



August 2011

Royal Society of Chemistry Solid State Chemistry Group Newsletter

Editorial

This is the final newsletter that will be edited from Warwick as I have reached the end of my three-year (or was it four) term as editor. I would like to thank all contributors for their timely submissions to the newsletter over the past few years. Although a newsletter may now be considered an old-fashioned way of communication, the committee has felt that an annual summary of events of relevance to the group remains a useful medium and hopefully provides a convenient summary of information that might otherwise pass through email inboxes. The newsletter also gives members the chance to describe their visits to conferences in our field and there are some reports in the following pages. I look forward to seeing the newsletter continue and develop over the next few years.

Richard Walton, University of Warwick

From the Chairman

Welcome to the latest SSCG newsletter. The past year started with the Christmas Meeting at UCL, which was our 30th anniversary meeting. We were once again affected by bad weather, and the heavy snow prevented some people from getting there, but the meeting was well-attended, and the talks and posters were of the usual high standard. I have written more about this meeting later in the newsletter. This year's Christmas meeting will be held at the University of Liverpool, on the 19th and 20th December. Other events later in the year will be publicised in due course. This meeting will mark the end of my three years as Chairman. However, I intend to stand for a second term of office, because I have not been able to complete all my objectives for the group, including finding a way of getting the Easter meeting back as a regular event in our programme. Finally here's another reminder that the group's activities are publicised on both the RSC's *myRSC* site, and in our *Facebook* group. Please take advantage of these as ways of keeping in touch with what we are doing, and remember that you can upload photos from the meetings to the *Facebook* site!

Rob Jackson, Keele University

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The Solid State Group is an Interest Group of the Royal Society of Chemistry

For more information see: <http://www.rsc.org/Membership/Networking/InterestGroups/SolidStateChemistry/>

Conference Reports

ACS Boston Meeting – August 2010

In April of this year, In August 2010, I was able to attend the Autumn meeting of the American Chemical Society (ACS) held in Boston, with the help of a bursary awarded from the Solid State Chemistry Group. I was aware before I went, from reading through the various publicity materials for the conference, that this was one of the largest events of its type in the conference calendar. However, the exact scale of it wasn't really apparent until I arrived; an exposition of some 600 stands, parallel seminar sessions occupying some 400 rooms in the conference venue - to get from the entrance to the room where I was giving my talk took around 25 minutes to walk!!

The overall theme of the conference was "Green Chemistry", however there were talks from all areas of chemistry in the programme. It was clear that I wasn't going to get to see and do everything. Unfortunately, owing to a problem with my connecting flight, I arrived at the conference a day later than planned so I wasn't able to attend a one of the plenary talks on the first night as I had intended. However, during the course of the conference I was able to see work presented on the use of phosphonates as ion traps, work very similar to that of my own research group. Also, having met some PhD students from MIT at an ACS Young Chemists event, I went along to a series of talks on fuel cells and fuel cell technology. Although not my particular area of expertise, they were very interesting none-the-less, and really highlighted some of the problems that they were encountering, the main one being poisoning of membranes, but also how they were using a lot of the characterisation techniques that I use during my project to identify what was happening and where these substances were coming from.

I gave my oral presentation, Synthesis and Characterisation of Amorphous Biomaterials, during one of the sessions on materials chemistry. The other talks in the same session as mine were mainly polymer chemistry related, however, there were some materials chemists present in the audience who asked some very interesting questions about the pair distribution function work I'd done in my project. One of the other talks in my session was talking, in general terms, about using polymers as delivery mechanisms for other materials, focussing on drug delivery, which I found particularly interesting as this has particular relevant to many areas of biomaterials research. My lasting memory of the conference will be the sheer scale of the event; walking into the venue and seeing the size of the exposition – all those stands in an area approximately as large as 2 football pitches, and all Chemistry (of one sort or another)!

Colin Slater, University of Birmingham

5th International Lithium Battery Discussion Meeting

Arcachon, France (12-17 June, 2011)

The 2010 The 5th International Lithium Battery Discussion (LiBD) Meeting on Electrode Materials was held at the sunny seaside location of Arcachon near Bordeaux in France. With about 180 delegates from all over the world and about 75 papers, the conference was certainly international.

As with the well established RSC Faraday Discussion meetings, this conference promoted extensive discussion sessions by having short talks (maximum 10 minutes) based on the submitted extended abstracts; only invited speakers providing longer overviews.

After a warm welcome from the Chair, Dominique Guyomard (Nantes, France), the conference was kicked off by an invited overview of metal-based anode materials given by M. Obrovac (Dalhousie, Canada). Owing to the size of the conference I can only present a flavour of the research themes covered, which included sessions on polyanionic- and spinel-based based cathodes, oxide-and alloy-based anodes, reaction mechanisms, all solid-state batteries and electrode-electrolyte interfaces.

Each theme was introduced by one of the invited keynote lectures including: Y. Yang (Xiamen, China) on polyanion cathode materials; J. Cho (Ulsan, Korea) on layered metal oxide cathode materials; M.S. Whittingham (SUNY, USA) on nanomaterials as anodes; P. Notten (Eindhoven, Netherlands) on all-solid-state micro-batteries; P.G. Bruce (St Andrews) on the Li-air (O₂) battery; R. Kanno (Tokyo, Japan) on electrode-electrolyte interface chemistry; Y.M. Chiang (MIT, USA) on semi-solid flow battery for grid applications.

Overall, this was another successful conference in this series, providing plenty of stimulating, illuminating and sometimes heated discussions on lithium battery materials. The meeting was also aided by the attractive seaside location, the banquet at a beautiful chateau and the excellent culinary chemistry washed down with famous Bordeaux wine!

M. Saiful Islam, University of Bath

SSG Christmas Meeting 2010 Department of Chemistry, UCL

The 2010 Christmas meeting of the RSC Solid State Chemistry Group was held at UCL on 20-21 December 2010. This was the 30th anniversary of the first meeting of the Polar Solids Discussion Group, one of the two groups (along with the Applied Solid State Chemistry Group) that merged to form the group that exists now. There were a number of factors in common between these two meetings: (i) they were organised by Richard Catlow and held at UCL, (ii) accommodation was provided at Passfield Hall, and (iii) Alan Chadwick was present!

The 2010 meeting coincided with some terrible weather – heavy snow and icy conditions – and this seriously affected transport services with the result that several people were unable to get to London. However, there was still a good attendance, and the programme was largely unaffected.

The meeting featured 4 invited speakers:

A V Chadwick (Kent)
C P Grey (Cambridge)
C F Hirjibehedin (UCL)
D J Willock (Cardiff)

A 5th invited speaker, Christian Serre, From Versailles, was unable to get to the meeting because of the weather.

Alan Chadwick's talk was entitled '30 years of the solid state group', while the other invited talks presented the latest research on solid state NMR, nanotechnology, and solid state catalysis respectively. In addition there were 12 contributed talks and about 50 posters. All presentations were of the customary high standard.

Alan's talk brought back memories, at least for some of us, of earlier meetings, and the photograph (from 1983) shows Alan with some of Richard's group outside the Exmouth Arms, near to Euston Station (which I am pleased to say is largely unchanged to this day).

In conclusion I would like to thank Richard Catlow, Scott Woodley, Rob Bell, Furio Cora and Ben Slater for organising the meeting, which was much enjoyed by all who attended.

Rob Jackson, Keele University



An early incarnation of the SSCG, the Polar Solids Group ca 1983, courtesy of Alan Chadwick (far left).

New Themed Issue

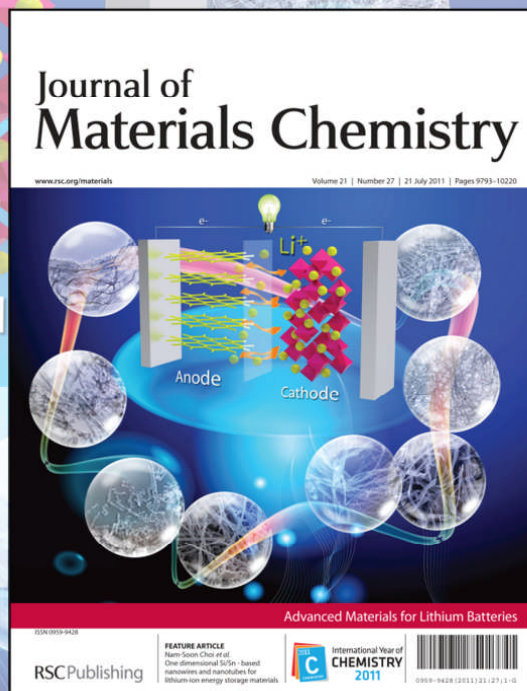
Advanced materials for lithium batteries

Issue 27, 2011

Anode

Cathode

Guest editors
M. Saiful Islam
& **Linda F. Nazar**



Notice

The AGM of the RSC SSG will be held during the Christmas Meeting
at the University of Liverpool

Monday 19th December 2011

Nominations (these must be seconded) are being accepted for membership of the committee: this includes (1) chairperson, (2) one ordinary member and (3) one fixed-term contract/PDRA representative. Please forward nominations to Edmund Cussen by November 30th 2011. Elections for these posts will take place during the AGM. Any other items for discussion by the committee should be forwarded to Edmund Cussen by Friday 16th December 2011

Some Forthcoming Solid-State Chemistry Conferences in 2012

7th Annual International Electromaterials Science Symposium

15 - 17 February 2012

Geelong, Australia

<http://www.electromaterials.edu.au/events/UOW105366>

Zing Solid-State Chemistry Conference

24 - 27 February 2012

Puerto Calero, Lanzarote, Spain

<http://www.zingconferences.com/index.cfm?page=conference&intConferenceID=76&type=conference>

MRS Spring Meeting 2011

9 - 13 April 2012

San Francisco, USA

<http://www.mrs.org/spring2012/>

The Annual Spring Meeting of the British Crystallographic Association

University of Warwick

16 - 19 April 2012

<http://crystallography.org.uk/spring-meeting-2012/>

International Conference on Superconductivity and Magnetism

29 April - 4 May 2012

Istanbul, Turkey

<http://www.icsm2012.org/>

E-MRS 2012 Spring Meeting

14-18 May 2012

Strasbourg, France

http://www.emrs-strasbourg.com/index.php?option=com_content&task=view&id=428&Itemid=1

CIMTEC: International Conferences on Modern Materials and Technologies

10 - 14 June 2012

Montecatini Terme, Italy

<http://www.cimtec-congress.org/2012/>

European Conference of Crystal Growth

17 - 20 June 2012

University of Strathclyde, Glasgow, Scotland

<http://www.eccg4.org/>

15th European Conference on Composite Materials

24 - 28 June, 2012

Venice - Italy

<http://www.eccm15.org/>

Continued overleaf

Some Forthcoming Solid-State Chemistry Conferences in 2012

4th International Symposium on Structure-Property Relationships in Solid State Materials

24 - 29 June 2012
Bordeaux, France
<http://www.spssm4.com/>

Gordan Research Conference on Solid-State Chemistry

22 - 27 July 2012
Colby-Sawyer College, New London, USA
Chair: Antoine Maignan
<http://www.grc.org/programs.aspx?year=2012&program=solidstate>

4th International Congress on Ceramics

15 -19 Jul 2012, Chicago, USA
<http://ceramics.org/4th-international-congress-on-ceramics-icc4>

ZMPC2012 International Symposium on Zeolites and Microporous Crystals

28 July- 1 August 2012
Hiroshima, JAPAN
<http://www.zmpc.org/>

3rd International Conference on Metal-Organic Frameworks and Open Framework Compounds (MOF2012)

16 – 19 September 2012
Edinburgh, Scotland
<http://events.dechema.de/en/mof2012>

Please notify the editor if you are organising a conference that you wish to be advertised in a future issue of the newsletter

Solid-State Group Student Bursary Scheme

The Solid State Chemistry Group has a Student Bursary Scheme to provide financial support to postgraduate students to attend important solid state chemistry conferences in the UK or abroad. The Student Bursary Scheme is open to all postgraduate student who are members of the RSC's Solid State Chemistry Group and are undertaking research in solid-state chemistry. In return for the bursary, the beneficiary must produce a short written report for the Solid State Chemistry Group Newsletter! Please contact any committee member for further details.



UNIVERSITY OF
LIVERPOOL

RSC Solid State Group 2011 Christmas Meeting

Department of Chemistry, University of Liverpool

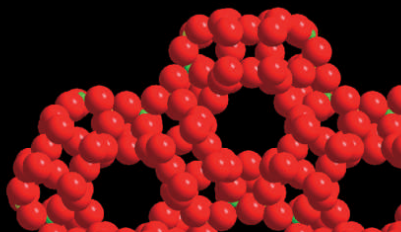
19 - 20 December 2011

The 2011 Christmas Meeting will be hosted by the Department of Chemistry at the University of Liverpool. The meeting will follow the successful formats of previous years with 4 plenary lecturers, contributed talks and posters, and Christmas dinner. Lectures will start at 2:00 pm, following lunch, on the Monday afternoon and the meeting will close at lunchtime on the Tuesday.

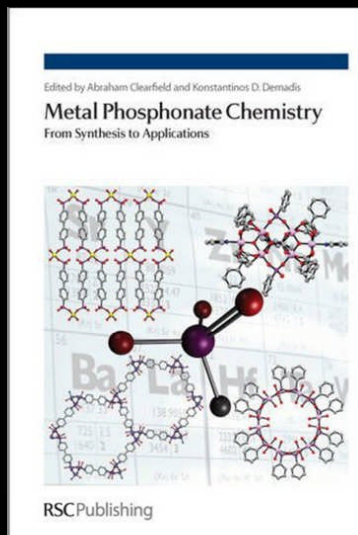
Invited speakers: Professor Russell Morris (St. Andrew's), Professor Paul Attfield (Edinburgh), Professor Martin Dove (Queen Mary), Dr Andrew Goodwin (Oxford).

*Abstract deadlines and further information will be released in due course.
Contact Dr Andrew Fogg for further information: ssg2011@liverpool.ac.uk*

Materials Science from RSC Publishing



The RSC publishes an extensive range of chemical science books covering food science, toxicology, core chemistry, nanoscience and biomolecular science. World class editors and contributors make the list one of the most intriguing and prestigious in the market, presented in a combination of monographs, professional references and popular science titles. Here's an example of one our latest titles:



Metal Phosphonate Chemistry: From Synthesis to Applications

Edited by Abraham Clearfield and Konstantinos Demadis

This book fills the gap in the literature by summarising, in a concise way, the latest developments in the field. Metal phosphonate chemistry has seen impressive growth in the last 15-20 years and there is a clear need to systematize and organize all this growth. This unique book accomplishes just that need - edited by two experts, it includes contributions from other experienced researchers and organises, categorises and presents in an attractive way the latest hot topics in metal phosphonate chemistry and related applications. With an extensive bibliography, it is a great reference for academic and industrial researchers as well as students working in the field and will act as a starting point for further exploration of the literature. It is also of great interest to scientists working in the broader area of metal-organic frameworks and their applications.

Hardback | 457 pages | ISBN 9781849733564 | 2011 | £144.99

Conference Report: Materials Chemistry Division Awards Symposium, University of Warwick, March 22 2011

Three recent winners of RSC prizes or awards presented lectures at a half-day symposium at the University of Warwick. The lectures were followed by formal presentation of the medals by Professor Colin Greaves, representative of the RSC Materials Chemistry Division. The awards covered various areas of materials chemistry, including solid-state chemistry.

Gibson Fawcett Award Winner: **Dr Simon Clarke**, University of Oxford

“For his exceptional contribution to the chemistry of non-oxide and mixed anion solids as new functional materials”

Corday-Morgan Prize Winner: **Dr Euan Brechin**, University of Edinburgh

“Awarded for the development of new principles for the synthesis of molecular magnetic materials, for the understanding of their magnetic behaviour and for the development of their applications especially in magnetic cooling”

Harrison-Meldola Memorial Prize Winner: **Dr Andrew Goodwin**, University of Oxford

“Awarded for his pioneering work in materials with negative thermal expansion, and in the field of total scattering methods”



Materials Chemistry Division Awards Ceremony, left to right: Professor Colin Greaves (University of Birmingham), Dr Andrew Goodwin (Harrison-Meldola Memorial Prize Winner), Dr Euan Brechin Corday-Morgan Prize Winner, Dr Simon Clarke (Gibson Fawcett Award Winner), and Dr Richard Walton (University of Warwick)