

BCA IG Newsletter

January 2007

EDITORIAL

Welcome to the Industrial Group Newsletter. You will find in its pages plenty of information concerning forthcoming meetings and a report of our Autumn meeting held last year.

As always, the BCA Spring Meeting is an important meeting and one in which the Industrial Group is particularly active with the organising of both XRD and XRF sessions. Take a look at pages 3 to 5 for general information about the XRD and XRF sessions at this meeting. More information about the contents of each session can be seen on the Industrial Group's web pages.

Its going to be a busy year for the Industrial Group with not only the BCA Spring meeting to deal with but also a Residual Stress Meeting, two Special Interest Group meetings – one on Small Angle Scattering and one on Pharmaceuticals as well as the 2007 Autumn meeting.

Industrial Crystallography is certainly alive and kicking even though the number of

Forthcoming Events 2007/2008

- 17th to 19 April 2007 **BCA Spring Meeting** University of Canterbury.
- 14th February 2007 **Residual Stress Meeting** University of Manchester
- Early July 2007, **Small Angle Scattering Special Interest Group**, ILL Grenoble
- 7th November 2007 **Pharmaceutical Special Interest Group** AstraZeneca
- 8th November 2007 **Autumn Meeting** AstraZeneca

Log these dates in your diary NOW!

Provisional Dates for the longer term:

14th May 2008

Joint BCA/RSC XRF meeting.

15th May 2008

XRD and Minerals

XRF Newsletter 4 published electronically in January 2007. View a copy on the web.

Inside This Issue

1 - 2	Editorial
3 - 4	Spring Meeting 2007 XRD Highlights
4 - 5	Spring Meeting 2007 XRF Highlights
6	24th Group AGM / 25 years in 2008
7 - 8	Report: Autumn Meeting 2006
9 - 10	Meetings 2007
11	XRF Page
12	Committee contact details



Charity Registration Number: 284718

World Wide Web addresses:

BCA <http://www.crystallography.org.uk>

IG <http://www.crystallography.org.uk/ig/ig.htm>

Tip Google BCA IG (with a space) to find us!

THANK YOU



Thanks to **PANalytical** for sponsoring the cost of production and distribution of this edition of the Industrial Group Newsletter.
www.panalytical.com

EDITORIAL *Continued*

crystallographers working in industry has been declining in recent years. 'Industry' appears to be getting much more involved with University departments and it is from these departments in which 'Industrial Crystallography' is increasingly carried out.

Thus, if you are working on Industrial applications in academia then make yourselves known to the BCA Industrial Group. Through the Group you will have an opportunity to broaden your knowledge of Industrial Crystallography, tell others what you are doing to broaden their knowledge and, hopefully, make good contacts and perhaps some friends (we are not all that bad!).

The Industrial Group's AGM will be held at the Spring Meeting. Here's your chance to suggest ideas for the development of the Group. Do you have a 'complaint'. Don't be quiet – make it known.

Finally, as some of you will know, the Industrial Group's Chairman, Jeremy Cockcroft will be stepping down as Chairman at the AGM. On behalf of our Committee and the membership I'd like to thank Jeremy for the leadership he has shown and the good council he has brought to the committee. Best wishes Jeremy.

Industrial Group E-mail Mailing lists – Online registration.

We now maintain separate lists for XRF and XRD mailings so please register for BOTH if you want to be kept totally in the picture. The IG sends about six E-mail notices each year to anyone interested (You don't even need to be a BCA member!). These inform of Newsletter postings and the various meetings we organise each year. You can now register for our E-mail lists online - follow the link from the IG home page. There is an opportunity to be removed from the list with each mailing.

XRF Paper on the analysis of paper

Those of you who are RSC members may have seen in the January issue of Chemistry World (page 24) a note about a forthcoming paper by Luisa Carvalho in Journal of Analytical Atomic Spectrometry, dealing with the XRF characterization of papers. (<http://www.rsc.org/Publishing/Journals/JA/article.asp?doi=b608361g>)

At our Spring Meeting, Luisa will be speaking on much the same topic - Wednesday afternoon at 1330.

Newsletter and Web Site Content

We continually try to improve the content of both the Newsletter and web pages and would like to ask you to submit articles etc. Do you use web sites for your day to day work in XRD and XRF? If yes, then which sites do you visit, let us know and send us a paragraph about what you use the site for and why you like it.

Do you have any hints and tips to share with the rest of the membership? They could be on anything relevant to XRD and XRF covering areas such as sample preparation, calibration, measurement strategies, results handling, time saving measures. Let us know. To start the ball rolling on this I'd like to comment on the preparation of a sample of powder for analysis. I grind small amounts of refractory material using a pestle and mortar and place the material into an aluminium sample holder using the 'side-fill' method (to reduce the effects of preferred orientation). The sample holder has to be mounted vertically on the instrument so how do I stop the powder falling out of the holder? Well, I spray a smidgin of WD40 onto the sample surface to help bind the powder together. It works and the small amount of organic in the surface doesn't have any significant effect on the diffractograms obtained. I've heard that hairspray can also be used – I prefer to keep WD40 in my cupboard!

That's it for now. Enjoy your Newsletter.

Mark Farnworth, Editor

**2007 Spring Meeting University of Canterbury
17-19 April 2007 Industrial Group XRD Highlights**

Tuesday Afternoon

Chairs:

Anne Kavanagh, *AstraZeneca, Macclesfield.*
Roy Copley, *GSK, Harlow.*

15:15 Learning from cocrystals - their design, construction and properties.

Bill Jones, University of Cambridge.

15:45 Co-crystals -- does thermodynamics hold the secrets of drop grinding.

Keith Chadwick, University of Manchester.

**16:15 Panic to Panacea:
Cocrystallisation in Pharmaceutical Development.**

Chris Frampton or Mark Eddleston,
Pharmorphix Limited.

Wednesday Morning

XRF / XRD Joint session on thin films.

Wednesday 18th April 10:15 - 12:00

Chairs:

Dave Taylor, *ICDD.*
Chris Staddon, *University of Nottingham.*

10:15 Thin Films and Coatings by XRF and XRD: an Overview.

Tom Ryan, Nanometrics, Oregon, USA.

11:00 Advanced solid-state X-ray detector for the analysis of thin layered structures.

Joachim Woitok, PANalytical, Almelo

11:20 Up-To-Date XRD-Techniques for investigating ultra-thin films and ultra-small features.

Hugues Guerault, BrukerAXS.

11:40 X-ray probes of the layer and interface structure of nano-scale films for opto-electronics and spintronics.

Brian Tanner, *Bede.*

Wednesday Afternoon

IG Keynote Lecture, Wednesday 18th April, 14:15 - 15:00

Nano- Materials.

Professor R. L. Snyder, Georgia Institute of Technology, USA

Diffraction from Surfaces and Two Dimensional Crystallography.

Wednesday 18th April 15:30 - 17:00

Chairs:

Judith Shackleton, *University of Manchester.*
Richard Morris, *Morris Analytical X-ray.*

15:30 Structural studies of ordered mesoporous silica in channelled substrates, Donna Arnold, University College Cork

16:00 X-ray characterisation of nanomagnetic materials.

Tom Hase, University of Durham.

16:30 SAXS and GI applications using a novel modular laboratory system.

Peter Laggner, Graz.

Thursday Morning

One Hundred and One Ways to Prepare an XRPD Sample.

Thursday 19th April 10:15 - 12:15

Chairs:

Jeremy Karl Cockcroft, *UCL.*
Martin Gill, *Natural History Museum.*

10:15 Industrial Group Young Crystallographer Prize talk.

The session will continue in workshop style led by the chairs and conclude with:

Random Diffraction Patterns (without really trying).

Gordon Cressey, Natural History Museum.

**2007 Spring Meeting University of Canterbury
17-19 April 2007 Industrial Group XRD Highlights**

Thursday Afternoon

A Standardless Future for Quantitative XRPD?

Thursday 19th April 13:30 - 15:00

Chair:

Steve Norval, *ICI, Wilton.*

13:30 Random Mounts and Reproducibility – The Key to Standard-less Q. P. A.

Gordon Cressey, Natural History Museum

14:00 Quantitative Analysis of Mixtures Using High Throughput Instrumentation without the Use of Standards.

Christopher Gilmore, et al, University of Glasgow

14:20 Quantitative Analysis of Cements.

Rob Hill, BrukerAXS

14:40 Standardless Quantitative Analysis.

Paul O'Meara, PANalytical.

Industrial Group and XRF Posters

Posters are invited for display at the Spring Meeting - magnificent prize of £50 and a bottle of Champagne for best poster. Some guidelines follow for what we would prefer to see in our posters and our adjudicators will work from these. Posters are encouraged that:

- are relevant to industry (including some background and value of the work to industry)
- have clear aims, results and conclusions
- concentrate on telling the story, rather than fine detail
- are not an advertisement for a commercial product

For more information, contact:

Secretary/Treasurer (see back page)

**2007 Spring Meeting University of Canterbury
17-19 April 2007 Industrial Group XRF Highlights**

Tuesday Morning

Tutorial / Workshop Session "XRF: where are we now?"

Mark Ingham is organiser and chair. We have secured two speakers of international renown to present the following sessions.

10.00 Bruno Vrebos (PANalytical)

XRF: What instruments have we got, or are likely to get soon?

11.15 Coffee

11.45 Rene Van Grieken.(Antwerp)

XRF: What can we do with them?

Tuesday Afternoon

14.00 – 15.00 Semi-quantitative

Ros Schwarz is organiser and chair.

14:00 M N Ingham, H M Harrison or N D Eatherington (British Geological Survey, Keyworth)

What on earth is this?

Tuesday Afternoon (cont).

14:30 Belen Morales, LSM Analytical Services

Title to be advised.

15.30 – 16.45 Calibration Samples

Ros Schwarz is organiser and chair.

15:30 David Beveridge. (ILFORD Photo)
No standards? No blanks? No standardless software? No problem!

15:55 Phil Russell (PANalytical)

Normative Committees.

16:20 M N Ingham, N D Eatherington or C J B Gowing (British Geological Survey, Keyworth)

Wide Range Oxide fused bead standards.

16:45 Break

17:00 -18:30 XRF Exhibitors' Forum.

Dave Taylor is organiser and chair.

**2007 Spring Meeting University of Canterbury
17-19 April 2007 Industrial Group XRF Highlights**

Tuesday Evening - Posters and Exhibition with buffet and wine.

Wednesday Morning

10.15 – 12.00 XRF / XRD Joint session on thin films.

Dave Taylor & Chris Staddon are the organisers.

10:15 Tom Ryan (Nanometrics, Oregon, USA)

Thin Films and Coatings by XRF and XRD: an Overview

11:00 Joachim Voitok (PANalytical, Almelo)

Advanced solid-state X-ray detector for the analysis of thin layered structures

11:20 Hugues Guerault (BrukerAXS)

Up-To-Date XRD-Techniques for investigating ultra-thin films and ultra-small features

11:40 Brian Tanner (Bede)

X-ray probes of the layer and interface structure of nano-scale films for opto-electronics and spintronics

Wednesday Afternoon

13.30 – 15.00 and 15.30 – 17.00

XRF Applications - including Cultural Heritage

David Beveridge is organiser and chair.

13:30 Luisa Carvalho (Lisbon)

X-Ray Fluorescence Analysis on paper characterization

14:00 Clair Collins (Oxford Instruments)

Analysis of archaeological artefacts by handheld XRF

14:30 Malcolm Haigh (Spectro)

Analysis of Geological Samples using a Polarised-Beam Benchtop XRF Spectrometer,

15:00 Tea

15:30 M N Ingham, L D Grimsley, S J Carter or H M Harrison (British Geological Survey, Keyworth)

Mobile XRF and MCERTS analysis of soils

16:00 Jean-Philippe Gagnon (Claisse)

Volatiles management in XRF analysis.

Thursday Morning

Margaret West is organiser and chair

10:00 XRF Foundation Lecture

Rene Van Grieken(Antwerp) *Environmental Issues*

11:00 - 12:30 Presentations on Environmental issues.

11:00 Nick Marsh (Leicester)

Climate records - lurking in the small print? What's at the bottom of your lake?

11:25 Chris Vanhoof (VITO, Belgium)

Development and validation results of a new European Standard prEN 15309 for the determination of the elemental composition of waste and soil by XRF.

11:50 Stan Piorek (Niton)

Screening of electronic products with a "small-spot" hand-held XRF analyser for compliance with RoHS Directive.

12:10 Ros Schwarz (Oxford Instruments)

Micro-spot XRF in RoHS compliance testing : performance and pitfalls.

12:30 Closing Remarks.

Industrial Group AGM - Spring Meeting 2007 – contd.

Industrial Group AGM

Industrial Group AGM

The 24th ANNUAL GENERAL MEETING of the Industrial Group will be held at Canterbury at 13:00 on 18th April 2007. Nominations are sought to fill vacancies for **Chair and three** committee members to serve for three years from April 2007. Nominations, which shall be proposed by not less than two members of the Group and shall be accompanied by the written consent of the nominee, shall be sent to reach the Honorary Secretary of the Group not later than seven days before the Annual General Meeting.

The committee works hard in the background, planning the I.G sessions at the BCA Spring meeting and planning the Autumn and Special Interest Group meetings. Do you have IT or organisational skills that you could put to work for the Industrial group? Contact the Secretary.

The BCA Industrial Group will be 25 years old in 2008 – How should we celebrate this anniversary?

Reprinted from Crystallography News No 1 June 1982

Formation of the Industrial Group of the BCA

The recent "Durham Crystallographic Meeting" will always be associated with the highly successful launch of the BCA. Detailed reports on this meeting will, no doubt, be prominent in this issue of Crystallography News. It was particularly gratifying, however, for the organizers of the Industrial Symposium to note that of the 175 delegates, approximately 50 were from Industrial or Applied Research Institutions, a response unprecedented in recent years. Furthermore, from discussions with participants it was apparent that the papers and numerous posters presented during the Symposium aroused significant and genuine interest. It was perhaps, not surprising therefore that the announcement by Council of its intention to form an Industrial Group was received with enthusiasm by the delegates.

In broad terms the aim of this new Group will be to promote the development, introduction and exploitation of crystallographic techniques and concepts in an Industrial or Applied context. It is envisaged that this will be accomplished primarily by providing an interdisciplinary forum and an improved dialogue between the Industrial and Academic sectors.

A four man Working Party comprising John Harding (British Rail, Derby), Glen Smith (BP Research Centre, Sunbury) and Colin Dineen and Brian Isherwood (Hirst Research Centre, Wembley) is at present attempting to formulate the Constitution and Rules of the new Group. The aim is to submit a draft document for consideration by Council at their next meeting, scheduled for July. However, the Group cannot be formally constituted until the next AGM of the BCA, which will be held during the Spring 1983 meeting at Royal Holloway College. Before then it will be necessary to circulate all potential Group members with the proposed constitution and to solicit nominations for Officers and Committee Members. Hopefully, this will be done during November-December. If you know of any colleagues who are not members of the BCA, then get them to join now so that they can be added to our circulation list.

If Durham is regarded as the prototype, then we can look forward to some stimulating productions and a lively Group.

B J ISHERWOOD

Report – Autumn Meeting 2006

**Held at Pilkington Group Limited,
Lathom, Lancashire, 9th November 2006**

The Impact of Crystallography in an Industrial Environment

The meeting began with an introduction by Jeremy Cockcroft, the Industrial Group Chair, who thanked Pilkington for hosting the meeting and providing lunch. He commented that it was good to see the meeting return to the site of an industrial company. The sessions started with an introduction to Pilkington by Mary Ormsby, a senior manager on site. Fairly recently, Pilkington was taken over by the Japanese glass company NSG - half its size - and the two organisations are slowly merging. Whereas Pilkington had in recent years majored on building and automotive products, NSG has a lot of hi-tech applications. The next few months will be an interesting time as the cultures merge.

The first scientific talk of the day was by **Gordon Barr** (U. of Glasgow), who spoke about high throughput screening with XRPD and Raman. In both cases, full profile patterns are compared, using both parametric and nonparametric statistics. Correlation coefficients are calculated from which a distance matrix is set up. Finally various techniques for cluster analysis are applied. The result is a robust and rapid method of grouping data on large groups of samples.

The next speaker was an old friend, **Ian Ferguson**, who described the characterisation of SiC coatings on nuclear reactor fuel pellets. This amounted to an interesting reminder of the value of relatively simple approaches to strain analysis. Some of this work went back a long way - how many of us remember computer data entry on 5-hole punch tape? - but it is still relevant.

The last speaker in the morning session was **Ivan Parkin** (UCL) who talked about XRPD mapping of CVD coatings on glass. WO_3 coatings are always the same polymorph, but crystallite morphology and orientation vary with the reagent used to hydrolyse WCl_6 . The surfaces can be highly hydrophilic: on the other hand, if the coating is of WSe_2 , then the surface will be very hydrophobic. This comparison led on to a discussion of different models for the hydrophilic/hydrophobic nature of surfaces, and a comparison with various TiO_2 -based films.

During the lunch break, we enjoyed a tour of the exhibition area - so interesting did we find it that two of the three parties were late back, and the afternoon session got under way a little behind schedule. Mark Farnworth (Pilkington) led with a description of how XRPD and X-ray reflectivity can be used in the glass industry. Estimation of the proportion of amorphous material is important but because it is always compositionally similar, a simple method can be used. Silver in coatings on glass shows marked preferred orientation, which can be seen by XRD at different angles of incidence.

Andrew Hodge (BP) spoke next, describing some of the varied work he carries out on a wide range of samples associated with chemicals, oils and their applications. He compared the use of XRD in its 80's heyday of seven instruments and 9 staff to today's two instruments and one staff. Recent modernisation and migration to new instruments includes an old high temperature 30 bar pressure + temperature chamber with a sophisticated reactive gas flow system used for catalyst studies.

Richard Morris (Morris Analytical X-Ray) had chosen the title "Dog Food 'n

Report – Autumn Meeting 2006 – contd.

Diffraction" for an interesting talk; the various reactions of members of the audience made an amusing study in human nature. Polyphosphates find a lot of uses in meat products, but some of them have undesirable properties. Trisodium hydrogen pyrophosphate is useful but not easily prepared, and Richard had been involved with a project that found a route to a crystalline form of it. The product is analysed by XRPD, the results from which agree well with ^{31}P NMR.

Chris Staddon (U. of Nottingham) had a similarish title, "XRD 'n Chips" - silicon chips to be precise, and other semiconductors, particularly III-V's but especially Ga(As,N). This occurs in the two ZnS structures and, with doping, atoms on unexpected lattice or interstitial sites and so on, form a complex group of species. The determination of Mn, and of where in the lattice it is to be found in GaMnAs, is a complex task for which a combination of XRF and XRD has proved reasonably successful.

Graham Smith (Shell, Thornton) told us about some of the work he has done over the years on samples associated with the application of oil products. Pitting of a valve from an aero-engine was found to be associated with a deposit of Pb_2CrO_5 , a high-temperature oxidation product of the

valve material, whose presence indicated excessive engine temperatures. Fuel starvation in a petrol engine was found to be due to a blocked filter in the petrol tank. The blockage was shown by XRPD to contain Fe_3O_4 , Cu, CuO and graphite. The first was rust, but the others derived from wear of the (totally immersed) electric fuel pump's commutator and brushgear. These and other examples made this a fascinating talk. Another old technique which had come in handy was a Debye-Scherrer camera, useful with very small samples.

The last talk was by **Peter Stacey** (HSL, Buxton) who also talked about his work. The main topic of his talk was the quantification of crystalline SiO_2 in air samples. The recently-reduced WEL is now 0.1 mg m^{-3} ; while there are calls for lower limits, the difficulty of analysis would make them hard to enforce. At the proposed level of 0.04 mg m^{-3} , the interlaboratory uncertainty would lead to relative 95 % confidence limits around $\pm 50 \%$ for 4 hours measurement. Large samples require corrections for absorption of X-rays, which would be an added complication. He concluded with further examples relating to asbestos and calcium phosphates.

All in all, it was an interesting meeting in an excellent venue, and the thirty-odd participants went home well satisfied

Photograph of Speakers.

Insets: Ivan Parkin (left), Andrew Hodge (right).

From Left to Right: Graham Smith, Chris Staddon, Richard Morris, Mark Farnworth, Gordon Barr, Peter Stacy and Ian Ferguson.



British Society for Strain Measurement: Residual Stress Meeting 14th Feb 2007
Co Sponsored by the BCA Industrial Group

Workshop to be held at the Materials Science Centre, School of Materials, University of Manchester

Organisers Judith Shackleton & Joao Fonseca

Fees: *BSSM and co-sponsor members*
£120 + VAT

Non-members £160 + VAT

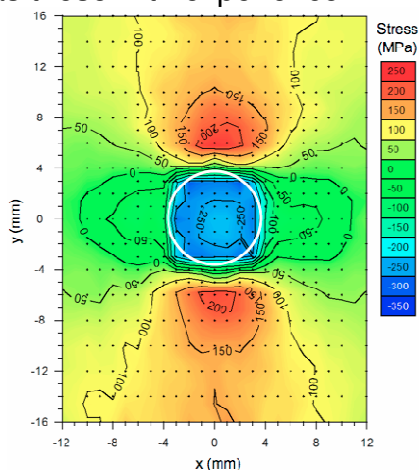
Student (BSSM or co-sponsor members)
£60 + VAT

Student (non-members) £80 +VAT

Please check out the BSSM meeting page for more information and meeting registration.

Residual stress is one of the most common causes of catastrophic and unexpected failures in engineering components. Today, engineers are developing tools and strategies for managing detrimental residual stresses and for introducing beneficial ones across component scales ranging from those experienced in microelectronics through to aeroengine assemblies.

This workshop is aimed at anyone who would like to know more about measuring residual stress using diffraction techniques. It is suitable for beginners, as well as those with experience.



Programme

1. **Introduction to the School of Materials**
2. **Basic Crystallography & Diffraction**
(Judith Shackleton)
3. **Methods Using Laboratory X-rays, specifically the Sin²psi Method**
(Judith Shackleton, Materials Science Centre, School of Materials, University of Manchester)
 - Applications
 - Strengths
 - Limitations
 - Instrumentation
 - Practical Applications
 - Data Processing
 - Hints, tips, tricks of the trade
4. **Neutron & Synchrotron methods**
(Dr Joao Fonseca Materials Science Centre, School of Materials, University of Manchester)
 - Applications & advantages
 - differences from the laboratory based X-ray methods
 - Main facilities
5. **X-ray Elastic Constants**
(Dr Jo Kelleher Materials Science Centre, School of Materials, University of Manchester)
6. **Sample preparation, considerations and electro-polishing**
(Dr Jo Kelleher Materials Science Centre, School of Materials, University of Manchester)
7. **National Physical Laboratory Good practice Guide & the Residual Stress Working Group**
(Tony Fry, NPL)
8. **Practical Demonstration and a chance to have a go**

Small Angle Scattering Special Interest Group - July 2007

ILL, Grenoble

CALL FOR PAPERS.

Planning is under way for a two day Small Angle Scattering meeting at ILL Grenoble to be held early July 2007.

Organisers: *Richard Morris and Jeremy Cockcroft*

Delegate numbers will be limited.

Back to back meetings at AstraZeneca, Alderley Park, Cheshire.

Pharmaceutical Special Interest Group - 7th November 2007

CALL FOR PAPERS.

Morning session:

General pharmaceutical applications.

Organisers: *Anne Kavanagh & Roy Copley*

Afternoon session:

Structure solution from powder data, Microstructural applications and Rietveld quantification.

Organisers: *Anne Kavanagh & Roy Copley*

Autumn Meeting - 8th November 2007

Morning session:

Rietveld applications.

Organisers: *Steve Norval & Jeremy Cockcroft.*

Afternoon session:

Crystallography in Industry - a varied mix of short talks of interest to a wide audience.

Organiser: *Judith Shackleton.*

To offer a talk at these meetings please contact a session organiser.

Local organiser:

Dr Anne Kavanagh

PAR&D AstraZeneca,

Silk Road Business Park,

Macclesfield, Cheshire.

SK10 2NA Tel:01625 517454

Email: anne.kavanagh@astrazeneca.com

Check out the Industrial Group's web pages for more information and details for registration.

X-RAY FLUORESCENCE (XRF) PAGE

NEXT XRF MEETING:

**University of Kent – Canterbury.
17 - 19 April 2007 BCA Spring Meeting.**

Three days of XRF sessions!

Please try to join us for this meeting and make sure all your XRF friends and colleagues know about this meeting.

This meeting at the University of Canterbury has a full three day parallel stream of XRF content. Sessions include: a workshop, semi-quantitative, calibration standards, thin films, applications including cultural heritage and environmental issues. There will be an Exhibitors forum allowing suppliers to make you aware of their latest offerings, followed by an evening buffet with the opportunity to talk to vendors at their exhibition stands. The full XRF programme is given on page 4 – 5 of this Newsletter.

Meeting Registration before 12th March is £150 and Standard B&B is £30 per night.

Call for posters: If you feel you have something to offer the meeting why not present it in a **poster?** There is a prize of £50 and a bottle of champagne for best poster. Just check out the web for more details and submit and abstract by 16th February.

WEB Newsletter: We are always on the look out for articles from the web and Newsletter, so if you have something to offer contact the editor.

XRF planning group: Since our last Newsletter **Ros Schwarz** has taken up a position with Oxford Instruments. The contact details for the XRF group are on an XRF web page – click contacts at the top of the any XRF page.

Suppliers List: Please help us build our suppliers list by submitting details of suppliers you have found to be useful in your XRF work. We hope that this will build into a very useful resource to help users source equipment, services and consumables. See the XRF web pages for details.

Review of XRF published work: Alternate issues of the Royal Society of Chemistry's Journal of Analytical Atomic Spectrometry (JAAS) feature Atomic Spectrometry Updates. These Updates are annual reviews written by groups of acknowledged experts in their fields. They aim to provide comprehensive, critical reviews of the major areas of analytical atomic spectroscopy. The November issue of JAAS contains the annual review of XRF covering 2005-6. It covers developments, assessed from 424 published papers, in:

- instrumentation and detectors
- matrix correction and spectrum analysis
- X-ray optics and micro-fluorescence
- synchrotron-source XRF
- total-reflection XRF
- portable XRF
- on-line XRF

The review also surveys applications including:

- sample preparation
- geological
- environmental
- archaeological
- forensic
- biological
- clinical
- thin films
- chemical state and speciation

As in previous years, large numbers of papers have been published in the fields of environmental and general industrial applications. This year, there have also been an increasing number of papers dealing with archaeology and cultural heritage. Papers in the life sciences continue to be popular, and now include rapid-throughput screening for combinatorial methods. Nanotechnology is another burgeoning field; XRF microanalytical equipment is now available, making it possible to profile and map samples - tests hitherto done by other techniques.

For further information contact Margaret West.

Dates for your Diary:

17-19th April 2007 BCA Spring Meeting with a full 3 day XRF programme & Exhibition.

14th May 2008 Joint BCA/RSC XRF meeting.

Industrial Group Committee 2006-2007

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