

**Institute *of* Physics**

**Electron Microscopy and  
Analysis Group**

**Newsletter**

***July 2004***

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## **ELECTRON MICROSCOPY AND ANALYSIS GROUP**

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## EMAG COMMITTEE - 2003/2004 SESSION

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	Dr Pauline Sillers Physical Science Team Leader Technology and Projects Department Syngenta, Grangemouth Stirlingshire, FK3 8XG	Tel: 01324 498337 Email: pauline.sillers@syngenta.com
<b>Co-opted Members:</b>	John Harrington Institute for Materials Research, SPEME University of Leeds Leeds, LS2 9JT	Tel: 0113 343 2559 Fax: 0113 343 2384 Email: j.p.harrington@leeds.ac.uk

Dear EMAG Member,

Since the January 2004 Newsletter there has been steady progress preparing for the EMAG-NANO 2005 conference, to be held, in collaboration with the Nanoscale Physics & Technology group of the IoP, at the University of Leeds, 31<sup>st</sup> August – 2<sup>nd</sup> September 2005. The theme of the meeting will be 'Imaging, Analysis and Fabrication on the Nanoscale', with emphasis on (1) Microscopy techniques for Nanotechnology; (2) Investigations of structure-property relationships in advanced materials; and (3) Nanophysics and Nanotechnology. It should be a fun event!

In the meantime, the aim of this Newsletter is to provide brief reports on various scientific meetings and the SuperSTEM project. A set of minutes for the EMAG 2003 AGM is presented for the record. Also, a recent EMS Newsletter is reproduced here in view of the forthcoming EMC in Antwerp. May we also draw your attention to the nomination form for elections onto the EMAG Committee.

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## **BURSARIES**

Members are reminded that EMAG bursaries are available for research students and younger postdocs who wish to attend relevant conferences either in the UK or abroad. Preference will be given to those who are presenting papers and have shown that they have tried to obtain part of their funding from other suitable sources. In general, only one bursary per year can be awarded to each person. A completed application form (see the back of this Newsletter) as well as a short reference from a research supervisor confirming eligibility and suitability should be sent to the Chairman of the Bursary Sub-Committee, Dr David McComb<sup>1</sup>. Each successful applicant must submit a short report on the meeting they attended to the Chairman of the Bursary Sub-Committee.

Further information on EMAG activities are available at the IoP website at the address:  
<http://www.iop.org/IOP/Groups/EM/>.

*Paul D Brown, Nottingham  
EMAG Secretary / Treasurer*

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<sup>1</sup> Please note a change of address to the Department of Materials, Imperial College London, Exhibition Road, London SW7 2AZ. (Email: d.mccomb@imperial.ac.uk).

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## ELECTRON MICROSCOPY AND ANALYSIS GROUP

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**EMAG-NANO 2005** will be held at the University of Leeds from Wednesday 31<sup>st</sup> August to Friday 2<sup>nd</sup> September 2005. This conference will retain the normal “Gordon Conference-style” format, traditional for EMAG. However, as part of the “Einstein” International Year of Physics, this time the event will occur in collaboration with the Nanoscale Physics and Technology (NPT) Group of the Institute of Physics, which was founded in 2002 and has more than 150 members. Thus EMAG-NANO 2005 is a timely joint conference that brings together both groups to focus on aspects of “Imaging, Analysis and Fabrication on the Nanoscale”. The general themes will include:

- Microscopy Techniques for Nanotechnology;
- Investigating structure-property relationships in advanced materials;
- Nanophysics and Nanotechnology.

The programme organisers are David McComb from EMAG and Bruce Hamilton from the NPT group. It is the intention to expand the programme by approximately 50% and have three scientific sessions running in parallel together with an increased number of plenary and invited speakers. In addition to the Scientific Programme, it is the intention to run a one day Postgraduate School on Tuesday 30<sup>th</sup> August. This will consist of a series of lectures designed to prepare students for the detailed conference themes and represents a departure from the normal Advanced School, owing to the broader base of conference attendees.

A Microscopy and Nanotechnology trade exhibition including workshops will also be mounted in the University Sports Centre, next door to the lecture theatres. This will also house the posters and lunches and refreshment facilities. It is hoped to increase the stand space and number of companies in the exhibition and talks are underway between the EMAG Committee and an outside company, who will market and run the exhibition.

All attendees will be offered accommodation in Devonshire Hall of Residence, which offers both standard and en-suite rooms and is a short walk or bus ride from the Leeds University Campus. The social programme will include a Welcome Reception in Devonshire Hall, a Trade Exhibition Buffet, a historical and architectural tour of Leeds City Centre and a Conference Dinner in the Royal Armouries Museum.

The revised nature of the conference should make this an event not to be missed. Particularly if you are interested in the physics, fabrication and application of Nanotechnology. For further details contact Claire Pantlin at the Institute of Physics or visit the website <http://conferences.iop.org/EMNA>

*Rik Brydson*  
*Conference Chairman*

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## EMAG Committee Elections

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As announced at the recent EMAG AGM held during the SuperSTEM Summer School in Daresbury on 9<sup>th</sup> July 2004, Rik Brydson retires from the EMAG Committee in September 2004. We thank Rik for his extremely effective contribution to the running of the Group over the past 7 years. Rik should also be commended for his EMAG 2003 conference dinner speech, which was nice. In time honoured tradition, Rik will be co-opted back onto the Committee as local organiser for the EMAG-NANO 2005 conference in Leeds.

Paul Brown also steps down this year as Honorary Secretary / Treasurer to the group. The Committee have nominated Paul Brown as Chairman and David McComb as the Honorary Secretary / Treasurer.

Amanda Petford-Long has also served her term of duty on the Committee and we express our heartfelt thanks for her contribution to the running of the very successful EMAG 2003 conference in Oxford. Amanda will be co-opted back onto the Committee as proceedings editor for EMAG-NANO 2005, alongside Richard Baker.

Together with the sad loss of Tiesheng Rong earlier this year, and the temporary stepping down of Pauline Sillers from the Committee, there are presently three vacancies for Ordinary Committee Members. The aim, as ever, is to try and maintain a balance between Academic, Trade and UK geographic representation.

Provisional nominations for Ordinary Committee Membership are:

Prof Stephen E. Donnelly (University of Salford)  
Dr Dogan Ozkaya (Johnson Matthey Technology Centre)  
Dr Ian MacLaren (University of Glasgow)

On page 17 of this *Newsletter* is a form on which other nominations for Committee membership can be made.

If further nominations are received, there will be a postal ballot of all members in August. If not, those persons nominated by the committee will be declared elected at the next EMAG committee meeting on 20<sup>th</sup> September.

The deadline for nominations to the Committee is **20 August 2004**.

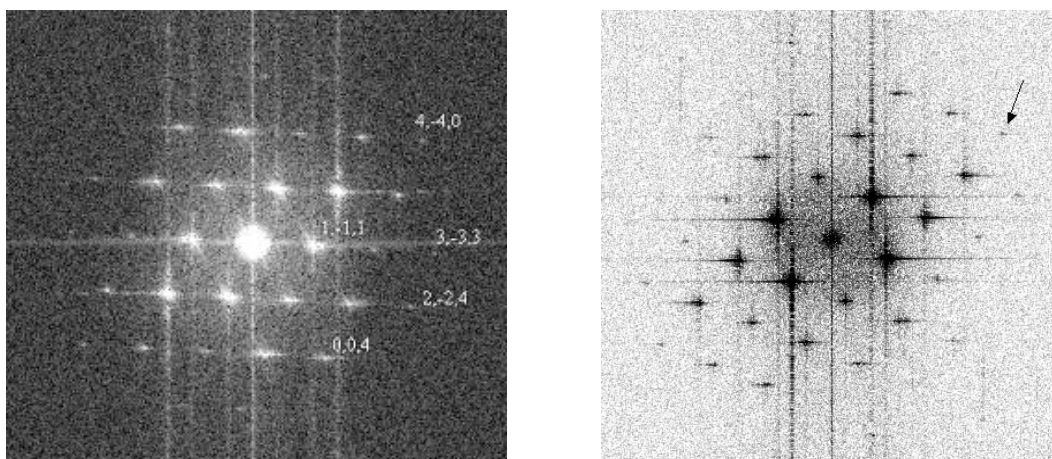
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## Progress at the SuperSTEM Laboratory

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*Two diffractograms from HAADF images of silicon. The left pattern shows the 440 type reflection that represented our previous resolution. An additional 442 reflection is arrowed in the right pattern (shown negative to improve the contrast). This corresponds to a spacing of 0.0905nm.*

Improvements have appeared on several different fronts. These can be divided into instrumentation, user interactions and training. As far as the instrument is concerned, its performance continues to astound those of us who grew up on conventional microscopes. Starting with a probe size of 0.096nm at the beginning of the year, we have now seen lattice spacings as small as 0.0905nm (in silicon 110) as a result of finally installing the suspension system. In retrospect, the achievement of 0.096nm with the microscope on wooden blocks on the floor of the building is, in some ways, more of an achievement! In January, the Gatan Enfina spectrometer was fitted and this continues to provide EELS spectra with 0.4eV spectral resolution at a collection angle of 20mrad. One aspect of the EELS experiments that has proved surprising is the large loss energy of some of the edges that have been acquired and used in the analysis of users' samples. These include the Sulphur K-edge at 2600eV and the Yttrium L-edge at 2100eV.

While the instrument has continued to improve over the last 18 months, we have been pleased to welcome 40 different users and examine more than 80 samples. (Some of which have been in the microscope many times - we all have our favourite samples!) We've thoroughly enjoyed the discussions and exposure to other people's problems (usually scientific)! The policy of allowing everyone two days of proof-of-principle access to the instrument has proved fruitful with not a single wasted day. Anyone who would like to use this facility should contact us. In addition to the microscopes, three groups have also come to see just the building! We are pleased to share our experience (including the mistakes!) of designing and constructing an electron microscope laboratory.

Lastly, the first superSTEM Summer School was held at Daresbury from Friday 9th to Sunday 11th July to follow on from the MicroScience 2004 conference in London. This is, we believe, the first formal initiation of young microscopists into the arcane rituals of aberration correction in the world. The feedback from both the students and the lecturers who attended was overwhelmingly positive. Nevertheless, some aspects could be improved on, most notably in my view, more hands on exercises on analysing and interpreting data from the microscope.

The EMAG committee was the first to support Prof. Mick Brown's original challenge in 1997 to the UK microscopy community to organise a means of benefiting from aberration correction technology. The superSTEM Laboratory is a direct and tangible result of Mick Brown's challenge and the response of EMAG and other organisations (such as the RMS) to that challenge. We are funded by the EPSRC and are meant to be a resource for the whole of the UK microscopy community. We look forward to more of your samples and feedback on how well we are meeting your expectations!

*Andrew Bleloch  
SuperSTEM Technical Director*

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## ELECTRON MICROSCOPY AND ANALYSIS GROUP

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### Minutes of the AGM held on 3 September 2003 at The University of Oxford (EMAG conference)

1. **Minutes of the 2002 AGM (18 September 2002, 12.30 pm, IoP Headquarters)**  
The minutes were signed by the Chairman as a true record of the meeting.

2. **Matters arising from the minutes**  
There were no matters arising from the minutes.

3. **Honorary Secretary's Report from 2002/2003**  
Since the last AGM, the Group has organised, or contributed to, the following meetings:

**EMAG One Day Meeting**

- **Microscopy of Biomedical Materials and Biocompatible Thin Films** (*plus EMAG AGM*), 18 Sept. 2002
- **CMMP 2003, 6-9 April**, EMAG sponsored the Nanoscale Physics and Technology Symposium, Queen's University, Belfast.
- **Developments in FEGTEM V**, University of Leeds, July 14<sup>th</sup> 2003

Many thanks to all who have helped with the organisation of these meetings.

**Future EMAG plans include:**

- **Nano Particles and Nanostructured Materials: Implications for Health**, 13-14 January, 2004, Daresbury Laboratories
- **Microscience 2004, 06 - 08 July 2004**, EXCEL, London

4. **Honorary Treasurer's Report**

<b>Summary of Finances</b>		IN	OUT	Balance
31/12/02	Balance b/f 2002	3,297.36		
24/03/03	EMAG Group opening balance	3,714.00		
	<b>Total</b>			<b>7,011.36</b>
	EMAG Group - Printing		220.40	
	EMAG Group - Postage / Catering		229.42	
	EMAG Group - Ctte expenses		1,124.94	
	EMAG Group - Bursaries		1,000.00	
	EMAG Group - Conference Support		150.00	
<b>July '03</b>	<b>Total</b>		<b>2,905.96</b>	<b>4,105.40</b>

**Summary of EMAG sponsored bursaries**

Year	No. of ordinary bursaries	Cost	EMAG conference bursaries	Cost		Cost
2000	11	£2,750				
2001	7	£1,650	34 (Dundee)	£4,420		
2002	12	£2,000			7 ICEM bursaries joint RMS / EMAG	£2,100
2003	6	£1,000	29 (Oxford)	£3,190		

- **15<sup>th</sup> International Congress on Electron Microscopy, Sept. 1-6, 2002, Durban, South Africa.**  
7 joint RMS / EMAG bursaries for this meeting were awarded to Steffi Friedrichs (Oxford); Crispin Hetherington (Oxford); Annette Kolodzie (Cambridge); Sergio Lozano-Perez (Oxford); Will McBride (Oxford); Christopher Marsh (Oxford) and BG Mendis (Birmingham).

- **17<sup>th</sup> European Conference on Biomaterials, including the Second Young Scientists Forum, 11-14 September 2002, Barcelona, Spain**  
Spyridoula Marlafeke, University of Nottingham
- **18<sup>th</sup> General Meeting for the International Mineralogical Association, 1-6 September 2002**  
Clair C. Calvert, University of Leeds
- **Materials Research Society Fall meeting, Boston, Dec 2002**  
Martyn McLachlan, University of Glasgow
- **13<sup>th</sup> International Conference on Microscopy of Semiconducting Materials**  
Grigore Moldovan, University of Nottingham  
Christian Lang, University of Oxford
- **Ninth WIEN – WORKSHOP (L/APW + Lo Calculations With The WIEN2k Code), April 23-26, 2003, Vienna, Austria**  
Rebecca Nicholls, University of Oxford
- **The Fifth International Conference on Nitride Semiconductors, Nara, Japan , May 26<sup>th</sup> to 30<sup>th</sup> 2003**  
M W Fay, University of Nottingham

#### 5. Results of the election of members to the EMAG Committee

Retired from the Committee: Dr Simon Galloway, Gatan UK  
Dr Rod Shipley, FEI UK

Stepping down: Dr Andy Burrows, University of Liverpool  
Ciara Mullen, Hewlett Packard Ltd

Nominated by the Committee as Ordinary Members:  
Dr Richard Baker, University of Dundee  
Pete Lander, Jeol UK  
Kevin Meade, Oxford Instruments  
Dr. Pauline Sillers, Syngenta

There being as many nominations as places available, all were declared elected.

#### 6. Discussion on the future association of EMAG and RMS/Micro.

Notes on this aspect of the meeting were reported in the January 2004 Newsletter.

#### 7. SuperSTEM facility

Andrew Bleloch gave a report on the status on the SuperSTEM project. The machine is working well with EELS of single atom columns achieved. Application procedure is on the web. Otherwise see the SuperSTEM website <http://www.superstem.org.uk>

#### 8. European Microscopy Society

EMAG members were reminded that they are all automatically members of the European Microscopy Society, at no cost to themselves. However, in order to receive information from the EMS, it is essential to send your e-mail address to the EMS secretary - this cannot be sent by the IoP due to the Data Protection Act. This is important, since almost all communications from the EMS are sent by e-mail, including information for voting for the next Executive Board.

Send your e-mail address (and preferably your other details, postal address, phone & fax numbers) to

[wisse@cyto.vub.ac.be](mailto:wisse@cyto.vub.ac.be) and to [hawkes@cemes.fr](mailto:hawkes@cemes.fr)

and indicate whether you agree to include this information in the EMS Yearbook. If you do NOT wish to appear in the Yearbook, your e-mail address will be used solely for the dispatch of information by the EMS secretary (Prof. Dr E. Wisse, Free University of Brussels).

#### 9. AOB

None to report

The meeting closed at 5.40pm

*Paul D Brown*  
*EMAG Hon. Secretary / Treasurer*

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# ELECTRON MICROSCOPY AND ANALYSIS GROUP

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## MEETING REPORTS

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### International Mesosstructured Materials Symposium

Cape Town, South Africa, 1-4<sup>th</sup> May 2004

On the 1<sup>st</sup> to the 4<sup>th</sup> of May I was fortunate enough to be able to attend the above conference, which was held in the Lord Charles hotel situated in Somerset West close to the Stellenbosch wine growing region of South Africa.

The conference played host to several of the 'big names' in the growing research field of mesostructured materials. I was fortunate to hear plenary lectures from speakers including Galen Stucky, Dongyuan Zhou, Clement Sanchez and Duncan Macquarrie on a range of subjects concerning the synthesis, characterisation and possible applications of mesostructured materials. These speakers had published papers which sparked my interest in this research area so I particularly enjoyed listening to these lectures.

A large number of lectures were given by members of research groups from universities or research centres in Australia, Japan, Korea, China and the USA. I was therefore able to listen to and question the researchers on their work and other aspects of their research. These questions and answer sessions provided me with ideas for my own work and also gave me a better idea of where to focus the remaining time of my PhD studies.

The main thrust of the posters displayed at the conference and the lectures was that mesostructured materials would make excellent supports or hosts for catalytic moieties both in the lab and on an industrial scale. The poster I presented was well received by many researchers, some of whom have been in touch since with ideas for future work or more details on their own research.

The UK was strongly represented by groups from York, Nottingham, Leeds, Manchester and Exeter with work including nanotube synthesis, true liquid crystal templating, computational modelling of mesostructured surfaces and the application of mesostructured materials as supports or hosts for catalytic materials.

In summary the conference provided me with opportunities to speak to researchers in the area who I might not have been able to otherwise contact, to view the current research ideas of groups from distant countries such as Japan or the USA and see how my own work 'measured up'. Most importantly of all though, the conference allowed the other delegates to view my work and question me or suggest areas where I could improve or on existing work or start new lines of investigation.

*Jon Meegan  
sponsored by EMAG bursary*

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## **FEGTEM VI**

The sixth RMS meeting on 'Developments in field emission TEM' was held at Peterhouse College in Cambridge on 23<sup>rd</sup> June 2004 and was organized by Paul Midgley. The meeting attracted around 60 delegates from the majority of UK high resolution TEM groups and included invited talks by Jurgen Plitzko from Martinsried on Cryo electron tomography of living cells and Alexandre Gloter from Paris on spatially resolved spectroscopy of nanostructured materials. Oral and poster contributions covered developments in STEM and TEM aberration correction, advances in cameras and detectors, as well as new applications of FEGTEM and STEM for materials analysis. EMAG contributed to the costs of one of the invited speakers.

## **RMS Microscience 2004**

The Royal Microscopical Society held its biennial Microscience Conference from 6<sup>th</sup>-8<sup>th</sup> July 2004 at the Excel Centre in London Docklands. Over sixty companies contributed to a very impressive microscopy trade exhibition which must now be the biggest of its type in Europe. Exhibitor stands were complemented by numerous trade workshops as well as a Learning Zone where one could be taught how to align a light microscope from scratch, measure one's apertures and prepare a sample for SEM. As in previous years the scientific sessions took the form of a limited number of plenary lectures in a number of subject areas. EMAG contributed to a session entitled "From STEM to SuperSTEM" in which Richard Leapman from the National Institute of Health in Maryland covered the development in Scanning TEM from its inception by Albert Crewe, through to its application in Nanotechnology and Biology for the imaging and quantifying of very small numbers of atoms. This was followed a tutorial lecture on the UK aberration corrected SuperSTEM facility by Andrew Bleloch which included an extremely impressive web link-up to Daresbury Laboratories in Cheshire involving atomic resolution imaging and nanometre-scale elemental linescan analysis in real time.

## **SuperSTEM Summer School**

The first SuperSTEM Summer School was held at Daresbury Laboratories from 9<sup>th</sup> – 11<sup>th</sup> July directly following on from Microscience 2004. This was the first ever School on aberration corrected microscopy and analysis in the world and was intended to train the next generation of users of aberration corrected microscopes, which includes the SuperSTEM facility that arose, at least in part, through the efforts of the EMAG Group. Although the material covered was by its own nature extremely challenging, the School was a great success and, while initially restricted to twenty postgraduate students, it eventually attracted around 24 attendees mainly from UK Universities. In addition to introductory lectures by the SuperSTEM Team, and microscope demonstrations, a number of external speakers were also invited: Richard Leapman from NIH in the USA, Matt Murfitt from NION, Gunter Mobus from Sheffield, Crispin Hetherington from Oxford giving an overall group of around 35-40 people. Socially the attendees relaxed on the Shropshire Union Canal during a visit to Chester and enjoyed a barbecue outside the SuperSTEM facility. In addition the EMAG Annual General Meeting was held at the close of the first day of the conference. It is the intention to repeat the School in 2006.

*Rik Brydson*  
*EMAG Chairman*

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## EMS update

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We reproduce here a recent EMS Newsletter for the benefit of EMAG members not presently registered with EMS, or without email access.

### EUROPEAN MICROSCOPY SOCIETY (EMS)

Secretariat, May 19, 2003

Prof. em. dr. E. Wisse

email: eddie@wisse.be

EMS web site: <http://www.euremicsoc.org>



Dear EMS member,

With the approaching EMC 2004 congress it is important to announce several activities of EMS in this Newsletter. You can also find EMS News in the journal *Imaging & Microscopy*, website at: <http://www.imaging-git.com/> >. In this newsletter we will try to summarize several subjects such as:

1. EMC 2004 Antwerpen
2. Agenda's of the EMS General Assembly and General Council
3. FEI-EMA Awards
4. EMS Yearbook and membership address list
5. EMC 2008, candidates for hosting this congress are asked to send a letter of intent
6. Electronic voting

Many of these subjects in this newsletter can be found in greater detail on the EMS website:

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

#### **1. EMC 2004 Antwerpen**, August 22-27, 2004, website: < <http://www.EMC2004.be/> >

In a few months, from August 22 till August 27, the 13th European Microscopy Congress EMC 2004 will be held in Antwerp. The new EMC construction aims to further improve the interaction between different advanced microscopy techniques, following the change in name of the organising society itself. Nevertheless, judging from the final scientific programme and submitted abstracts, electron microscopy in all its forms remains the primary technique. At the time of writing of this report (mid April) over 900 delegates from nearly 50 different countries have already registered and submitted over 850 abstracts. At the same time the commercial exhibition (which was expanded with 16 booths in January) is booked for over 95% (present list of companies is available on the website). Since Antwerp is connected extremely well to a large part of Europe, we expect many on-site and day registrations so that the originally estimated number of 1.000 scientific delegates will easily be reached and probably even surpassed.

#### *Scientific Programme*

The entire programme is divided into three categories: Instrumentation & Methodology, Materials Sciences and Life Sciences. From the onset the aim of the Scientific Programme Committee was to have as little competing oral sessions in the classic set-up of parallel sessions. In principle, 6 sessions will run in parallel, 2 from each category.

Except for the opening session on Monday, the morning sessions will start with a plenary lecture focusing on some promising topics in microscopy for the years to come. Although the items for these plenary lectures are chosen in view of the three main categories, the speakers are selected for their ability to present their material for a wide and diverse audience from different disciplines. After the morning oral sessions, at lunch time, so-called Special Interest Lectures will be given on topics that fall outside the microscopy mainstream but that can still be expected to be of interest to a broad spectrum of researchers. After lunch a long time-slot of two hours is dedicated to the poster session which will enable the delegates to visit the posters and discuss the presented science in detail. After these poster sessions, again some oral sessions will be arranged. In principle, both morning and afternoon oral sessions consist of two invited speakers and six oral contributions.

As expected in view of recent international microscopic meetings, the Materials Sciences category received most of the abstracts, with the Instrumentation & Methodology and Life Sciences categories being close to equal. Although care had been taken, by including the suggestions of an extensive International Scientific Advisory Board, to arrange a balanced list of sessions within each category, the evolution of science again proves hard to predict. Indeed, several sessions have received a considerable amount of contributions, which lead to the splitting of some sessions into two parts. On the other hand, some sessions received very little contributions and were, wherever scientifically relevant, combined with other sessions leading to some new or adapted session titles. The final scientific programme, at least with respect to the session titles, chairs and invited speakers, is given below. This way, the Scientific Programme Committee attempts to follow the interests of the delegates as much as possible. A detailed programme is available on the EMC 2004 website.

On Sunday, a small but carefully chosen selection of courses can be followed at very low cost. Judging from the present status of registration, these choices are very successful, but registration for all courses can still be made.

#### *Proceedings*

In parallel with the organisation of the scientific programme the Abstract Handling team and Editorial Board of the proceedings is working hard to ensure that the printed proceedings as well as the CD-ROM will be available at the meeting. Please remember that, in order to ensure publication of your abstract in the proceedings, your registration fee has to be paid at the latest on June 1, 2004, the same deadline as for Intermediate registration.

#### *Commercial Exhibition*

As already mentioned, the originally reserved commercial exhibition space soon proved to be too small and an additional space for 16 more booths was added. Most of these booths were soon rented as well and only a little space is left at this time. The main part of the exhibition will be on the ground floor with the poster session and cafeteria space on the first floor directly above the exhibition hall. In the same hall also the lecture room for the Technical Lectures by selected companies will be organised. Below is the present list of exhibiting companies. A detailed floor plan will soon be available on the website.

#### *Historic Exhibition*

One of the highlights of EMC 2004 will certainly be the historic exhibition. Historic optical microscopes as well as several accessories, some dating back to early 18th century and once belonging to the personal collection of Christian Van Heurck, a friend of Roderick Zeiss and Ernst Abbe, will be on display.

#### *Travel and accommodation arrangements*

Although Antwerp is a very active and touristic city, not very many large hotels have been built downtown. For this reason, First Class, the company arranging all matters concerning registration, travel, transport, accommodation, social programme, etc. has reserved a large number of rooms at special rates in different hotels. In order to take advantage of these rates, rooms have to be booked through First Class by using the on-line or off-line accommodation forms.

One point to note in this respect is that in the coming months several large traffic works are planned in and around Antwerp. As the EMC 2004 venue is located south of the city, this should not result in any on-site problems, but delegates lodging downtown are advised to take advantage of the EMC 2004 transport services that are also handled by First Class. Reserved coaches will be available for morning and evening transport to and from the venue and stopping at designated and centralised spots close to the listed hotels downtown. Also, upon arriving to Antwerp, special care should be taken to follow the proper signs relating to the traffic works. In the weeks preceding EMC 2004 more detail on the best routes to enter Antwerp or to arrive at the Middelheim Campus of the University of Antwerp will be available at the website. Please also note that the location of the Welcome Reception and Sunday Courses on Sunday afternoon is close by, but different than the site of the actual meeting.

#### *Social Programme*

First Class is also in charge of an extensive partner programme during the meeting as well as pre- and post-congress tours. The partner programme during the meeting focuses on interesting tours downtown historic and contemporary Antwerp, while the pre- and post-congress tours are full day visits to some of the other grand cities of Flanders such as Brussels, Gent and Brugge. Also, some of the major microscopy companies will arrange evening festivities in some well-chosen locations downtown Antwerp.

## 2. Agenda of the EMS GENERAL ASSEMBLY

To be held at EMC 2004 in Antwerpen (August 22- 27, 2004), exact location to be announced at the registration desk of EMC 2004.

According to the Constitution, a General Assembly of all individual EMS members will be held during EMC 2004. The EMS is a European Society with 3,180 individual members (see below). It is important that EMS members gather, discuss and determine the framework in which they communicate and co-operate. For details on the Constitution, see the EMS web site:

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

Summary of the rules: All paid-up EMS members, including members of the Executive Board, have one vote. A quorum of 50 members is needed. The General Assembly will be chaired by the President of EMS. Decisions of the General Assembly are taken by a simple majority of votes. Two representatives of the Trade Committee have voting rights in the General Assembly.

### Agenda

1. Confirmation of the agenda of the General Assembly
2. Minutes of the General Assembly held during the EMS extension in Pula (2003), distributed by the EMS Newsletter and available at the EMS web site
3. Report on the organisation of the Brno meeting
4. Report of the President, describing the activities of the Executive Board, the committees and the EMS in the period 2000 - 2004
5. Report of the Treasurer and the auditors for the period 2000 - 2004
6. Election of two auditors for the years 2004 - 2008
7. Proposal and improvement of the budget for the period 2004 – 2008
8. Proposal and improvement of the annual fee for EMS members and corporate members
9. Approval of the statutes (changes need a 2/3 majority of votes)
10. Approval of the by-laws (need a simple majority of the votes)
11. Proposal of new candidates for the Executive Board of EMS
12. Election of the new Executive Board
13. Prospect on EMS activities
14. Any further matter to be discussed
15. Closing of the meeting

### Agenda of the GENERAL COUNCIL

Following the General Assembly, a General Council will be held with the purpose to allow representatives of national societies for microscopy in Europe to discuss and choose the next venue for the quadrannual European Microscopy Congress, EMC 2008. Because of the important role of national societies in organizing large scale microscopy meetings, this decision is a prerogative of the microscopy societies in Europe. We ask interested national societies to submit a proposal for the organization of EMC 2008. Criteria for writing a proposal are given in the by-laws of EMS.

Summary of the rules: The General Council is composed of

- i) representatives of national societies for microscopy in Europe, that have adopted (partial) en-bloc membership of EMS
- ii) the members of the Executive Board
- iii) two representatives of the Trade Committee

National societies that have less than 300 EMS-registered members have one representative with one vote. Societies with a membership over 300 have two representatives, each with one vote.

Only one society per country can send representatives to the General Council. When two societies are active in one country, the society with the largest EMS membership will be represented at the General

Council. The President of the Executive Board serves as chairman of the General Council. No valid decisions can be taken unless more than 50% of all societies are represented. Decisions of the General Council are taken by simple majority (> 50%) of votes.

#### Agenda

1. Confirmation of the agenda of this General Council
2. Confirmation of the society representatives and the Trade Committee
3. Proposals for the venue of the EMC 2008
4. Decision on the next venue
5. Conditions of the agreement between the EMS and the organisers of the EMC 2008
6. Any further matter to be discussed
7. Closing of the meeting

#### The present EMS membership (01.05.04) and representation for the General Council

<b>Country</b>	<b>EMS membership</b>	<b># Representatives</b>
		<b>General Council</b>
Armenia	5	1
Austria	70	1
Belgium	116	1
Croatia	57	1
Czech and Slovak Republic	189	1
Netherlands	498	2
France	268	1
Germany	135	1
Greece	61	1
Hungary	83	1
Ireland	30	1
Israel	213	1
Italy	250	1
Poland	68	1
Russia	8	1
Spain	160	1
Switzerland	460	2
Turkey	78	1
UK EMAG	411	2
UK RMS	22	0
Yugoslavia	0	1
<b>Total</b>	<b>3182</b>	<b>23</b>

### 3. FEI-EMA Awards

The Executive Board of EMS is happy to announce that candidatures for the FEI-EMA prizes have been received. There is one prize for the materials science and optics and one for the life sciences. These prizes will be awarded in Antwerpen during EMC 2004 for the first time. The value of each award is €5,000. EMS has composed a scientific jury which is now evaluating the applications. Awardees will present an invited lecture during the opening session of EMC 2004, the texts of which will be published in the EMS Yearbook.

### 4. EMS Yearbook and membership address lists, corrections

The past president of EMS, Peter Hawkes, is now in full swing to produce the EMS Yearbook 2004, the fourth one in a row. This book contains information about microscopy firms, products, EMS information, the addresses of EMS members, the text of invited (prize) lectures and many other items. The address information is obtained with the help of national secretaries of Societies for Microscopy in Europe. We have received corrections to the addresses in the Yearbook, to those email addresses we use for this electronic Newsletter and to the addresses used by GIT for the distribution of Imaging & Microscopy. When appropriate (for instance after reading your address in the Yearbook), it would be helpful when you use the address correction form at the EMS website, available at < [www.euremicsoc.org/chadr.html](http://www.euremicsoc.org/chadr.html) >. As mentioned above, we now have 3,180 paid-up individual

members of EMS. We will provide the national societies with the files we have assembled of the members of EMS and see whether these can be used by the societies for corrections and for their own administration.

**5. EMC 2008, candidates for hosting this congress** are asked to send a letter of intent

Although preparations for EMC 2004 are in full swing, we have to look into the future and prepare for the selection of the venue of the next EMC. Since this matter concerns the involvement of one or more national Societies for Microscopy, we ask societies interested to host the next EMC 2008 to send a letter of intent. We would very much appreciate such initiatives, because this decision has to be taken in Antwerpen, August 2004. For details concerning the procedure, have a look at the EMS website.

**6. EMS wishes to vote electronically**

The EMS Executive wants to introduce electronic voting. However, we are not familiar with software to support such function. Anybody who can help us with this lack of knowledge is kindly requested to send a message to the Secretary or any other member of the Executive.

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## ELECTRON MICROSCOPY AND ANALYSIS GROUP

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### NOMINATIONS for ELECTION to the EMAG COMMITTEE

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There are vacancies for 3 ordinary members on the EMAG committee for the forthcoming session. Accordingly, you are invited to nominate candidates as Committee Members. Both the Proposer and Secunder, who must be members of the Group, should complete the relevant sections of this form and the approval of the Nominee, who must be a member (or a Subscriber) of the Institute, should be signified by his/her signature. No person may propose or second more than one Nomination for any particular post.

Nominations should be sent directly to the Honorary Secretary to arrive before the deadline of 20th August 2004. The Group Committee may make further Nominations before the postal ballot forms are circulated in August.

**COMMITTEE POST:** \_\_\_\_\_

Nominee: Name \_\_\_\_\_ (Signature \_\_\_\_\_)  
IoP Membership Grade \_\_\_\_\_  
Address \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Proposer: Name \_\_\_\_\_ (Signature \_\_\_\_\_)  
IoP Membership Grade \_\_\_\_\_  
Address \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Secunder: Name \_\_\_\_\_ (Signature \_\_\_\_\_)  
IoP Membership Grade \_\_\_\_\_  
Address \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

*When completed, this form should be sent to:*

Dr Paul D Brown  
Honorary Secretary - EMAG  
c/o School of Mechanical, Materials and Manufacturing Engineering  
University of Nottingham  
University Park  
Nottingham  
NG7 2RD

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## FUTURE MEETINGS OF INTEREST

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**1 - 5 August 2004**

**Microscopy and Microanalysis 2004**, Savannah, Georgia

<http://www.MSA.microscopy.com/>

**22 – 27 August 2004**

**13th European Microscopy Congress, EMC 2004**

University of Antwerp, RUCA campus, Belgium

<http://www.emc2004.be/>

**1 - 3 September 2004**

**28th Annual Meeting of the Microscopy Society of Ireland**, Trinity College Dublin, Ireland

<http://www.nuigalway.ie/msi/symposium.htm>

**06 - 09 September 2004**

**Photon04**, Glasgow

<http://www.photon04.org/index.htm>

**19 - 22 September 2004**

**Micro- and Nano-Engineering 2004**, Rotterdam, The Netherlands

<http://www.mne04.org/>

**29 September 2004**

**60 years of UK Transmission Electron Microscopy**, Rothamsted Research, Harpenden

<http://www.rothamsted.bbsrc.ac.uk/Research/TEMProg.html>

**19 - 21 November 2004**

**IoP Young Physicists' Conference**, Glasgow

**February 2005** (date to be confirmed)

**EMAG one day meeting on Modelling**, IoP, London

**5 - 9 June 2005**

**12th International Conference on Electron Microscopy of Solids**, Kazmirierz Dolny, Poland

[katcki@ite.waw.pl](mailto:katcki@ite.waw.pl)

**31 July - 4 August 2005**

**Microscopy & Microanalysis-2005**, Honolulu, HI

<http://www.MSA.microscopy.com/>

**31<sup>st</sup> August – 2<sup>nd</sup> September 2005**

**EMAG-NANO 2005**, University of Leeds

**6 - 10 August 2006**

**Microscopy & Microanalysis-2006**, Chicago, IL, USA

<http://www.MSA.microscopy.com/>

**3 - 8 September 2006**

**16th International Microscopy Congress**, Sapporo, Japan

<http://www.imc16.jp>

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## ELECTRON MICROSCOPY AND ANALYSIS GROUP

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### Contact Points

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- IoP:** Institute of Physics, Conference Dept., 76 Portland Place, London, W1N 4AA.  
Tel: +44 171 470 4800, Fax: +44 171 470 4900  
Email: [conferences@iop.org](mailto:conferences@iop.org)  
<http://www.iop.org/IOP/Confs/>
- MRS:** Materials Research Society, 9800 McKnight Road, Pittsburgh,  
PA 15237, USA.  
Tel: +1 412 779 3003, Fax: +1 412 779 8313  
<http://www.mrs.org/meetings/>
- MSA:** Microscopy Society of America, 4 Barlows Landing Road, Suite 8, Pocasset,  
MA 02559, USA.  
Tel: +1 508 563 1155, Fax: +1 508 563 1211  
<http://www.MSA.microscopy.com/>
- RMS:** Royal Microscopical Society, 37/38 St. Clements, Oxford, OX4 1AJ.  
Tel: +44 1865 248 768 Fax: +44 1865 791 237  
Email: [meetings@rms.org.uk](mailto:meetings@rms.org.uk) <http://www.rms.org.uk/events/>

## EMAG BURSARY APPLICATION FORM

<b>PERSONAL DETAILS</b>			
<b>Name</b>		<b>Email</b>	
<b>Address</b>			
<b>Title</b>		<b>Age</b>	
<b>IoP/EMAG Member</b>	Yes / No	<b>IOP Number</b>	Applying for Membership
<b>Current Status</b>	FT Student	Postdoc	Other - specify

<b>CONFERENCE DETAILS</b>		
<b>Name of Meeting</b>		
<b>Date of Meeting</b>		
<b>Place of Meeting</b>		
<b>Title of Paper/Poster</b>		
<b>Has paper been accepted for presentation?</b>	Yes	Don't know yet

<b>SHORT COURSE DETAILS</b>	
<b>Title of Course</b>	
<b>Date of Course</b>	
<b>Place of Course</b>	

<b>FINANCIAL DETAILS</b>		
<b>Estimated Expenditure</b>	<b>Registration Fee</b>	
	<b>Travel Costs</b>	
	<b>Accommodation</b>	
	<b>Subsistence</b>	
	<b>Total</b>	<b>£</b>

<b>Have you been promised a contribution towards your funding from any other sources?</b>	Yes / No
<b>If so, please specify the source and the amount they are prepared to contribute</b>	

<b>Have you received an EMAG bursary within the last 12 months?</b>	Yes / No
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<b>SIGNATURE</b>		<b>DATE</b>	
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Please send completed form and

- a letter of support from your academic supervisor and
- a copy of your paper abstract (if applicable)

to : Dr David McComb, Department of Materials, Imperial College London, Exhibition Road, London SW7 2AZ. (Email: d.mccomb@imperial.ac.uk )