust design

High quality components

Practical and easy to operate

Broad range of experiments

ClearPak Fuel Cell is a 25cm² single cell with see-through design allowing observation of water behaviour inside the cell. It gives the user a comprehensive insight into the engineering of fuel cell stacks, their performance and water management.

ClearPak is a real fuel cell capable of delivering more than 10 amps. Combined with the components of the experimentation kit, it addresses the beginner as well as the advanced user.

The ClearPak Experiment Kit is a complete solution for teaching and learning physics, chemistry and engineering of fuel cells.

The kit includes all the required components to operate and assess the performance of ClearPak: adjustable electronic load, air supply with adjustable flowmeter, hydrogen supply with chemical storage and automatic purge.

The components are designed to be robust, practical, easy-to-operate and to be representative of commercial fuel cell systems. ClearPak is also a take-apart fuel cell that can be customized by the user with various flowfield designs or different Membrane-Electrode Assemblies in order to expand the scope of experimentation.

UK DISTRIBUTOR

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GL8 8JB

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mobile: 07768 396813
fax: 0870 751 5064
web: www.alvatek.co.uk

Ivium Technologies was founded in 2001 and is based in the Netherlands.
Our mission is to provide the latest electronics and technology to electrochemical research and facilitate the advancement in science. We develop and supply equipment for electrochemical research all over the world and we have grown to where we are today by combining modern design techniques and state-of-the-art components with efficient manufacture and swift customer service. Our dedication to developing solutions for electrochemical research has resulted in high performance instrumentation for a wide variety of applications. The cornerstone of our product range is a potentiostat/galvanostat platform that is available in a high power general-purpose device (IviumStat), and a low-power portable device (CompactStat).

CompactStat — Mobile measurement station

Ivium Technologies is best known for its development of the **CompactStat™:** the only true mobile potentiostat/galvanostat with built-in impedance analyser on the market. It is powered directly from the USB port of a PC/laptop and does not need a power-cord.

Portable: < 600 gram
No power supply required!
With integrated impedance analyser

IviumStat — All purpose potentiostat /galvanostat

Wide dynamic range

- **Max 5A @ ± 20V**
- **Expandable to 40A**

CompactStat&IviumStat:

- ***Potentiostatic/galvanostatic operation***
- ***Integrated impedance analyser: 10µHz to 2 MHz***
- ***Data acquisition rate: 100 kHz***
- ***High resolution: 0.15 fA***
- ***Peripheral analog/digital channels***
- ***Expandable with modules***
- ***High performance data analysis software included***

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Email: info@alvatek.co.uk
Contact: Mr. Steve Fryatt

PalmSens from Palm Instruments

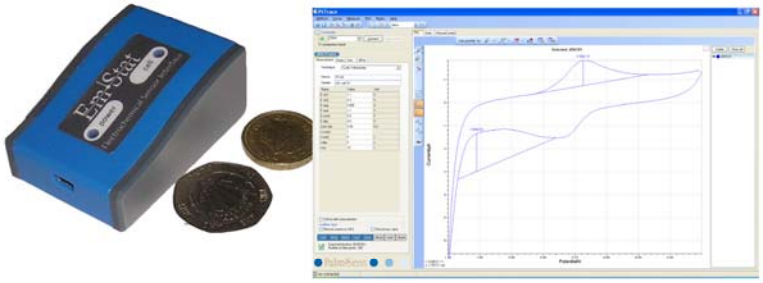
PALM INSTRUMENTS BV

- Battery-powered, portable with optional BlueTooth.
- Range of electrochemistry techniques
- 2V applied; 8V compliance
- 8 ranges: 1nA to 10mA
- 1pA resolution
- Includes powerful PSTrace software, test cell & cell cables.

Alvatek Ltd. Gloucestershire
Tel. 01666 500991 E-mail: sales@alvatek.co.uk

Emstat from Palm Instruments

PalmSens
PALM INSTRUMENTS BV



- USB-powered
- Cyclic and Linear Sweep Voltammetry (CV, LSV), Square Wave Voltammetry (SWV), Differential Pulse Voltammetry (DPV), etc
- 2V/4.5V & 10mA max
- Includes. Powerful PSTrace software; test cell & cell cables.

"At £1199, the Emstat is low-cost yet surprisingly capable. It is excellent for teaching and less demanding applications – but it still has nanoamp measurement capabilities! Call us for a demo." – Steve Fryatt, Alvatek Ltd.

Alvatek Ltd. Gloucestershire
Tel. 01666 500991 E-mail: sales@alvatek.co.uk

A *NEW* AUTOLAB - Dedicated to Research

Entry level

AUTOLAB/PGSTAT101

The entry level in the Autolab range of electrochemical instruments, the Autolab/PGSTAT101 in combination with the powerful NOVA software, can be used for most of the standard electrochemical techniques. Autolab/PGSTAT101 is an affordable potentiostat/galvanostat without compromising on quality and specifications, making it an ideal instrument for students and educational purposes.

The small footprint allows you to place a high quality potentiostat/galvanostat on a crowded workbench. Analog and digital inputs and outputs for interfacing and controlling external devices are available. The Autolab/PGSTAT101 comes with an internal dummy cell.

KEY FEATURES

• Electrode connections	2, 3 and 4
• Potential range	+/- 10 V
• Compliance voltage	+/- 10 V
• Maximum current	+/- 100 mA
• Current ranges	10 mA to 10 nA, in 7 decades
• Potential accuracy	+/- 0.2 %
• Potential resolution	3 µV
• Current accuracy	+/- 0.2 %
• Current resolution	0.0003 % (of current range)
• Input impedance	> 100 GOhm
• Potentiostat bandwidth	1 MHz
• Computer interface	USB
• Control software	NOVA

windsorscientific

Windsor Scientific Ltd, 264 Argyll Avenue, Slough Trading Estate, Slough, Berkshire, SL1 4HE.
Tel: +44(0)1753-822522 Fax: +44(0)1753-822002 E-mail: sales@windsorscientific.co.uk
Web: www.windsorscientific.co.uk

uniscan instruments

Rotator Controller

RC10V

The RC10V Rotator Controller accessory connects the BiStat 3200, PG580RM or PG580 potentiostat to an electrode rotator and remotely controls the rotational speed of the unit.

- Support for Pine Research and Princeton Applied Research rotators
- Small footprint enclosure
- Connects to USB port of computer or Uniscan potentiostat
- Software support from UiEChem™ and UiECorr™
- Software graphing of Levich and Koutecky-Levich plots
- Automated Levich analysis

Application Areas

- Erosion enhanced corrosion resistance studies
- Structures and activity of nanoparticles
- RDE and RRDE electrodeposition studies
- Catalysts for mixed-reactant fuel cell
- Electrochemical kinetics studies

uniscan instruments

www.uniscan.com

Diffusion

16-19 November 2010
2nd Regional Electrochemistry Meeting of South-East Asia (REMSEA) 2010
Bangkok, Thailand
Contact: Orawon Chailapakul
corawon@chula.ac.th
http://www.remsea2010.com/

21-26 November 2010
4th International Conference on Electroactive Polymers: Materials & Devices (ICEP-2010)
Surajkund (Suburb of New Delhi), India
Chair: Suresh Chandra
icep2010@gmail.com
http://www.icep2010.org

1-4 December 2010
Zing Solar Fuels/Photochemistry Conference 2010
Puerto Morelos, Mexico
info@zingconferences.com
http://www.zingconferences.com/z.cfm?c=77

2-4 December 2010
9th International Symposium on Advances in Electrochemical Science and Technology (ISAEST-9)
Chennai, India
Secretariat: G. Sozhan
saestkkd@yahoo.com
http://www.saest.com

14-16 December 2010
International Conference on Corrosion Mitigation and Surface Protection Technologies
Alexandria, Egypt
Contact: I.Z. Selim
info@egycorr.org
http://www.egycorr.org/29conf2010/conf.htm

19-21 January 2011
Fundamentals and Developments of Fuel Cells Conference 2011
Grenoble, France
Contact: Frédéric MAILLARD
frederic.maillard@lepmi.inpg.fr
http://fdfc2011.lepmi.grenoble-inp.fr/

7-8 February 2011
14th Annual Meeting of the Israel Analytical Chemical Society
Tel Aviv, Israel
Chair: Shula Levin
Contact: Daniel Mandler
mandler@vms.huji.ac.il
http://isranalytica.org.il/

16-19 February 2011
Zing Electrochemistry Conference 2011
Sharm el Sheikh, Egypt
Co-chairs: Phil Bartlett, Marc Koper
info@zingconferences.com
http://www.zingconferences.com/z.cfm?c=67

1-6 May 2011
219th Meeting of The Electrochemical Society (ECS)
Montreal, Canada
http://www.electrochem.org

8-11 May 2011
9th Spring Meeting of the International Society of Electrochemistry
Electrochemical Sensors: From Nanoscale Engineering to Industrial Applications
Turku-Åbo, Finland
Chair: Johan Bobacka
johan.bobacka@abo.fi
http://spring11.ise-online.org

7-10 June 2011
8th International Conference on Lead-Acid Batteries (LABAT'2011)
Albena Resort, Bulgaria
Chair: D. Pavlov
dpavlov@labatscience.com
www.labatscience.com

3-8 July 2011
18th International Conference on Solid State Ionics (SSI-18)
Warsaw, Poland
Chair: Franciszek Krok
fkrok@mech.pw.edu.pl
http://www.ssi-18.net

5-6 September 2011
Electrochem 2011
Bath, UK
Chair: F. Marken
f.marken@bath.ac.uk
http://www.regonline.co.uk/electrochem_2011

11-16 September 2011
62nd Annual Meeting of the International Society of Electrochemistry
Electrochemical Frontier in Global Environment and Energy
Niigata, Japan
Chair: Tetsuya Osaka
events@ise-online.org

9-14 October 2011
220th Meeting of The Electrochemical Society (ECS)
Boston, MA, USA
4-7 December 2011
http://www.electrochem.org

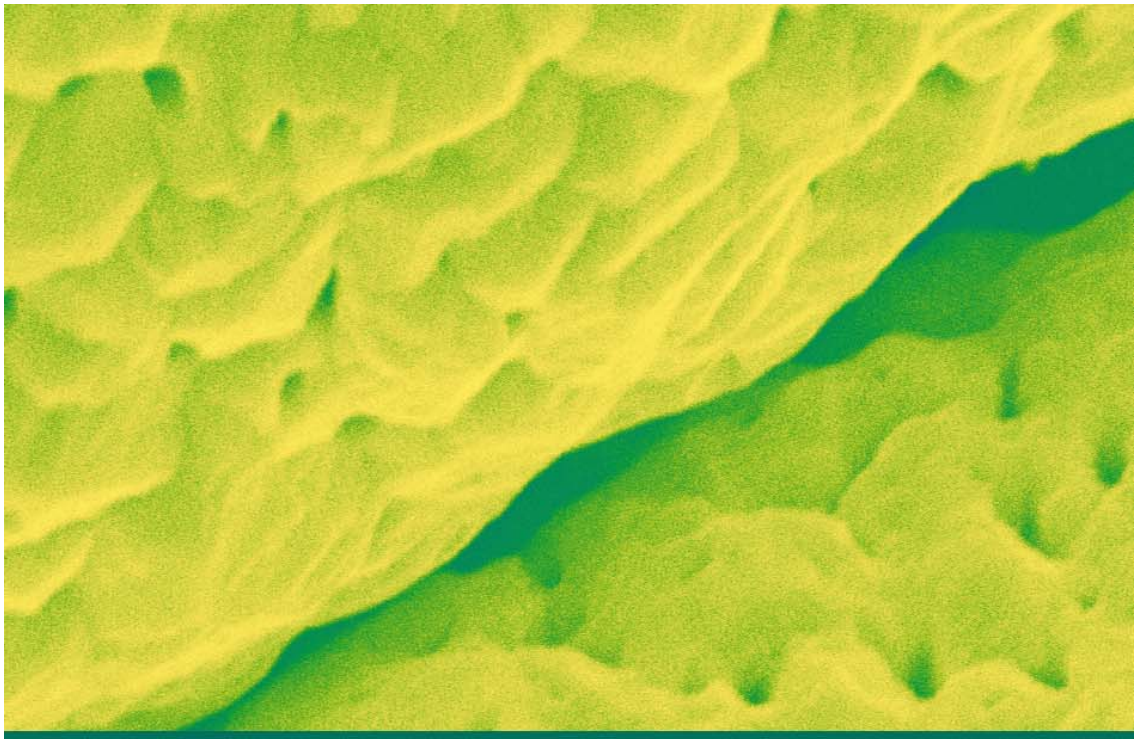
16-19 April 2012
10th Spring Meeting of the International Society of Electrochemistry
Electrochemical science and technology in the solution of real life problems - New approaches to nanostructuring electrodes for electroanalysis and energy storage
Perth, Australia
events@ise-online.org

23-25 May 2012
11th Spring Meeting of the International Society of Electrochemistry
Theoretical and Computational Electrochemistry, combined with
ISE Training School on Theoretical and Computational Electrochemistry
Washington DC, USA
Contact: YuYe Tong
yyt@georgetown.edu

19-24 August 2012
63rd Annual Meeting of the International Society of Electrochemistry
Electrochemistry for Advanced Materials, Technologies and Instrumentation
Prague, Czech Republic
Contact: Zdenek Samec
zdenek.samec@jh-inst.cas.cz
events@ise-online.org

8-13 September 2013
64th Annual Meeting of the International Society of Electrochemistry
Santiago de Querétaro, Mexico
Contact: Ignacio Gonzalez
igm@xanum.uam.mx
events@ise-online.org

1-6 September 2014
65th Annual Meeting of the International Society of Electrochemistry
Lausanne, Switzerland
Contact: Hubert Girault
hubert.girault@epfl.ch
events@ise-online.org



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

If you are not a member of the RSC, but are a member of a society affiliated to EuCheMS, you may still join the RSC Electrochemistry Group (membership costs *ca.* £10) and serve on the Group's Executive Committee (provided you do not become Treasurer, Secretary or President).