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NEWSLETTER

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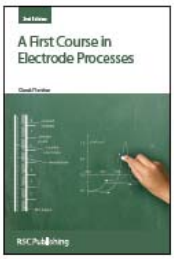

A First Course in Electrode Processes

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:

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Announcements

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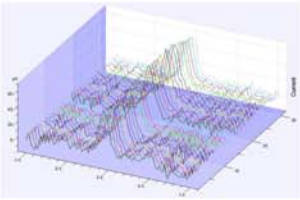

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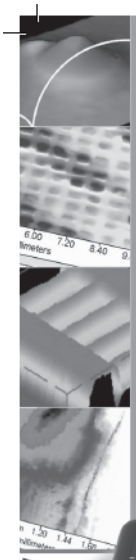

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For more information contact

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Contents

Editorial

This issue of this magazine is long overdue, and for this I apologise. Since the last issue, one of our groups has changed names – the RSC Electroanalytical Sensing Systems Group is the new identity of the RSC Electroanalytical Group.

Tragedy has befallen our community in many ways recently. Dr. Darryl Dawson, an Industrial Representative and much valued member of the RSC Electrochemistry Group Executive Committee tragically passed away in December, 2009. Drs. Birkin and Caruana give a moving tribute to him on page 16 of this issue. Dr. Jim Hambleton, the founder of Sycopel Scientific, also sadly passed away, in September, 2009. Dr. Dawes pays homage and tribute to him on page 14. Last, the life of Mr. Issah Alhassan, a second year PhD student, and much valued member of the Laboratory of Electrochemistry recently established at Hull University, ended tragically, in a road traffic accident in September, 2009.

Inasmuch as tragedy empowers us to re-seek perspective, as we move from one year to the next, from one type of decade and era to the next, I am drawn to the teaching of Proverbs 18:15 to fuel commitment and contribution to our community.

Dr. Dawes will temporarily take up position as an Industrial Representative of the RSC Electrochemistry Group Executive Committee. For those members of the SCI Electrochemical Technology Group who may wish to take over as President from Dr. C. F. Oduoza, should contact him (C.F.Oduoza@wlv.ac.uk).

I thank all those who have so generously provided materials for this issue, in particular the sponsors of this magazine, all those who have provided feedback on this magazine, and all those who entered the su-do-ku competition. The next issue will be sent on April 26, 2010; please keep sending your contributions to the address below.

Editor

If you wish to notify the editor with your view on the material or the content of any item in this issue, or your wish to contribute to the newsletter, please write to the editor at:

electrochemistry.newsletter@googlemail.com

Obituary

Jim Hambleton 1925-2009
Sycopel Scientific Ltd

Jim with two grandchildren and another northeastern hero, Sir Bobby Robson.

I am sorry to announce the death of Jim Hambleton, the owner of Sycopel Scientific, who passed away on the September 22, 2009, aged 84 years.

Jim spent a considerable part of his working life developing and building instruments for researchers, especially those involved with electrochemistry.

It is not that long ago at the Electrochemistry meeting in Newcastle that we presented Jim with an award for his achievements within the electrochemistry community.

He will be missed by all, especially those of us who listened to his antics describing how he always managed to overcome the trials of life.

He leaves his wife Dorothy and two daughters, grandchildren and great grandchildren

Thursday, April 27, 1967

Boy labourer had ambition to become the boss

By David Williams

JAMES HAMBLETON looked out from the glass panelled lounge of his luxury £8,000 Hamsterley Mill bungalow as a steady drizzle formed pools on the terrace outside, and recalled the day he left a council school to start work as a £1 per week boy labourer.

"Like every other 14-year-old youngster I wanted to get out of school and get a job. I became a labourer at Consett Iron Company."

That was 28 years ago. Now he is technical director of Joyce Loebl Ltd., the Team Valley scientific engineers who were last week granted the Queen's Award to Industry.

Jimmy Hambleton, the council school kid turned boffin, in no small measure helped Joyce Loebl to win the award.

Born at 5, Priestman's Avenue, The Grove, during the depression years of the 20's, he still recalls the days of bread and dripping, and dad on the dole.

STRUGGLE

His struggle to the top is ever present in his mind.

The fourth oldest in a family of seven brothers and two sisters life has never been easy.

"It was at a boy in 1939 that I joined the air cadets and got the urge to learn. I started going to classes at Consett Tec with the other cadets," he said.

At 18 he joined up and served in the RAF, for 5½ years. He was demobbed in 1947, a corporal and fully trained radar fitter.

Jimmy Hambleton was as eager to learn as ever. He got a job as a telecommunications officer working at Scottish airfields.

Three nights a week he travelled from Prestwick, the 40 miles to the Royal Tec in Glasgow.

He learnt fast and was promoted rapidly.

MARRIED

He met his wife Dorothy, a Prestwick girl, and soon they were moving all over Scotland.

Housing was difficult to get and so Jimmy Hambleton decided to return to Tyneside.

Back to Consett he came with his wife and daughter Linda.

He got work with C. and A. Parsons as a research engineer and became a graduate of the Institute of Electrical and Radio Engineers. It was still work by day and studies by night.

Then he made the move which put him on the road to the top. He joined the two man and two boys who constituted Joyce Loebl Ltd., as a project engineer.

It was a small but eager firm working on small contracts and repairing meters for shipyards.

Then one day they were awarded a job which had every other telecommunications specialist beaten.

Interference was making a T.V. link between London and the Isle of White virtually impossible.

Jimmy Hambleton went south and a few months later the picture was clear as a bell on every television set on the Isle.

By 1956 he was an associate member of the Institute and Joyce Loebl were on the up. Staff had increased to 24 and production was diversifying.

BOOM

Now they are the most successful manufacturers of microdensitometers in the business and their Microlab system introducing automation to the laboratory, has speeded up analysis of blood.

It was their microdensitometer which "discovered" the American satellite Surveyor 1 when it went mining on the moon.

The microdensitometer, which measures tiny variations in density on photo film, succeeded where the magnifying glass failed.

And as his firm's business boomed exports increased not only to the States and to European countries but also to Russia and Red China.

Nineteen-sixty was Jimmy Hambleton's year of achievement.

The year the council school kid who never had money in his pocket other than his wage, was made Technical Director.

"I hadn't had a share in the firm. It was I suppose because of the research contribution I had made to the firm."

The following year as a full member of the Institute of Electrical and Radio engineers he became chairman of the North East branch. He takes the chair again later this year.

Now Jimmy Hambleton is 42 and boss of the research and development side of this Tyneside "boom" firm.

Joyce Loebl employs a "team" of 270, nearly all highly skilled craftsmen.

And the boy who left Consett Council school with one ambition—to get a job—can sit back a little more at his business in High Mill Road, Hamsterley Mill Estate.

"I can never relax completely. We are still in the rough and tough of business and we must keep our heads above water."

Every year he travels the globe. A diary engagement at the moment is to lecture at a conference in Pittsburgh, U.S.A.

The depression of the '20's and dripping and bread may seem a world away as Jimmy Hambleton relaxes on a settee in his lounge looking out at the neatly tailored lawns.

But it was the hard life which gave him ambition and despite success he is still a Consett Lad at heart.

"I am one of a big family and we still keep together. I don't see them as often as I would like but we have all got one. Everyone of us had ambition. We have all made our mark.

"I think we can all thank our dad for that. He was determined we should work for everything."

Now the Hambletons and their two daughters, Linda 17, and Elaine 13, have peaceful surroundings.

They moved to Hamsterley Mill two years ago from Whickham where life got too crowded.

For Jimmy Hambleton, the ambition of 28 years ago has been achieved.

James Hambleton relaxes at home and looks at the brochure which tells him his firm has won a very special honour—the Queen's Award For Industry. Looking on is his 17-year-old daughter Linda.

A press cutting showing a photograph of Jim and his daughter Linda with the Queens Award for Industry given to Joyce Loebl.

Jim and I had much in common, even before we met!

One of the many success stories he had in his lifetime was his contribution to the development of microdensitometry whist working at Joyce Loebl in Gateshead. During 1979, I was working as a research assistant at the University of Mainz in West Germany. One of my tasks was to scan electrophoretic gels and generate a 'map' of the stained samples. Little did I know that much later I was to meet the man who more than any helped develop the instrument I used during my postdoctoral work. Jim was the Technical Director at Joyce Loebl and was the person ultimately responsible for its undoubted success as a scientific instrument.

He parted company from Joyce Loebl in the early 70s and rapidly built up his own companies under his management. Sycopel Scientific was born then to manufacture analogue potentiostats, followed by Sycopel International which sold the "Alberry" micro-needle Biosensor and then Fairgreave Mouldings. The family tradition continues with his eldest daughter being the chief executive at Fairgreaves. Jim expanded his presence in the electrochemistry market by purchasing another northeast company manufacturing potentiostats, Thompson Electronics, and amalgamated the two under the Sycopel umbrella.

I first met Jim at an electroanalytical meeting held at the University of Loughborough in the early 1980s. It was the beginning of a long and valued friendship.

Jim's background and personality came from a less than privileged upbringing in the coal mining area of the northeast. Born in 1925, he was the fourth eldest son in a family of seven brothers and two sisters, where life was very hard and there were

very few luxuries. There was no university education for someone with his background, who left school at fourteen, but, like many of his era, night school offered a way to learn. During the day he worked, and during the evening he learnt about electronics at technical college.

His commitment paid off and in his twenties. After war service, he started working for one of the largest engineering companies in the northeast, C & A Parsons, as a research engineer. Through further evening study, he became a graduate of the IEEE.

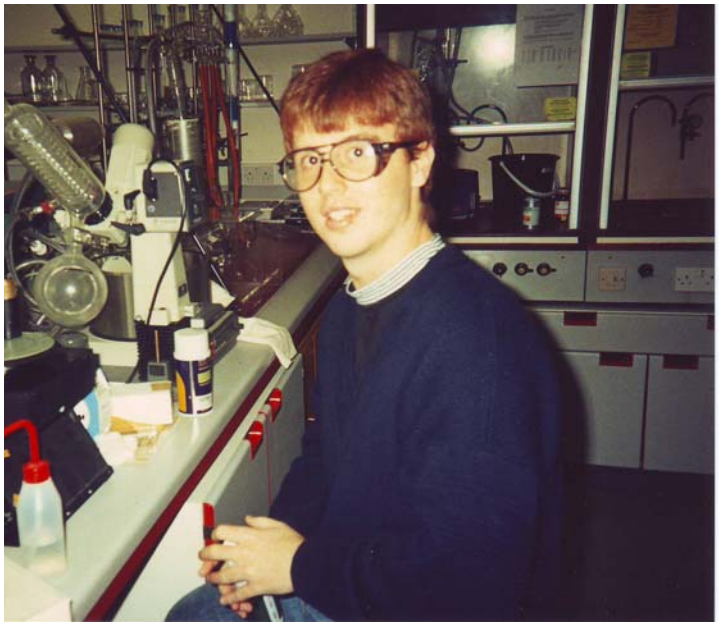
It was in the early 50s that he was persuaded by Herbert Loebl and Robert Joyce to join a small fledgling company that later became a major employer in the area with over five hundred people. As Technical Director, he was to oversee the development of many successful products from the microdensitometer to a blood analyser. He travelled extensively abroad to lecture on behalf of the company and worked closely with NASA to 'map' the moon prior to the first landings.
More than anything, Jim liked a challenge and not only technical. His hard work at Joyce Loebl enabled him to find the resources required to start his own company and manufacture his own products.

My many happy meetings with Jim, often led to interesting reminisce of his many travels and experiences around the world.
I remember him as a man of warmth. Always hardworking, he set an example to others. He was a kind, generous man. Jim was at heart a family man who supported relatives, friends and acquaintances alike with total commitment and care. His spirit was admired and his dedication never questioned. He sought no reward for his endeavours over the years. However, at the Electrochemistry meeting held in Newcastle in 2005, we recognised his many achievements and contributions to electrochemistry by presenting him with an award, in the presence of his family.
Although not in the best of health, Jim continued working, well in to his late seventies and celebrated his 60th wedding anniversary with Dorothy in 2008. He leaves Dorothy, his two daughters, grandchildren and three great grand children.

Keith Dawes, December 2009.

Obituary

Darryl Hirst Dawson
17/12/1968 – 03/12/2009



Darryl working at his bench.

It has been my pleasure to have known and worked with Darryl. He was an entertaining lab colleague who was both generous with his time as well as being knowledgeable. I first came across Darryl during my undergraduate project but it was as a first year postgraduate that I really started to get to know him. To illustrate his character; Darryl helped me setup my first experiments. As part of this Darryl suggested that we test the lab for evidence of its previous occupants. Now, the lab had previously been used for studies involving radio-isotopes and being a sceptical northerner, Darryl was wise enough to think a check or two may be in order. This didn't go down well with the previous occupants who reacted with some heat to the implied accusation that they somehow 'hadn't cleaned out their stuff' and suggested 'we wouldn't find anything anyway with the Geiger counter we asked for'. Darryl was not put off and politely insisted we tried. After a bit of tense negotiation/standoff we were begrudgingly given the said counter. Unsurprisingly to Darryl, when we tested a cupboard, the Geiger counter did that harsh wailing effect you only usually get to see on films. This was the cupboard which was to be directly in front of my 'particulars' for the next 12 months. The lab was cleaned (properly).

Darryl was an excellent scientist and contributed significantly to every project he was involved with. After completing his PhD (eventually at the University of Bath) he went to UCL to work on solid oxide gas sensors with David Williams. During his time at UCL he was instrumental in setting up many of the gas sensing rigs. In fact one rig still exists in room G15 in the Christopher Ingold Building; the rig still works well with a DOS OS on a 386 computer controlling mass flow controllers and measures the out put of a number of gas sensors. Keith Pratt who joined him in David's lab in UCL modified the rig with a temperature controlled enclosure for the mass flow controllers and gas lines. The heat exchanger was a radiator from a Morris Marina! Within the lab there was a small "clean room" (the size of garden shed) which was used for screen printing the gas sensors, the air is filtered through an air filter… from a Morris Marina.

He obviously enjoyed working with gas sensors, because when he left UCL in 1997 he went to work for AlphaMOS, then shortly after a very young company called Alphasense. Alphasense obviously recognised his potential and employed him as their chief scientist. It would be fair to say that Darryl was instrumental in the development of many of their electrochemical sensor systems. During his time at Alphasense, he was a regular attendee of the annual electrochemistry (Electrochem) meetings and represented industry on the RSC electrochemistry committee.

Darryl was first and foremost a scientist, and a firm believer in electrochemistry making an impact; he certainly made an impact on science and his colleagues. Unfortunately, life is seldom fair, and he contracted cancer, which at first he successfully battled. However, the second time around, he lost his personal battle and died on the 3rd December 2009. He was buried on what would have been his 41st birthday.

Darryl was a dedicated father to his daughter, Natalie 13. He will be fondly remembered by all who knew him…

Pete & Daren

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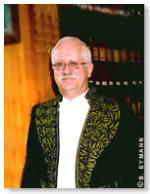

Professor Dr. Christian André AMATORE, member of the *Haut Conseil de la Science et de la Technologie of the Government of the Fifth French Republic*, and of Ecole normale supérieure, Paris, France, and Delegate for the Chemistry Section of the *Académie des Sciences, Institut de France* on his election to an Honorary Fellowship of *The Royal Society of Chemistry*.

Dr. Ronan BARON on his appointment as a Senior Research Scientist at Alphasense, Ltd.

Professor Colin BOXHALL of Lancaster University, on his appointment to The Lloyd's Register Educational Trust Chair in Nuclear Engineering and Decommissioning.

Dr. Dan BRETT of University College London, recipient of the Oronzio and Niccolò De Nora Foundation Prize on Applied Electrochemistry of the *International Society of Electrochemistry* for his "*excellent record of research accomplishments in the field of batteries and fuel cells*."

Professor Richard COMPTON of Oxford University on his election to an Honorary Doctorate at Kharkov National University of Radioelectronics, Ukraine.

Professor Ernesto CALVO of Universidad de Buenos Aires, Argentina on his election to Vice President of the *International Society of Electrochemistry*.

Professor James DAVIS on his election to a Professorial Chair in Nanotechnology and Advanced Materials at Ulster University.

Professor Anthony KUCERNAK of Imperial College London on his election to a Titular Professorship.

Professor Laurence PETER of Bath University, on the occasion of his retirement and promotion to an Emeritus Professorship position.

Professor Derek PLETCHER of Southampton University, on the occasion of his retirement and promotion to an Emeritus Professorship position.

Dr. Andrew WAIN on his appointment to a *Higher Research Scientist in Electrochemistry* at National Physical Laboratory.

Dr. Gregory WILDGOOSE on his appointment to a *Royal Society University Research Fellow* at University of East Anglia.

The Editor warmly congratulates Dr. Stephane ARBAULT on his new position in Bordeaux.

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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 20). 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.

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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<mailto: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

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 vitae* 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).

Electrochem 2010: Electrochemistry and Sustainability

14-15 September 2010
University of Wolverhampton,
Telford Campus, Telford, UK

RSC | Advancing the Chemical Sciences

Organised by SCI's Electrochemical Technology Group, RSC's Electrochemistry Group and RSC's Electroanalytical Group

SCI where science meets business

Electrochem 2010 *Call for Papers*

14-15 September 2010, University of Wolverhampton, Telford, UK

SCI where science meets business

Electrochem 2010: Electrochemistry and Sustainability aims to bring together members of the international community involved in the practice and promotion of electrochemistry and electrochemical engineering. There will be a mix of plenary lectures, parallel breakout sessions of contributed lectures and keynote talks, an extended poster session and a gala dinner.

Symposia Themes
Many symposia themes will be covered, all with a clear focus and emphasis on sustainability.
Conference Organiser: Chike Oduoza.

1. Electrochemical energy storage and conversion (Nigel Brandon, Carlos Ponce de Leon)
2. Electrochemical surface technology (Karl Ryder, Natasa Vasilevic)
3. Bio/electroanalysis and sensors (Peter Fielden, John Hart)
4. Nano/advanced materials (Craig Williams, Dave Walton)
5. Environmental treatment and recycling (Ted Roberts, Pauline Allen)
6. Lab to market (Rob Andrew, Dave Hodgson)
7. Symposium for postgraduate students (Paul Shearing, Stacey Handy)
8. General poster session

Plenary lectures to be announced. Please check the website regularly for updates.

Call for Papers
Please submit A4 abstracts stating whether you prefer an oral or poster presentation and the corresponding symposia theme to susan.fitzgerald@soci.org. Technical assistance is provided, please contact the secretariat who will put you in touch with the correct person.

Deadline for oral presentations: Monday 31 May 2010
Deadline for poster presentations: Friday 30 July 2010

Sponsorship & Exhibition
The University of Wolverhampton is an ideal venue for an exhibition. All refreshments, lunches, the exhibition and posters are situated in a single area, ensuring excellent access to delegates througout the meeting. There is also plenty of opportunity for sponsorship, please contact susan.fitzgerald@soci.org for further information and costs.

For further details please visit:

www.soci.org

Or contact the SCI Conference Team

E: conferences@soci.org
T: +44 (0) 20 7598 1561
F: +44 (0) 20 7235 7743

Cover Images: World Heritage Site of Ironbridge and Telford, often referred to as 'The Birthplace of the Industrial Revolution'; Priorslee Hall, Telford Campus; SEM image of nickel deposition on aluminium

With thanks to our sponsor:

Electrochemistry, Electrochemical Engineering and Electrochemical Technology:

July 5th – 9th 2010

Electrochemistry, Electrochemical Engineering and Electrochemical Technology is a one week, residential course designed to introduce the practical steps essential to implement electrochemical technology on a commercial scale. It is intended to compliment the course ***Instrumental Methods in Electrochemistry***, run almost annually in Southampton since 1969. Indeed, we hope that those who found Instrumental Methods in Electrochemistry useful will return to Southampton to attend the new course.

In the Southampton tradition, *Electrochemistry, Electrochemical Engineering and Electrochemical Technology* will consist of both lectures (with full written supporting material) and hands-on practical sessions. The early lectures will cover core material such as:

Applications of Electrochemistry
Introduction to Electrode Reactions
Voltammetry
Steps to Move from the Laboratory to Commercial Exploitation
Current and Potential Distribution
Electrode Materials and Membranes
Cell Design

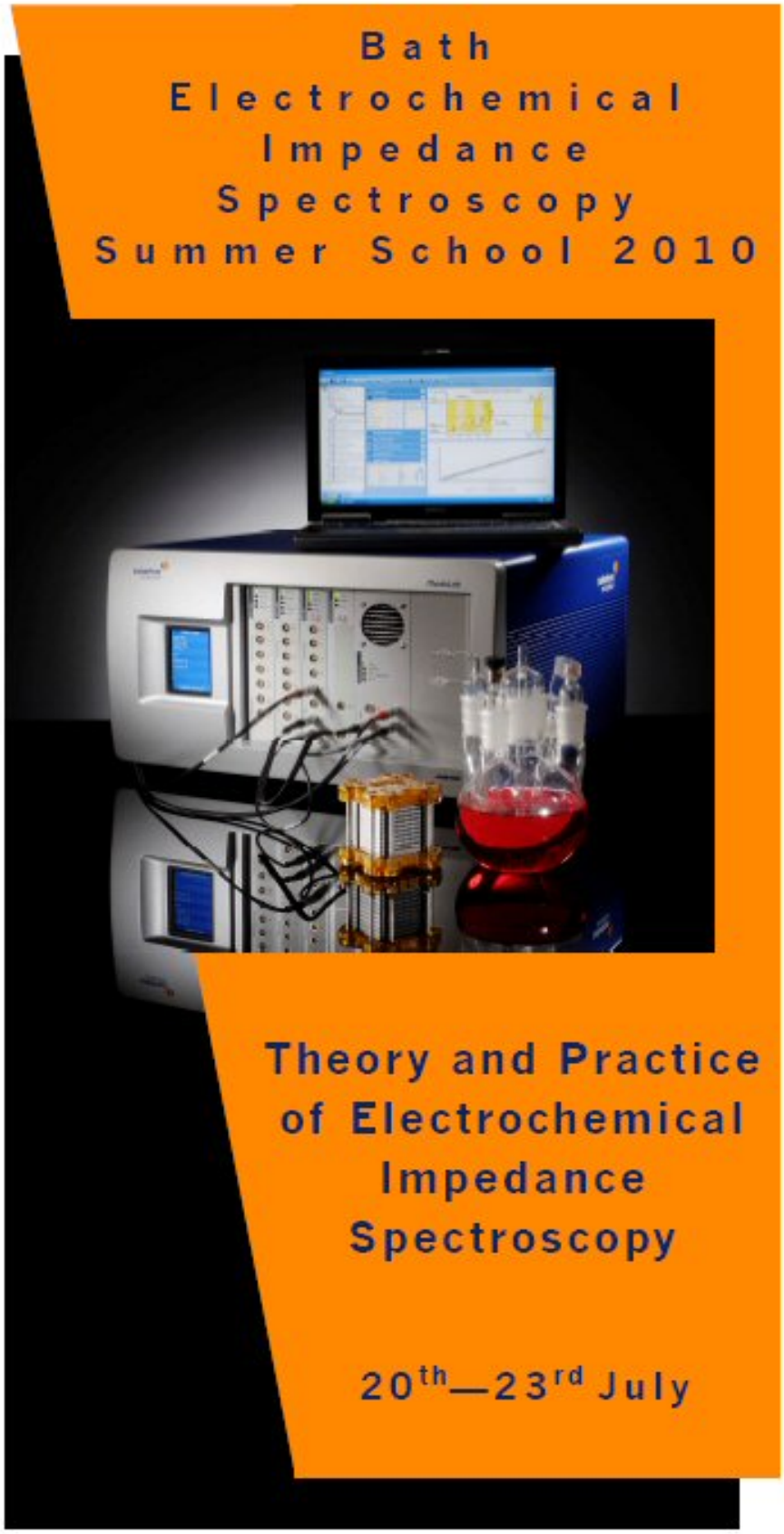
The final three lecture sessions will address specific topics in electrochemical technology, especially examples of applications. In 2010 these topics will be:

Fuel Cells
Electrodeposition for Nanotechnology
Energy Storage – Li Batteries, Supercapacitances and Flow Batteries

All participants will do an introductory voltammetry experiment in the first practical session and then select two further experiments out of 6-8 designed to illustrate the core material and the selected specific topics. The Summerschool will also provide formal and informal opportunities for discussion of topics related to the interests of the participants.

For enquiries and registration, please contact : Professor Derek Pletcher, School of Chemistry, The University, Southampton SO17 1BJ, UK. **telephone:** +44 (0)2380 593519 **email:** dp1@soton.ac.uk

Further details: http://www.soton.ac.uk/~elchem/index.htm



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

MACRO2010

43rd IUPAC World Polymer Congress

Polymer Science in the Service of Society

11 - 16 July 2010

SECC, Glasgow, UK

'Macro2010' is the latest in the series of the biennial meetings of the IUPAC Polymer Division. With a history spanning several decades, this is the largest international multi-symposium conference dedicated to all aspects of polymer science and engineering.

Themes

- Delivering New Polymers for Service in Society: Advances in Polymer Chemistry
- Molecular to Macroscopic Behaviour of Polymers
- Sustainability: Renewable Resources and Environmentally-Friendly Polymers
- Polymers in Support of Life
- Functional Polymers for Electronics, Energy and Analysis
- Polymer Science in Everyday Life
- Advances in Colloidal and Nanosize Polymer Materials
- Young Polymer Scientists: Highlights, Awards, Nurturing and Networking

The full symposium programme with keynote and invited speaker names is now available online at **www.MACRO2010.org.**

Confirmed Plenary Speakers

Professor Jean M J Fréchet
University of California, Berkeley, USA

Professor Sir Richard Friend, FRS
University of Cambridge, UK

Professor Ming Jiang
Fudan University, China

Professor Laura Kiessling
University of Wisconsin-Madison, USA

Professor Kiyohito Koyama
Yamagata University, Japan

Professor Ludwik Leibler
ESPCI CNRS, Paris, France

Call for Papers

The Macro2010 call for abstracts opens in September 2009. For your chance to give an oral or poster presentation, submit your abstract by 29 January 2010. See the website for details.

Sponsorship and Exhibition

Promote your organisation at the congress – contact us at **macro2010@rsc.org** for more details

RSC | Advancing the Chemical Sciences

www.MACRO2010.org

Registered Charity Number 207890

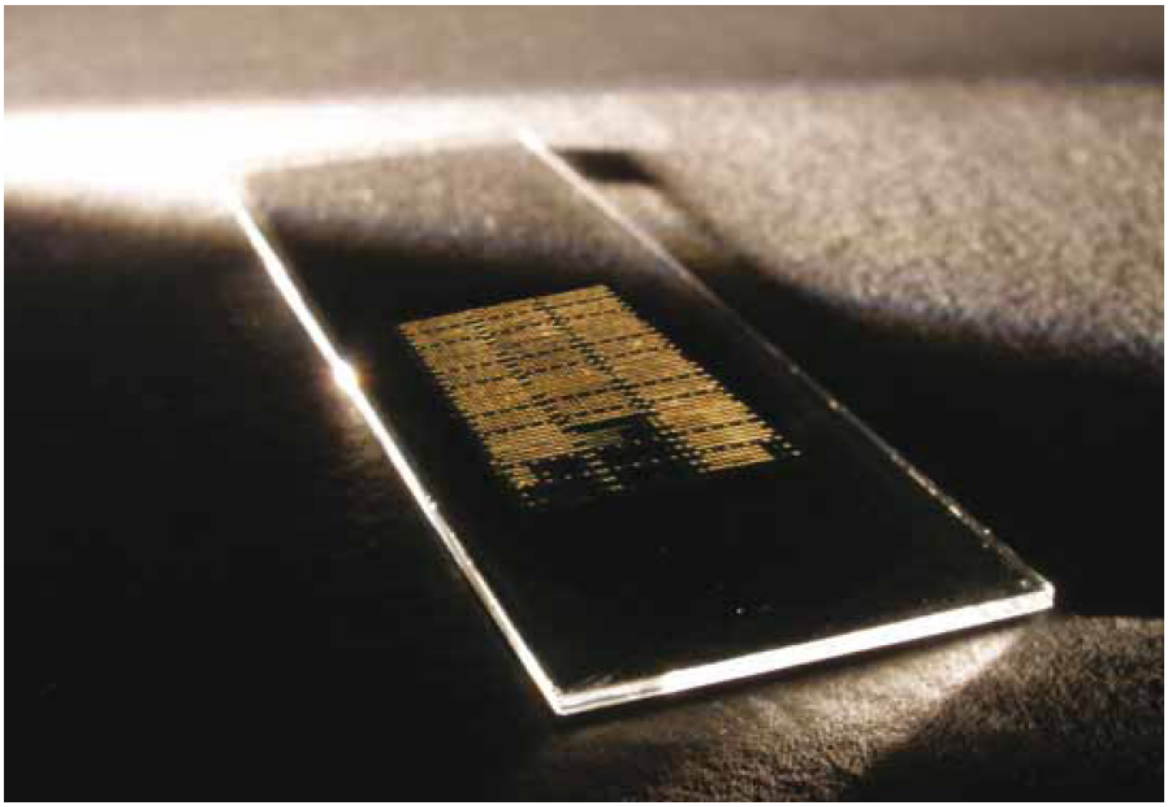
FARADAY DIVISION

Faraday Discussion 149:

Analysis for Healthcare Diagnostics and Theranostics

6 – 8 September 2010

University of Edinburgh, UK



RSC | Advancing the Chemical Sciences

www.rsc.org/FD149

The need in healthcare to detect biomolecular species such as proteins, oligonucleotides (DNA and RNA) and cells for diagnostics is driving the current development of physical techniques. These techniques are generally based on optical, electrochemical and mass spectrometric transduction. Exploitation in array formats is enabling the development of high throughput detection to inform systems biology and pathway medicine, giving new insights into biomolecular pathways and identifying new target analytes.

This is a highly topical and exciting area which opens up the real prospect of theranostics (the use of diagnostics in informing patient specific therapy). However, development and optimisation of detection requires an understanding and control of the fundamental physical processes occurring both in sensing and signal transduction and assessing the comparative merits of alternative detection strategies. For high throughput detection, bioinformatics (the processing and interpretation of vast amounts of data) also presents a real challenge.

This meeting offers a unique opportunity to discuss the relative merits of these physical methods, and the fundamental issues which currently hinder or preclude their development and utilisation. These discussions will be informed by the requirements for detection (the "clinical pull") and for systems development (the "technological pull").

Themes

- Systems/Devices to Inform Therapy (SDIT)
- Physical Techniques for Diagnostics (PTD)
- High-Throughput Measurement and Analysis (HTMA)
- Towards Real-time Clinical Measurement (TRCM)

Aims

Faraday Discussion 149, organised by the Faraday Division, aims to bring together scientists from many disciplines, including biologists, physicists and chemists, involving academics and industrialists from the healthcare and biosensing communities.

Scientific Committee

Andrew Mount (Chair)
University of Edinburgh, UK

Till Bachmann
University of Edinburgh, UK

Phil Bartlett
University of Southampton, UK

Rob Beynon
University of Liverpool, UK

Mark Bradley
University of Edinburgh, UK

Paul French
Imperial College, London, UK

David Mendels
Cognoscens, France

Invited Speakers

Roger Tsien (Introductory)
University of California, San Diego, USA

Pankaj Vadgama (Closing)
Queen Mary University of London, UK

Nancy Allbritton
University of North Carolina, USA

Tony Cass
Imperial College London, UK

Graham Cooks
Purdue University, USA

Kev Dhaliwal
MRC Centre for Inflammation Research, Edinburgh, UK

Walter Kolch
University College Dublin, Ireland

Key Deadlines

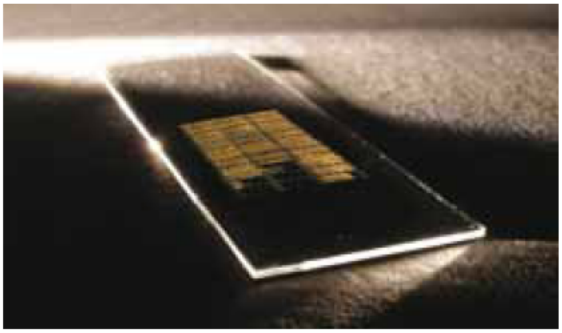
Abstracts for oral presentation
2 November 2009

Submission of full papers
30 April 2010

Abstracts for poster presentation
2 July 2010

Early bird registration
2 July 2010

Standard registration
6 August 2010



How It Works

The Scientific Committee will select contributed abstracts to complement the invited presentations on the basis of the abstracts received. The authors will then be asked to submit their work as a full paper, which will form the basis of their short presentation at the meeting. The paper itself must contain new, unpublished work and be submitted by 30 April 2010.

The papers selected for presentation and discussion will be refereed and then sent to all participants as preprints.

Preprints will be issued four weeks in advance of the meeting. The Discussion will be conducted on the assumption that the papers have been read in advance and only **five minutes** will be allowed for each presentation. Most of the time will be devoted to discussion, a record of which will be submitted for publication in the Faraday Discussion Volume which will be published by the RSC approximately six months after the meeting.

Call for Papers

Offers of papers within any of the themes of the meeting are now invited. Oral abstracts should be submitted by 2 November 2009 and poster abstracts by 2 July 2010.

Abstracts for both oral and poster presentations should be sent by email attachment to RSC Conferences (conferences@rsc.org) with the following subject header: 'FD149 abstract'.

The abstracts should be no longer than one A4 page in portrait layout.

Please include your full address and contact details in the email and indicate whether you are submitting an abstract for oral or poster presentation.

Registration

Registration will open in spring 2010. Accommodation is not included in the registration fee; this should be booked directly with the University of Edinburgh at the time of registering.

Financial support is available for students and recent graduates. The bursary application form will be available online when registration opens.

Venue

The meeting will be held at the new John McIntyre Conference Centre at the University of Edinburgh's Pollock Halls site.

You may like to arrive in Edinburgh early to attend Edinburgh's world famous festivals which take place throughout August until the first week in September.

Networking

Faraday Discussions provide excellent opportunities for interaction with other delegates. Networking will take place through an interactive poster session and the conference dinner which will include the traditional Faraday Loving Cup ceremony.

Faraday Discussion Volume

The Faraday Discussion Volume documents the unique series of discussion meetings. The papers presented at the meeting are published in the Faraday Discussion Volume together with a record of the discussion contributions made at the meeting. Faraday Discussions therefore provide an important record of current international knowledge and views in the field concerned.

The latest ISI citation data give Faraday Discussions an impact factor of 4.60, emphasising their importance as a forum for developing exciting new ideas.

Sponsoring Faraday Discussion 149

Sponsorship and exhibition opportunities available at this meeting include table-top exhibitions, sponsorship of social events and advertisements in the book of abstracts. Please contact RSC Conferences for details.

Cover image courtesy of Harald Peter, University of Edinburgh, UK

Further Information

The programme and registration booking link will be available online at the start of 2010.
All enquiries concerning any aspect of FD149 should be addressed to RSC Conferences.

Royal Society of Chemistry
Conferences

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Thomas Graham House
Science Park, Milton Road
Cambridge, CB4 0WF,
UK

Tel: +44 (0)1223 432380 / 432254
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Bath Electrochemistry Winter School
10th – 14th January 2011

Intensive Hands-on Training and Lectures

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

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Email: sales@windsorscientific.co.uk
Web: www.windsorscientific.co.uk

freshEYES

Dr Gregory G. WILDGOOSE (pictured on the right-hand side with Mr. Edmund Dickinson) has recently joined the University of East Anglia as a Royal Society University Research Fellow, having previously completed a Junior Research Fellowship at St. John's College, Oxford University, working alongside Prof. Richard G. Compton's research group. Greg is currently seeking to build on his interests in chemically modified carbon nanoelectrochemistry to bridge the gap between applied nanoelectrochemistry and the field of traditional organometallic synthesis. To this end, his current research is focussed on developing techniques and "linker chemistries" to enable the chemical modification of carbon nanotubes with a host of interesting "designer" organometallic complexes. The aim is to create enhanced, tunable, sensing devices and materials for catalytic applications. Other areas of interest include the extension of organometallic-electrochemical systems into hitherto inaccessible solvent systems; metal, metal oxide and quantum dot nanoparticulate assemblies; and developing the concept of "supranano" chemistry.

Greg is a member of the Royal society of Chemistry, the International Society of Electrochemistry, and the American Chemical Society. He acts as a referee for over twenty international journals, such as several leading RSC, Elsevier and ACS journals, including *Electrochem. Commun., Chem. Commun, J. Mater. Chem., J. Phys. Chem C,* and *The Analyst*. To date Greg has published over 80 journal papers several patents, and co-authored a book chapter in *Biosensing Using Nanomaterials (Ed. A. Merkoçi), Wiley, 2009.* He is currently co-writing a book on the scientific history of electrochemistry in the USSR entitled "*Armin Stromberg: First Class Scientist, Second Class Citizen – Letters from the GULAG and a History of Electroanalysis in the USSR*". He is also a co-inventor of a solid-state, calibration-free pH measurement technology that has resulted in the formation of the California-based spin-out company *Senova Systems Inc.*

Greg completed his MChem and DPhil from Oxford University in 2003 and 2006 respectively, working within Prof. Compton's research group. His hobbies include music, cycling, and frequenting local watering holes for the odd pint!

Find out more at the following URL.

http://web.me.com/gregory.wildgoose/

It gives the Editor much pleasure in featuring Dr Andrew J. WAIN within this issue. Andy is a Higher Research Scientist in Electrochemistry at the National Physical Laboratory, where he works within the broad field of Nanoelectrochemistry. Andy is a First Class (with honours) graduate in Chemistry from Oxford University, where he held a Casberd Scholarship at St. John's College. In a testament to his dedication, skill and perspicacity within electrochemical research, Andy, working under the auspices of Professor Richard G. Compton, was awarded the ICI Thesis Prize for his fourth year undergraduate research project, with the latter constituting the basis of five research papers. After undertaking doctoral studies advised by Professor Compton on *Electron Spin Resonance in Electrochemistry*, and graduating in 2006 after *viva voce* examination by Professor Peter, Andy undertook post-doctoral research training in the fields of electrochemical micro-imaging of DNA hybridisation, and in developing exploratory work in electrochemical surface plasmon resonance combination techniques at the Department of Chemistry and Biochemistry at California State University, Los Angeles, USA, working under the supervision of Professor Feimeng Zhou.

Demonstrating commitment to excellence in chemical education, Andy worked, during both his doctoral and postdoctoral studies as a Physical Chemistry Tutor at Oxford and as an Electrochemistry Teacher at CSU. Andy's research has been disseminated to the general scientific audience via approximately thirty peer-reviewed papers in internationally-leading journals and one book chapter, leading to H = 13. This seemingly modest value when normalised by his age transforms to the impressive value of 0.45 yr^{-1}.

Find out more at the following URL.

http://www.npl.co.uk/advanced-materials/measurement-techniques/electrochemistry/

Job Opportunities

Post-doctoral Electrochemists at Arizona State University, USA.

A postdoc positions is available in the group of Professor Karl Sieradzki.

We have a new program related to using room temperature ionic liquids (RTILs) as electrolytes in metal-air batteries. I am in need of one or more really good electrochemists.

No experience with batteries or RTILs is necessary - only that he or she be a well trained electrochemist.

This person has to be confident in his/her own abilities and able to set up all sorts of electrochemical experiments and supervise others in the lab. The ability to direct and supervise is important.

Salary is negotiable and this could lead to a permanent position in Phoenix with a start-up company that currently employs ~ 50 people.

To apply, please contact Professor Karl Sieradzki via e.mail, or otherwise, at the following address.

Professor Karl Sieradzki
Professor of Materials Science and Engineering
Fulton School of Engineering
Arizona State University
Tempe, AZ 85287-8706
USA
Tel: +1 480-965-8990
FAX.: +1480-965-1384
email: Karl.Sieradzki@asu.edu

Job Opportunities

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264 Argyll Avenue, Slough Trading Estate, Slough, Berkshire SL1 4HE
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WE SEEK AN EXPERIENCED ELECTROCHEMIST FOR A DEVELOPMENT PROJECT

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Due to the success of this project, we have been able to secure additional funding from an end user to scale up our reactor to confirm its applicability and satisfy the deliverables agreed between us.

We Seek:

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    1. An ability to work towards strict time frames and deliver to set milestones and deliverables.
    2. A wide knowledge base of chemistry and instrumental techniques.
    3. Educated to minimum first degree and preferably research degree level.
    4. A commitment to accept the challenge, succeed and be highly self motivated.
    5. The knowledge and experience to show how to problem solve under limited supervision.
    6. The ability to write clear and concise reports in English.
    7. Be able to communicate and present results effectively.
    8. The personality to understand the implications of working with industrial partners.

We Offer

- A fixed term contract initially for 7 months that could be extended.
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- Experience of working in a commercial environment.
- Possibility of travel in the UK & Europe.
- Further career progression with Windsor Scientific.

Windsor Scientific is a leading supplier of 'state of the art' instrumentation and accessories for scientists involved in research and development in universities and industry in the UK & Ireland. In particular, the company has sold the Autolab range of instruments for 20 years in the UK & Ireland and secured an excellent market share in this area of electrochemistry.

See: www.windsorscientific.co.uk

For further information please contact Dr. Keith Dawes or send your written application and curriculum vitae to the address above or to office@windsorscientific.co.uk.

Meeting Reports

216th ECS Meeting

October 4-9, 2009, Vienna, Austria

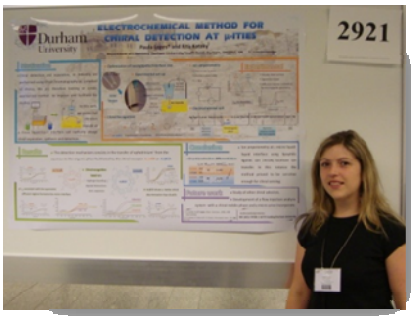
Tutorials sessions with Professors Alan Bard (left) and Henry White (right).

This is a brief report of the 216th ECS Meeting October 4-9, 2009 in Vienna, Austria, to which the author attended as a delegate. The ECS Meeting is a major international conference, the scope of which was extended to all topics in electrochemistry research, such as nanotechnology, batteries and fuel cells, biomedicine, corrosion, electrochemical deposition, fullerenes and nanotubes, physical and analytical electrochemistry, and sensors, with a purpose to highlight all the aspects in recent advances of research.

There were more than 3000 delegates at the Meeting. Over 3000 technical papers were presented in 44 parallel symposiums. In addition, there were poster and tutorial sessions, and an exhibition, as well. The plenary lecture was given by Prof. Martin Stratmann (Max-Plank Institute fűr Eisenforschung, Düsseldorf, Germany.

I attended the sessions that were particularly relevant to my research, - Biomedical Applications and Organic Electrochemistry, Physical and Analytical Electrochemistry, Sensors and Displays: Principles, Materials, and Processing. A very important research topic was the miniaturization of systems and the development of as microfluid devices for spectroscopic and electrochemical analysis. Other major topic included molecular recognition using biosensors for medical applications, ion selective sensors, and electrodes for detection of DNA hybridization.

Illuminating talks were also presented in the "Impedance: diagnostics and sensing applications" symposium. Leading experts, with a variety of different experimental and theoretical skills, working in area of electrochemical impedance technology presented talks applying impedance techniques to biological, biocellular and biomedical sensors and drug delivery systems, among others. Also some theoretical aspects of Electrochemical Impedance Spectroscopy were discussed. A very interesting talk was given by Kevin R. Cooper from Scribner Associates, Inc., where he presented a new instrument to perform impedance measurements and data recording/collection according to NASA requirements.



The author of this report, Paula Lopes presenting her poster at 216th ECS 2009.

A highlight was the tutorial by Professor Henry White about nanopores for single molecule detection, particle analysis, and sequencing of biopolymers, such DNA, using glass and quartz nanopore membranes.

Professor Allen J. Bard's tutorial was about the application of Electrochemical and Electrogenerated Luminescence methods to study semiconductors and nanoparticles.

There were also a series of simulating workshops on basic impedance Spectroscopy, Proton exchange membrane (PEM) fuel cells, Operation and applications of electrochemical capacitors, Atomic layer deposition, Basics of cleaning processing for integrated circuit manufacturing, Electrodeposition principles and practice. Many of these workshops focused on encouraging innovation and entrepreneurship.

The posters sessions, at the end of the day afforded excellent opportunities for informal discussions. My poster invited a considerable interest from the attendees.

The 216th ECS Meeting gave me an excellent opportunity to interact with senior scientists, and fellow-researchers, not just in my area of work, but in a range of related and interdisciplinary topic.

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

P. C. D. Lopez
Department of Chemistry, University of Durham

The 60th Annual Meeting of the International Society of Electrochemistry

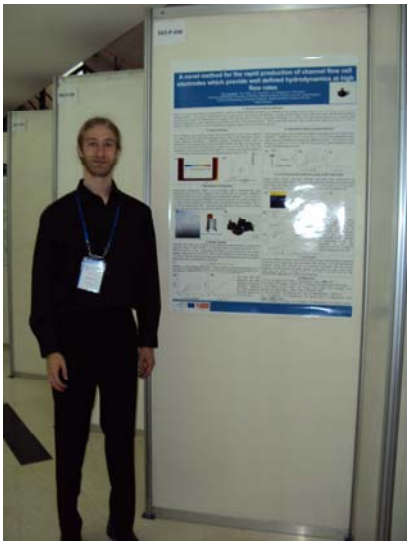
August 16-21, 2009, Beijing, China

One of the many scenic spots found near the Peking University campus lakes and parklands.

The 60th Annual Meeting of the ISE was held in Beijing, China, 16th – 21st August 2009. The focus of the conference was on the "emerging trends and challenges in electrochemistry" and hosted over 450 talks and over 600 posters, with delegates attending from approximately 40 different countries. The conference was well organized and ran smoothly thanks to the efforts of the organising committee and the many highly enthusiastic student helpers! The rapid growth and development of China made Beijing the perfect location for the conference with the campus grounds of Peking University providing a very pleasant mixture of modern lecture theatres and the opportunity to enjoy the idyllic sights of the campus lake and parkland.

The conference started with two lecture courses focusing on fuel cells and ultramicroelectrodes (UMEs). Professor Christian Amatore presented two interesting lectures on the principles and applications of diffusion at UMEs, highlighting key areas of both theory and several practical aspects. The opening ceremony on Monday morning welcomed the delegates to the conference with traditional Chinese entertainment and introductory speeches before the presentation of the ISE 2008 prizes for outstanding achievements in electrochemistry and the first plenary lecture by the Nobel Prize winner, Prof. Alan Heeger. Throughout the conference the oral presentations covered a wide variety of topics across 11 symposia including biosensors, renewable fuel sources, energy storage, nano-electrochemistry, hydrodynamics, and interfacial electrochemistry. The diversity of the material covered was demonstrated by the memorable plenary and keynote lectures. In addition to Alan Heeger's lecture on plastic solar cells, focusing on the design and development of the heterojunctions within the photovoltaic cell, those from Prof. Phil Bartlett on biosensors and Nongjian Tao on electron transport and quantum capacitance in graphene, were particularly impressive.

The poster sessions gave the opportunity to meet a range of electrochemists and further discuss both oral presentations and displayed work. The broad range of topics on offer attracted researchers with a variety of interests which allowed for many interesting and thought provoking conversations. The evening buffet meals provided on the Sunday and Monday nights offered a wide selection of traditional Chinese dishes with some Western dishes on offer for the less adventurous. For the more adventurous, including myself, it was possible to partake of local delicacies in downtown Beijing, including freshly cooked scorpions (highly recommended!). Beijing's signature dish, Peking duck, is definitely a treat not to be missed. The whole duck is slow roasted, then carved at your table to give a delicious selection of cuts, including the feet with hot mustard sauce.



Mr Michael Snowden presenting his poster at the 60th annual meeting of the ISE.

The eyes also had their fill with the architecture and parks around the city, including the size of Tiananmen square next to the Forbidden City, and away from the centre, the Summer Palace which is an impressive example of the Chinese architectural style. The grounds are dominated by the massive Kunming Lake which gives a peaceful feeling to the park. Climbing to the Buddhist temple grounds grants the worshipper (or dedicated tourist) a spectacular view over the lake towards Beijing. In addition to the sights of Beijing I went on a post conference tour which included the Terracotta Warriors in Xi'an, a visit to a silk factory in Suzhou and a tour of Shanghai. The scale of growth and redevelopment of Shanghai city centre can be seen by taking an express elevator up the TV tower. The balcony 250 floors up offers a breath taking view, helped by the glass floor!

Overall, the conference was very enjoyable and provided a diverse range of topics and the opportunity to discuss the presented work. I am very grateful for the funding provided by the RSC Electrochemistry Group which gave me the opportunity to present two areas of my work: on carbon nanotubes as an oral presentation and on channel electrodes as a poster presentation, and to discuss my findings with leading scientists in the field.

Michael Snowden
University of Warwick

The 60th Annual Meeting of the International Society of Electrochemistry

August 16-21, 2009, Beijing, China

The Forbidden City.

The 60th International Meeting of the International Society of Electrochemistry, organized by co-chairs Lijun Wan, Zhongfan Liu and Robert Hillman, was held in Beijing, China, from 16th-21st August at Peking University. The main topic for this year was 'Emerging trends and challenges in electrochemistry'. The first day of the meeting (Sunday 16th August) featured two tutorial sessions on nanoscopic processes in fuel cells (Prof. Ulrich Stimming and Prof. Masahiro Watanabe) and on principle and applications of diffusion at ultramicroelectrodes (Prof. Christian Amatore). Prof. Amatore gave a very interesting review of the current applications of the specific electrochemical, temporal and spatial properties of microelectrodes for the study of exocytosis and neurotransmission.

Plenary lectures included talks from Alan J. Heeger ('Plastic solar cells: self assembly of bulk heterojunction'), Philip N. Bartlett ('Molecular electrochemistry: modification, mediation and design of electrode surface'), Shi-Gang Sun ('Electrochemically shape-controlled metal nanoparticle electrocatalysts of open structure and high performances'), Zempachi Ogumi ('Lithium batteries for green energy systems') and Dieter M. Kolb ('Electrochemical surface science: the present and the future'). In particular, Profs. Heeger's and Bartlett's presentations were very interesting, as they respectively explained the process of designing a novel solar cell device for mass-production and presented an exhaustive picture of the study of enzyme modified electrodes.

Electrochemists invading The Great Wall.

56 keynote talks and more than 700 posters were presented during the meeting. Furthermore, importance of electrochemical energy conversion and storage was stressed as up to 3 rooms were devoted simultaneously to this symposium featuring 138 talks. In particular, I was very interested in talks given by Yasuaki Einaga ('Recent advances in electrochemical application of boron-doped diamond electrodes', reporting some biological applications of diamond based electrodes), Nianjun Yang ('Electrochemical DNA sensors from vertically aligned diamond nanowires: realization of nanoscaled spacing for DNA bonding', a very lively talk presenting an exciting electrode material), Wolfgang Schuhmann ('Electrochemical microscopy at variable temperatures. From catalyst activity to DNA hybridization' where a reliable setup to study DNA heat dehybridization was presented) and Su-Moon Park ('Complete description of electrode/electrolyte interfaces employing real-time impedance measurements', an elegant way of following reaction mechanisms with impedance spectroscopy).

Finally, this meeting was also highlighted by several social events, such as a banquet and two receptions, providing good opportunities for networking (and also for experimenting international and local food). But the most entertaining part was certainly the visit tour organized to the Great Wall, close to Beijing. This massive defence wall, built to protect China from invasions and spanning over several thousands of kilometres of hills and mountains, gave quite a hard time to the conferees who tried to climb it during a particularly hot and sunny day. The tour then ended in a more relaxing way with a visit (and dinner) to a jade factory and a wonderful acrobatic show.

To conclude, I would like to thank the organizing committee of the meeting for this marvellous conference, the presenters for their talks and posters and the Electrochemistry group of the RSC for funding.

Raphaël Trouillon,
Department of Bioengineering, Imperial College London

The 60th Annual Meeting of the International Society of Electrochemistry

August 16-21, 2009, Beijing, China

The 60th Annual meeting of the International Society of Electrochemistry was held on August 16 to 21, 2009 in Beijing University, China. With a theme of 'Emerging trends and challenges in electrochemistry', this conference attracted 1310 participants from 55 countries and regions. There were 11 symposiums, covering all the scientific divisions of ISE: corrosion science, single biomolecule electrochemistry/biosensor/biofuel cells, electroanalysis and electrochemical sensors, electrocatalysis, electrochemical energy conversion and storage, electrodeposition for nanoelectronic application, electrochemical engineering, electrical nano/micro science, interfacial electrochemistry and molecular electrochemistry. 56 keynote lectures, 600 oral presentations, and 700 poster presentations were given. 5 plenary lectures were contributed by Prof. Alan J. Heeger, Nobel Prize laureate in chemistry of 2000, from University of California, on 'Plastic Solar Cells'. Prof. Philip N. Bartlett of University of Southampton, UK, lectured "Molecular electrochemistry: Modificaton, mediation and design of electrode surfaces". Prof. Shi-Gang Sun of Xiamen University, China, reported "Electrochemically shape-controlled metal nanoparticle electrocatalysts of open surface structure and

ISE memories.

high performances". Prof. Zempachi Ogumi of Kyoto University, Japan, talked on "Lithium ion batteries for green energy systems". And Prof. Dieter M. Kolb of University of Ulm, Germany, "Electrochemical surface science: the present and future".

Congratulations to: ISE Prize Winners 2008

Professor Philip N. Bartlett of Southampton University, United Kingdom, recipient of the Electrochimica Acta Gold Medal for his "recent outstanding contributions to diverse fields of electrochemistry such as bioelectrochemistry, nanostructured materials, sensors, and interfacial kinetics, characterized by a combinatoin of innovation, intellectual rigor, experimental precision and practical relevance."

Professor Frieder Scheller of University Potsdam, Germany, recipient of the Bioelectrochemistry Prize of ISE Division 2 for his work on bioelectrochemistry and his contribution of development of bioelectroanalytical devices.

Professor Juan Feliu of University of Alicante, Spain, winner of the Brian Conway Prize for Physical Electrochemistry for his outstanding contributions to the understanding of relationships between electrode surface structure and reactivity at electrode-solution interfaces.

Professor Yang Shao-Horn of Massachusetts Institute of Technology, USA, has been awarded the Tajima Prize for her "outstanding achievements in the field of electrochemical energy conversion and storage, especially for developing novel nanosturctured materials for fuel cellls and batteries."

Dr. Ismael Díez-Pérez of Arizona State University, USA/University of Barcelona, Spain, recipient of the Hans-Jürgen Engell Prize for developing an *in-situ* STM in the tunneling spectroscopy mode and applying this technique to the in-situ characterization of dynamics of passive film growth at the nanoscale on different system such as Fe, Sn, Cu and Ni.

Dr. Adam Z. Weber of Lawrence Berkeley National Laboratory, USA, recipient of Oronzio and Niccolò De Nora Foundation Prize of ISE on Applied Electrochemistry for his outstanding publishing records with high impact related to understanding engineering and diagnostics of fuel cell performance through experimental and modeling studies.

Dr. Agnieszka Kapalka of EPFL Lausanne, Switzerland, recipient of Oronzio and Niccolò De Nora Foundation Prize of ISE on Environmental Electrochemistry for her discoveries regarding to the importance of electrode material in environmental electrochemistry, the role of formation and reactivity of free hydroxyl radicals, the elaboration of advanced oxidation processes for water treatment.

Patrick W. Ruch of Paul Scherrer Institut, Switzerland, recipient of Oronzio De Nora Foundation Young Author Prize for his article published in Electrochimica Acta 53 (2007) 1074-1082, titled "*In Situ X-ray diffracton of the intercalation of $(C_2H_5)_4N^+$ and BF_4^- into graphite from acetonitrile and propylene carbonate based supercapacitor electrolytes*" (co-authors M.Hahn, F.Rosciano, M.Holzapfel, H.Kaiser, W.Scheifele, B.Schmitt, P.Novák, R.Kötz, A.Wokaun).

At a break during the conference, some paticipants visited the Great Wall, the Forbidden City and acrobatic show; discovering the culture of China, a combination of ancient and morden country.

More information and photos can be found at: http://www.ise-online.org/popup/60th_Summary.pdf. Some photos are downloaded from http://www.ise-online.org/popup/beijing09.html, taken by Mr. Thierry Lenzin.

Dr. Yue-hua Dou
Department of Biological Sciences, University of Hull

Electrochem09
September 16-17, 2009, Manchester, UK

Presenters displaying their posters at Electrochem09.

Electrochem09 was held in the University of Manchester on the 16th and 17th of September 2009. The campus is conveniently situated in the heart of the city centre, a short walking distance from the main train station. This year, the conference was held in conjunction with the 50th Corrosion Science Symposium and attendance was very good, with almost 250 delegates attending from all around the world. Professor Reginald Penner of University of California began the proceedings when he delivered his plenary lecture on electrodeposited palladium nanowires for hydrogen gas sensing. This was a fascinating overview of the technology and the technological challenges that must be overcome in order to meet the U.S. DOE benchmark. His delivery of the subject matter was highly accessible and insightful to the audience with a lot of interesting STM images of hydrogen fracturing palladium nanowires.

Professor B. Sharifker (poster competition judge) reflecting on (left), and answering (right) questions.

The Clean Energy, Organic Materials in Electrochemistry, Electrodeposition and Electroanalysis symposia began immediately after Prof. Penner's lecture, so delegates were spoiled for choice. The lecture rooms in which they were held were situated above each other which facilitated easy transfers between lectures for the delegates. I chose to attend the Clean Energy Symposium which was a very good decision on my part. Professor Tim Jones of University of Warwick presented a fascinating lecture on the performance and efficiency of small organic molecule solar cells. The main advantage of these cells is that they are

Plenary Lecturers: left – ICorr Evans Medallist Professor C. Leygaf with Professor Paul Lambert (President of Institute of Corrosion), plus of course the sword; above – SCI Castner medallist Professor A. Wragg with SCI ECTG President Dr. Chike Oduoza; right – RSC Electrochemistry Group Faraday Medallist Professor R. Penner with Group President Dr. A. Mount.

inexpensive to fabricate. He is of the opinion that although organic solar cells exhibit low power output in comparison to first generation solar cells, these cells could be used in tandem to increase the power output. Professor Nigel Brandon of Imperial College, who heads the EPSRC funded SUPERGEN fuel cell consortium, delivered the next keynote lecture outlining phase II of the programme. The focus of Phase II is to study the degradation mechanism of fuel cells components with the aim of increasing the operational lifetime of fuel cells.

The poster session was held in the evening in which a wide range of posters were presented covering topics such as materials for fuel cell catalysis, corrosion modelling studies, new electrochemical characterisation techniques and enzyme biosensors. The poster session was well attended by most of the delegates as evident from the packed exhibition room. The wide range of topics presented reflected the multidisciplinary nature of electrochemistry. I even found myself having a discussion on energy conversion by enzymes with a biologist!

Poster Competition Prize Winners receiving their book tokens from RSC Electrochemistry Group President, Dr. A. Mount.
From left to right: Tahani Bawazeer (Univeristy of Warwick, first prize), Paula Lopez (University of Durham, second prize), and Sina Saremi-Yarahmadi (University of Loughborough, third prize). Many congratulations!

The second day of the conference saw the presentation of the Evans Medal to Professor Christofer Leygraf of the Royal Institute of Technology, Sweden. His plenary lecture on atmospheric corrosion showed that it is possible to develop a molecular understanding of atmospheric corrosion. However, there is still much more groundwork that needs

to be done. Professor Tony Wragg of the University of Exeter, who is this year's recipient the Castner Medal, delivered the second plenary lecture in the afternoon session. He chose to deliver the lecture using a reliable, rather old-school overhead projector which impressed the audience immensely! His lecture showed the importance of understanding fluid mechanics when studying electrochemical systems.

The symposia on the second day had themes of Clean Energy, Electrochemistry under Non-Conventional Conditions, Materials Degradation, Organic Materials in Electrochemistry and Environmental Electrochemistry. Again, I stuck with my earlier choice of Clean Energy although I did wish I could have attended some of the other themes. The second day of the Clean Energy symposium focused on fuel cells in which I had the privilege of presenting my own work in one of the slots.

As a graduate student, I found Electrochem 09 was a great way to meet other students and academics working the electrochemistry. The symposia held had a good range of electrochemistry topics. However, in some of the lectures, the presenters went over their given time slot which disrupted the timing of the schedule and made it slightly difficult to move from one talk to another. Perhaps in future, symposia chairs should be stricter with speakers who run over time. On the behalf on all the delegates, I would like to thank the organisers and the RSC for a very well organised and informative conference and I look forward to next year's meeting.

Shee-Yen Ang,
University of Nottingham
Pictures kindly supplied by Professor R. A. W. Dryfe, Professor E. P. L. Roberts and Dr. A. Mount

46th GASG Colloquium held in conjunction with the SCI ECTG

December 3, 2009, London, UK

A record turnout ensued for the annual GASG (Gas Analysis and Sensing Group) Colloquium entitled "Gas Sensors – Electrochemical and Exotic" which was held at the Society of Chemical Industry Headquarters in Belgrave Square. The Colloquium was chaired and arranged by Kim Chandler who introduced talks with puns delivered faster than Tim Vine. The title of this colloquium did not disappoint the audience with Tjarda Roberts (Cambridge University) delivering the first lecture, clearly au fait in fabricating reliable sensors, described gas sensing in volcanic plumes. Roberts discussed the problems of taking gas sensing readings on active volcanoes: que snap shots of speaker next to a range of spectacular scenes involving mountains and volcanoes. Following this thoroughly interesting talk was Professor David Walton delivering an overview of gas sensing in medical applications. Walton in his usually relaxed, yet authoritative lecturing stance, followed Roberts's talk with a slight diversion, but later returned to the emphasis of his intended talked. Following Walton was a presentation by Laura Roberts discussing electrochemical sensors for indoor air quality monitoring. After presenting some interesting experimental results which cpativated the audience later, it was time for lunch.

It is said that the quality of the conference and the organisation behind it can be judged by its lunch/refreshments. This conference provided an impressive lunch and an extremely generous length of time in which to enjoy it. Consequently a few delegates decided to go for an additional 'liquid lunch' where we bumped into two other electrochemists who reside in the London Universities, though not related to the conference, fuelling the adage that you are never more than 100 metres from an electrochemist.

After the lunch break Martin Willett described the sensing of the gas NO in breath for a range diagnosis, particularly asthma. Stephen Skinner followed this with an overview of work in progress on ammonia and nitric oxide solid state sensors which look promising. The last speaker of the day was John Saffell, Alphasense, Ltd. discussing how to design effective gas sensors and dealing with environmental changes upon them, neatly rounding off this symposium.

A welcomed mid-afternoon close, in time for those wanting to leave London before rush hour or those who wished to discuss gas sensors ensued. I would fully recommend attendance at the next GASG Colloquium which is entitled "Smart Houses, Smart Gas Sensors" being held in Watford (April 2010).

Lecturer Incognito

2009 Great Western Electrochemistry Meeting
June 15, 2009, Bath, UK

The annual Great Western Electrochemistry meeting was held 15th June 2009 at the University of Bath: a day densely packed with talks (18) and posters (12) and providing opportunities for networking with electrochemistry groups from the South-West and beyond.

The day started with four excellent contributions from the Bristol Electrochemistry group entitled "Photoelectrochemistry of pulsed laser deposited ZnO films" (Christa Bünzli), "Photoelectrochemical characterisation of surface modified semiconductor single crystals (Gabriela Kissling), "Surface chemistry of 500 nm diameter diamond powders and its effect on electrochemical properties" (Wiphada Hongthani), and "Electrochemical loading of hydrogen at Au-Pd core-shell nanoparticles" (Maria Montes de Oca). This theme of nanotechnology and electron transfer at nano-interfaces was then continued in the guest lecture given by Dr. Sergey Gordeev (Department of Physics, University of Bath) with a presentation entitled "Giving electrons a ride". Dr. Gordeev explained how very small devices for electron transfer can be fabricated with special emphasis on "shuttle junction" devices were a single nanoparticle is employed to control the transfer of "packets" of electrons during mechanical oscillation.

After a tea and poster break, the Oxford team presented a set of excellent talks starting with Edmund J. F. Dickinson "An investigation of weakly supported voltammetry - Part 1 - theoretical model and results". Entirely new insights into the role of the supporting electrolyte and the subtle effects on the peak-to-peak separation in cyclic voltammetry were presented. Juan G. Limon-Petersen presented "An investigation of weakly supported voltammetry – part 2 – experimental applications and implications" and provided a much wider picture of electrolyte effects. The importance of the carefully conducted numerical simulation as opposed to simply using excess of electrolyte became apparent. Stephen R. Belding then presented "Voltammetry at nanoparticle arrays: comparing electrode kinetics at nanoparticulate and bulk material".

The lunch break appeared rather short and coffee was served to provide the energy for the second half of the day. David Unwin (UCL) started the first afternoon session with a presentation entitled "Electrochemical hydrogen generation inspired by the hydrogenase enzyme". He outlined a strategy based on bio-mimetic metal complexes with designer ligands and several metal atoms to mimic hydrogenase reactivity. This talk was followed by Yunfeng Gu (Cambridge) presenting his work on "The electrochemical detection of droplets in microfluidic devices". In particular the films embedded in his presentation impressed the audience and his ability to do impedance analysis measurements in a flow channel when a single droplet of organic phase is passing over the detector electrode.

Which Bath University postgraduate students do you recognise?

The Bristol-UWE team presented “Voltammetric behaviour of DNA, nucleotides, nucleosides and bases using screen printed carbon electrodes, and its possible application in toxicity screening” (Frank Rawson) and “The voltammetric behaviour of lead using a microband screen-printed carbon electrode, and its determination in acetate leachates from glazed ceramic plates (Kevin C. Honeychurch). Both presentations had a strong analytical theme focusing on the application of screen printed electrodes as versatile tools. This was followed by the Attard group from Cardiff with two excellent electrocatalysis presentation on “In situ spectroscopic and voltammetric measurements of platinum on carbon catalysts” (Mujib Ahmed) and “Ethanol oxidation on well-defined novel metal overlayers (Sharon Huxter).

A final tea and poster break was welcome at this stage and the final session of the day then started with Sina Saremi (Loughborough University) “Nanostructured Fe_2O_3 electrodes for photo-electrochemical water splitting”. This talk contributed to the nano-theme and demonstrated how complex material design can help improve the performance of photo-electrochemical devices. The Bristol Physics group presented “Towards molecular spintronics” (Doug Szumski) and “Investigation of the effect of pH and potential change on the adsorption of ferritin” (Veronika Poor). The final presentation of the day was given by Jonathan Scragg from the home-team entitled “Formation and characterisation of Cu_2ZnSnS_4 films for solar cells”. In this talk a novel and particularly sustainable solar cell absorber material is developed. The importance of this work and the complex chemical processes during electro-deposition and annealing were revealed.

The day was long but very successful in providing an overview of new developments in electrochemistry in the South-West and beyond. The prize winners for oral presentations were Maria Montes de Oca (Bristol) for her presentation “Electrochemical loading of hydrogen at Au-Pd core-shell nanoparticles” and Yunfeng Gu (Cambridge) for his talk on “The electrochemical detection of droplets in microfluidic devices”. The day concluded with a wine reception in the Department of Chemistry from where further discussions continued in public locations in the city centre.

Paulina M. Morawska
Frank Marken
University of Bath.

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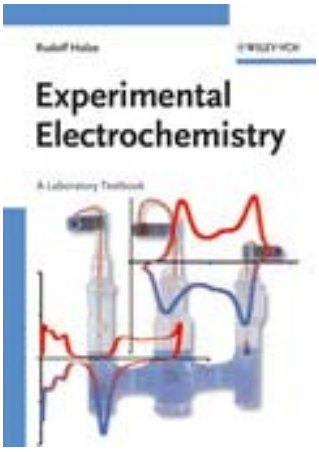

Experimental Electrochemistry: A Laboratory Textbook
R. Holze
Wiley-VCH, 2009
ISBN: 978352731098
Cost: 32.90 €
242 pages

Chimie Physique Expérimentale
B. Fosset, C. Lefrou, A. Masson, C. Mingotaud
Hermann, 2006
ISBN: 9782705663926
Cost: 38.00 €
409 pages

Newly established subjects within existing disciplines require the development of laboratory courses to match the lecture courses that are being developed. Anyone who, like me, has had this experience, will welcome these two books which take out the tedium (*q.v.* the first chapter of Professor Albery's books) in developing undergraduate experiments which work every time.

Inasmuch as it may appear unfair to compare these books – one a handbook for the undergraduate/postgraduate electrochemistry laboratory, the other comprises a series of experiments in physical chemistry for the *khâgne* and *hypokhâgne* level equivalents for the preparatory schools for the French *Grandes Ecoles*. Nevertheless, they are, in essence, penned by well-known electrochemists – readers will be aware that Christine and Bruno are the former PhD students of Professor Amatore, and that Professor Holze holds very high standards in the electrochemistry book reviews he has authored.

Professor Holze's book is designed to be used in conjunction with the third edition of Professor Hamnett's book (fans of the second edition beware!). It commences with an overview of the practical aspects of the subject, although the very brief "practical hints" section could be improved via the useful day-to-day advice given in the monograph authored by Southampton Electrochemistry Group, or even in Sawyer and Roberts (or later edition). A full breath of experiments are suggested covering equilibrium electrochemistry through to electrosynthesis, with ample space devoted to the usual techniques in dynamic electrochemistry, analytical electrochemistry and spectroelectrochemistry. The author is particularly commended for including a section on "electrochemical energy conversion and storage", not that there is any such thing as "electrochemical energy" – he means, as with many, "energy conversion and storage via electrochemical transformations". This pedantic matter should not be used as detraction – this section is really excellent, and helps students (and their mentors) to demonstrate, via technological experiments, the societal-benefits of electrochemical science. On the downside, whilst the book explores conceptually some very elegant experiments

which relate to the theory in Professor Hamnett's book, and in spite of demonstrating typical data, the author has not included precise recipes for each experiment – these are left for the individual scientist. On the upside, the book is a "work in progress", and the website given in the preface allows users to obtain further experiments and view short demonstration videos.

The book by Fosset *et al.* covers a more classical and basic field, with the first 13% devoted to the theory of the methods employed in experimental physical chemistry (of which about one-half is on electrochemistry). In considering only the electrochemistry experiments outlined (no more than about 25% of the book), measurements made to examine equilibria, current flow, quantitative analysis and inorganic electrosynthesis are described within 25 experiments. What are given are not only full detailed experimental procedures, but typical data and full discussion, written in a lucid and pedagogic manner for the full range of abilities encompassing the wide-participation of many university undergraduates. For the laboratory demonstrator, the development of a code to illustrate the financial and time costs of each experiment is a welcomed innovation. The downside of this book is that it is written in French and so unlikely to be of ready access to UK-based demonstrators (I know of no forthcoming English translation).

These are both good books to read and use. I prefer the French book simply because the diversity of experiments normalised by the book cost is greater, but delight in the access of the technological and pseudo-industrial type experiments outlined in Holze's book. Nevertheless, others may have different opinions.

jw
Kingston-upon-Hull

pseudoMATHS – Competition Winners

Many, MANY congratulations to the three winners of this competition. The winners will soon receive a copy of Professor Hamnett's book, as outlined in the last issue.

Dr. Andy WAIN of the National Physical Laboratory.

Dr. Pauline ALLEN, formerly a member of the RSC Electrochemistry Group Executive Committee.

Dr. Jimmie PARKES of Inter-Euro Technology, Ltd., *q.v.* the following URL.

http://www.iet.ie/index.html

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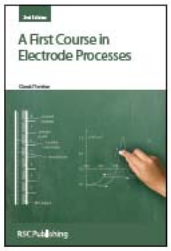

A First Course in Electrode Processes

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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Announcements

Alvatek & Palm Instruments

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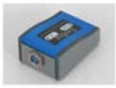

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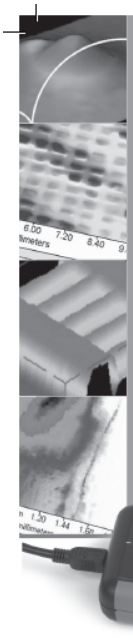

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Full Potentiostat/galvanostat compliance

40A @ ±10 V
20A @ ±20 V

The IviumBoost will increase the maximum current of the IviumStat or IviumStat.XR:

- 2 models: # maximum 40A at ±10V
  # maximum 20A at ±20V
- All electrochemical techniques applicable
- Full potential range, no singularities at 0 V
- Bandwidth > 100kHz
- Rise time < 50 µs
- 100-240V, 50-60Hz, 1000W

For more information contact

Steve Fryatt at Alvatek

Tel 01666 500991
info@alvatek.co.uk

Diffusion

14-19 March 2010
Conference on Molten Salts and Ionic Liquids (EUCHEM 2010)
Bamberg, Germany
Chair: Peter Wasserscheid
Contact: Sabine Urbanczyk (Dechema e.V.)
urbanczyk@dechema.de
http://www.dechema.de/euchem2010

16-20 March 2010
4th ISEAC Triennial International Conference on ElectroAnalytical Chemistry
and Allied Topics (ELAC-2010)
Puri, India
Chair: Suresh K. Aggarwal
Contact: J.V. Kamat
Jayshree_kamat@yahoo.com
http://www.iseac.org

28-31 March 2010
2nd International Conference on Functional Nanocoatings
Dresden, Germany
Organizers: A. Eychmüller, W. Plieth
abloemeke@intercom.de
http://www.nanocoatings2010.de

25-30 April 2010
217th Meeting of The Electrochemical Society (ECS)
Vancouver, Canada
http://www.electrochem.org

3-6 May 2010
8th Spring Meeting of the International Society of Electrochemistry
Advances in Corrosion Science for Lifetime Prediction and Sustainability:
A Celebration of the 100th Birthday of Mars Fontana
Columbus, Ohio, USA
Chair: Gerald Frankel
frankel.10@osu.edu
http://spring10.ise-online.org/index.php

18-21 May 2010
XII YuCorr International Conference
Corrosion, Materials Protection and Environmental Protection
Tara, Serbia
sitzams@eunet.rs
http://www.sitzam.org.rs/

31 May – 2 June 2010
2010 International Conference on Advanced Capacitors (ICAC2010)
Kyoto, Japan
Chairs: Junji Ozaki, Masayuki Morita
Secretary General: K. Naoi
capatech@cc.tuat.ac.jp
http://capacitor.electrochem.jp/ICAC2010/

6-10 June 2010
2nd Regional Symposium on Electrochemistry – South-East Europe
Belgrade, Serbia
Chair: Vesna Mišković-Stanković
office@rse-see.net
http://rse-see.net

6-11 June 2010
8th International Symposium on Electrochemical Impedance Spectroscopy
Carvoeiro, Algarve, Portugal
Co-chairs: J.C.S. Fernandes, M.F. Montemor
eis2010@eis2010.org
http://www.eis2010.org

7-11 June 2010
Solid State Ionics: Exploring Chemical and Structural Complexity of
Novel Ionic Conductors (E-MRS Spring Meeting)
Strasbourg, France
Co-chairs: R. Merkle, J. Irvine, P. Knauth, S. Ramanathan
r.merkle@fkf.mpg.de
http://www.emrs-strasbourg.com

13-18 June 2010
5th Forum on New Materials (CIMTEC 2010) – FC. Fuel Cells: Materials and
Technology Challenges; FD. Electrochemical Energy Storage Systems: The Next
Evolution
Montecatini, Italy
congress@technagroup.it
www.cimtec-congress.org/2010/

20-23 June 2010
Electrochemistry in Interfacial Nanoscience (6th ECHEMS Meeting)
Sandbjerg, Denmark
Chair: K. Daasbjerg
echems@chem.au.dk
http://www.chem.au.dk/echems

20-25 June 2010
International Conference on Electrified Interfaces
Geneva, NY, USA
Contact: Daniel Scherson
dxs16@po.cwru.edu

27 June - 2 July 2010
XIX Meeting of the Iberoamerican Society of Electrochemistry
Alcala de Henares (Madrid), Spain
Chair: M.Á. Esteso Díaz
19sibae@fgua.es
http://www.19sibae.fgua.es

12-14 July 2010
Ab Initio Electrochemistry
Lausanne, Switzerland
Co-chairs: M. Sprik, M. Koper
Contact: m.koper@chem.leidenuniv.nl
http://www.cecam.org/workshop-481.html

22-25 August 2010
Electrocatalysis: Molecular Level Approach to Modern Applications
Kloster Irsee, Germany
Co-chairs: L.A. Kibler, G. Jerkiewicz, G. Tremiliosi-Filho, S. Mitsushima
http://www.uni-ulm.de/electrocatalysis

29 August-3 September 2010
12th International Symposium on Polymer Electrolytes (ISPE-12)
Padua, Italy
Chair: Vito Di Noto
ispe12@chimica.unipd.it
www.chimica.unipd.it/ispe12

13-15 September 2010
Electrochemistry 2010 "From microscopic understanding to global impact"
Bochum, Germany
Co-chairs: Wolfgang Schuhmann, Gunther Wittstock
electrochemistry2010@ruhr-uni-bochum.de
gunther.wittstock@uni-oldenburg.de
Contact: Claudia Bickner
tg@gdch.de
http://www.gdch.de/vas/tagungen/tg/5407/prog_e.htm

13-17 September 2010
EUROCORR 2010
Moscow, Russia
Chair: A.V. Muradov
eurocorr2010@gubkin.ru
eurocorr@dechema.de
http://www.eurocorr.org/eurocorr_2010.html

14-15 September 2010
Electrochem 2010
Wolverhampton, Telford, UK
Chair: C. Oduoza
conferences@soci.org
susan.fitzgerald@soci.org
http://www.soci.org/General-Pages/Display-Event?EventCode=ECTG072

21-24 September 2010
8th International Symposium on Electrochemical Micro & Nanosystem Technologies (EMNT 2010)
Cannes Mandelieu (Nice), France
Chair: P. Marcus; *Co-chairs*: A.W. Hassel, M. Pierre
emnt2010@chimie-paristech.fr
http://www.chimie-paristech.fr/emnt2010

26 September-1st October 2010
61st Annual Meeting of the International Society of Electrochemistry
Electrochemistry from Biology to Physics
Nice, France
Chair: Bernard Tribollet
events@ise-online.org
http://event10.ise-online.org/

3-7 October 2010
6th Workshop on Scanning Electrochemical Microscopy
Villa Clythia, Frejus, France
Contact: Philippe Hapiot
philippe.hapiot@univ-rennes1.fr
secm@ens.fr
http://www.secm2010.univ-rennes1.fr/

10-15, October 2010
218th Meeting of The Electrochemical Society (ECS)
Las Vegas, Nevada, USA
http://www.electrochem.org

24-29 October 2010
9th International Frumkin Symposium
Electrochemical Technologies and Materials for 21st Century
Moscow, Russia
Contact: Alexey Danilov
danilov@phyche.ac.ru
http://phyche.ac.ru/frumkinsymp/

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

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/

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

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

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

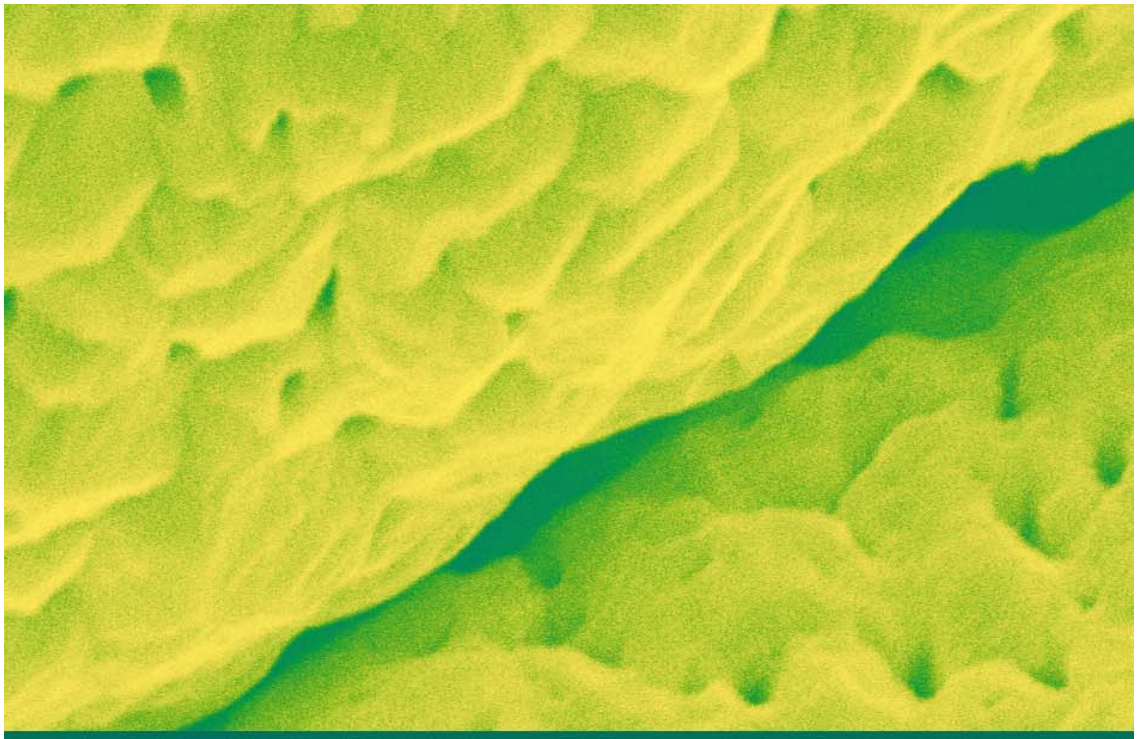
9-14 October 2011
220th Meeting of The Electrochemical Society (ECS)
Boston, MA, USA
http://www.electrochem.org

4-7 December 2011
Fray International Symposium on Metals and Materials Processing in a Clean Environment
Cancun, Mexico
Chair: Florian Kongoli
fkongoli@flogen.com
http://www.flogen.com/FraySymposium

19-24 August 2012
63rd Annual Meeting of the International Society of Electrochemistry
Electrochemistry in molecular dimension
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.

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