



15th European Microscopy Congress

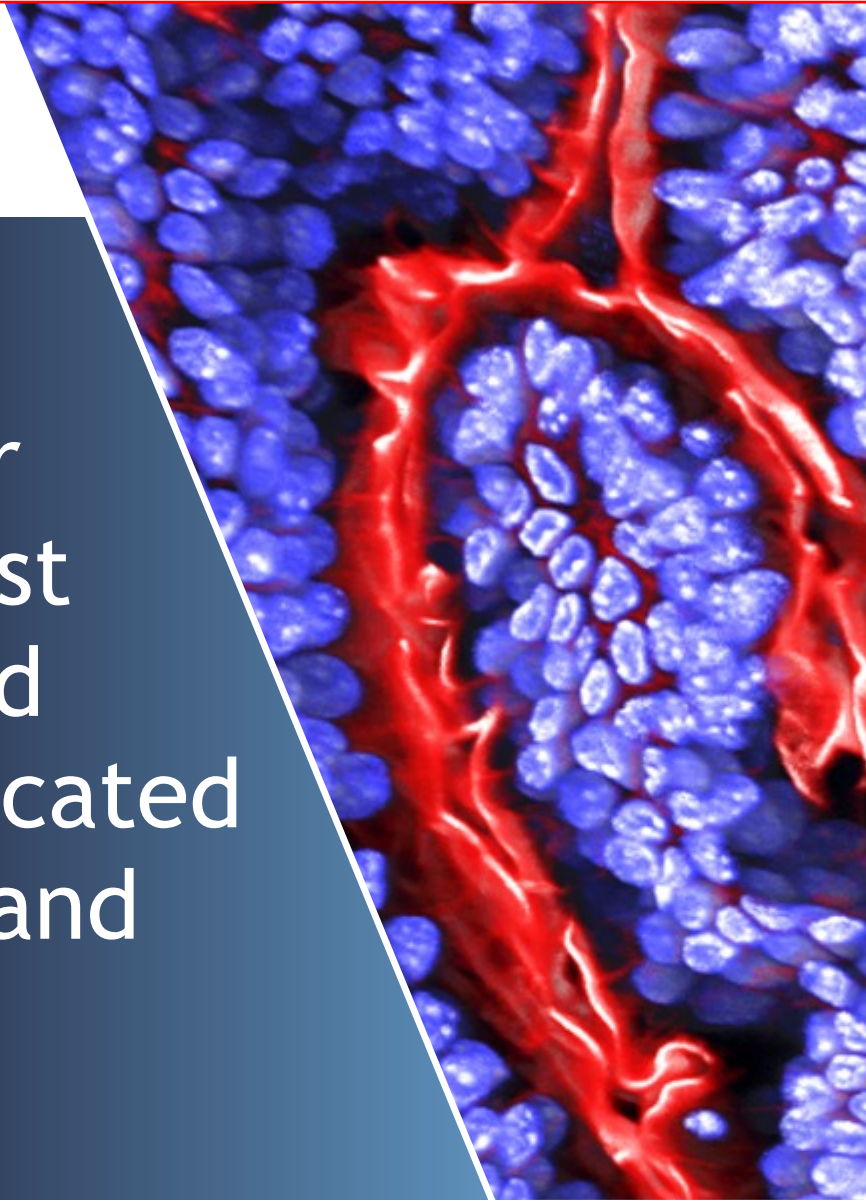
16th - 21st September 2012, Manchester, UK

Second circular

www.emc2012.org.uk



“Join us in Manchester for Europe’s largest conference and exhibition dedicated to microscopy and analysis.”



The 15th European Microscopy Congress will be Europe’s largest ever event dedicated to microscopy and imaging.

emc2012 will include an international conference comprising over 60 sessions within four symposia, an exhibition with over 100 companies, plus a programme of workshops, training opportunities, and a busy social programme.

The breadth of the scientific programme - which embraces light and electron microscopy and spectroscopy across both the life and physical sciences, along with scanning probe and flow cytometry techniques - provides an unparalleled opportunity for delegates. Not only will they be able to immerse themselves in their

own area of interest, but they will also be exposed to a range of new techniques and tools that might benefit their current work, or that could feature in their careers in the future.

Anyone who is active in microscopy and related techniques should find sessions of interest, and I encourage you to study the programme and to identify the ones that can help to further your career. This event happens only every four years, so

take advantage of the opportunity: Register today, and play an active part in making emc2012 a success.

Dr Debbie Stokes
emc2012 Conference Chair

Life Sciences: Applications

Symposium Chair: Dr Peter O'Toole

LS1.1: Organelle dynamics

Session co-organisers: Jon Lane, Viki Allan, Judith Klumperman

Membrane organelles are not static structures. They are constantly remodelled, they exchange content through carrier intermediates, and they can alter location and orientation to meet the changing demands of the cell. Understanding how organelle dynamics are coordinated in cells remains a key objective. This session will showcase recent advances in our understanding of organelle dynamics, including the roles of cytoskeletal motors in organelle positioning and transport.

Confirmed Invited Speakers

Gillian Griffiths - CIMR, Cambridge, UK
Gero Steinberg - University of Exeter, UK
Viki Allan - University of Manchester, UK
Anna Akhmanova - University of Utrecht, NL

LS1.2: Biology of the cell nucleus

Session co-organisers: Jason Swedlow, Pavel Hozak, John Runions

The cell nucleus serves multiple functions ranging from DNA replication, DNA damage repair and genome stability to gene expression control. These functions during cell proliferation and differentiation are linked to the dynamic organization of nuclear structure, including the nuclear envelope and lamina, nuclear pores, nucleoskeleton, nucleolus and other subnuclear organelles, and to higher order chromatin organization. The session will present important new findings on the nucleus, especially dealing with nuclear dynamics and molecular imaging as observed by all advanced microscopies. New methods important for research on the nucleus can be also presented.

Confirmed Invited Speakers

Christina Flors - IMDEA, ES
Paul Franz - Nuclear Organisation Group, NL
David Stanek - Academy of Sciences of the Czech Republic, CZ
Bill Earnshaw - Wellcome Centre for Cell Biology, University of Edinburgh, UK

LS1.3: Cytoskeleton and signalling

Session co-organisers: Klemens Rottner, Claire Wells

This session is sponsored by the German Society of Cell Biology.

The Cytoskeleton and Signalling session aims to highlight both technical developments at high resolution and novel applications that are being utilised to study cytoskeletal dynamics and/or cytoskeletal-associated

signalling events. Contributions to this session are solicited from any area of research, human or animal, that is focussed on interrogating the cytoskeleton.

Confirmed Invited Speakers

Klemens Rottner - University of Bonn, DE
Julie Plastino - Institut Curie, FR
Justin Molloy - MRC National Institute for Medical Research, UK
Robert Goldman - Northwestern University, US

LS1.4: Imaging brain structure and function across different spatial and temporal scales

Session co-organisers: Angus Silver, David DiGregorio, Zoltan Nusser

Brain function is poorly understood. A key reason for this is that it is difficult to study the underlying mechanisms because they occur across a wide range of spatial and temporal scales. Here we focus on the development and application new imaging methods for studying synaptic neuronal and network function. This 2.5 day symposium will bring together leading experts, who will present their latest studies covering areas including the molecular properties of synapses (synaptotomics), dendritic integration in neurons, in vivo functional imaging of neural populations and large scale connectivity (connectomics).

Contributions covering the applications of microscopy in this field, as well as developments in instrumentation and techniques, are strongly encouraged.

Confirmed Invited Speakers

Synaptic structure function
Zoltan Nusser - Hungarian Academy of Sciences, HU
Valentin Nägerl - University of Bordeaux, FR
Jason Rothman - UCL, UK
Axel T Brunger - Stanford University, US
Stephen Smith - Stanford University, US

Neuronal function

David DiGregorio - Pasteur Institute, FR
Thomas Nevian - University of Bern, CH
Judith Makara - Hungarian Academy of Sciences, HU
Nathalie Rochefort - TU, DE

Networks: structure to function

Troy Margrie - MRC National Institute for Medical Research, UK
Angus Silver - University College London, UK
Thomas Mrsic-Flogel, University College London, UK

LS1.5: Uninvited Guests: visualising host-pathogen interactions

Session co-organisers: Spencer Shorte, Pippa Hawes, Cristina Risco

This session is sponsored by the Society for General Microbiology (SGM).

Recent advances in imaging technology have given researchers the freedom to investigate host-pathogen interactions in novel and

imaginative ways. The development of new reagents for the study of cell biology has produced exciting results and cemented microscopy as one of the most important techniques in the study of pathogens, both *in vitro* and *in vivo*. The purpose of this symposium is to showcase state-of-the-art microscopical techniques currently being used in the study of pathogen structure, entry, replication, egress and spread.

Confirmed Invited Speakers

Abraham Minsky - The Weizmann Institute of Science, IL
Nolwenn Jouvenet - Pasteur Institute, FR
Michael Way - Cancer Research UK
Winfried Weissenhorn - EMBL, FR
Kay Grunewald - Henry Wellcome Building for Genomic Medicine, UK
Friedrich Frischknecht - University of Heidelberg, DE

LS1.6: Imaging and flow cytometry in cancer biology

Session co-organisers: Andy Riddell, Janet Fisher, Derek Davies, Ian Tittley

Imaging and flow cytometry are well established and widely used technologies that have an important role to play in many areas of biology and biomedical research. This is particularly true in the study of cancer: cell development, cell-cell interactions, cell proliferation and cell death. Recent advances combining flow and substrate-based cytometry, the emergence of high-throughput and high-content analysis systems and the ability to image and quantitate fluorescence from individual single cells in flow have increased our understanding of cancer cell biology and have led to improvements in drug targeting, delivery and monitoring. This session will encompass these advanced cytometric techniques.

Confirmed Invited Speakers

Paul Smith - Cardiff University, UK
Margaret Harnett - University of Glasgow, UK
Daniel J Ehrlich - Boston University, US
Chris Bakal - Inst. of Cancer Research, UK

LS1.7: *in vivo* imaging of multicellular dynamics and complexity (Applications)

Session co-organisers: Theresa Ward, Yosef Gruenbaum, Nick Read

This session is sponsored by Caliper / Perkin Elmer.

in vivo imaging is an exciting and emerging subject within various aspects of cell biology, developmental biology and pathology. A range of new and old techniques is able to capture the 3D organization, dynamics and multicellular complexity of living organisms. This session aims to highlight both technical developments in this field and novel biological applications in diverse areas of *in vivo* imaging. Contributions to the sessions on *in vivo* imaging are solicited from any area of research on humans or model systems, where *in vivo* imaging techniques

are being applied to analyse their biology at the multicellular level.

Contributions to this session should focus on applications.

Confirmed Invited Speakers

Benjamin Poddilewicz - Technion, Israel
Institute of Technology, IL
James Brewer - University of Glasgow, UK
Abigail Woodfin - Queen Mary University of London, UK

LS2.2: Applications and advances in high content imaging

Session co-organisers: Gabor Csucs, Rainer Pepperkok, Steve Briddon

High content imaging involves automated collection and analysis of images to provide quantitative data on a range of functional and morphological changes in cells. It has become widely used as a tool for, amongst other things, screening of drug candidates, fragments and RNAi. This symposium welcomes contributions which cover advances in both image collection and analysis in high content imaging, as well as new applications for this approach.

Confirmed Invited Speakers

Christian Conrad - EMBL, DE
Robin Ketteler - UCL, UK

LS2.3: Probes for light and electron microscopy

Session co-organisers: Paul Verkade, Carsten Schultz

This session is sponsored by FEI.

The availability of Green Fluorescent Protein (GFP) to specifically mark proteins has revolutionised life science light microscopy. Likewise gold particles have been an invaluable tool for localization studies in electron microscopy for decades. Probes are therefore a crucial part of almost any microscopy technology. Improvements to existing probes and the development of new ones give us even greater opportunities. In this session we will highlight the current state of the art of what is possible with these new and upcoming and well-established probes for both light and electron microscopy.

Confirmed Invited Speakers

Andreas Hoenger - University of Colorado, US
Mark Ellisman - National Centre for Microscopy and Imaging Research, US

LS2.4: 3D Image processing (3D microscopy, 3D image analysis and developmental imaging)

Session co-organisers: Roland Fleck, Jiri Janacek

Two sessions will tackle the challenges of image processing in dynamic (living) and 3D systems. The new insight into systems biology offered by 3D visualisation of the building blocks of life are key to advancing our understanding of how living systems work. These visualisation challenges are at the basic structural units which assemble to form organelle through to the functional interactions between complex tissues in whole organisms. Microscopy plays a critical role in these studies, however, the processing of the images/ data generated is increasingly important in understanding these systems.

Session 1 will consider electron microscopy and 3D image analysis of spatial structures.

Session 2 will consider optical imaging solutions which offer news insight into complex multicellular systems.

Confirmed Invited Speakers

Marin van Heel - Imperial College London, UK
Rainer Heintzmann - Kings College London, UK
Alberto Diaspro - Istituto Italiano di Tecnologia, IT

LS2.5: 3-D electron microscopy of structure-function studies

Session co-organisers: Sue Vaughan, Ashraf Al-Moudi, Thomas Muller-Reichert

Confirmed Invited Speakers

Benoit Zuber - University of Berne, CH
Thomas Muller-Reichert - TU Dresden, DE

LS2.6: Emerging and late breaking topics in Life Sciences

Session co-organisers: Peter O'Toole, Timo Zimmermann

This session has two purposes. It is initially intended for emerging topics that may not match directly to other sessions. The abstract deadline remains the same as for the regular sessions, and papers will be considered for poster presentation only in the first instance. Papers are encouraged for both applied and tools and techniques-based work.

The session will then remain open for late breaking submissions through to August 2012. Many of the latter submissions will be also assigned as poster presentations. A limited number of papers will be selected for oral presentation.

LS2.8: *in vivo* imaging of multicellular dynamics and complexity (Techniques)

Session co-organisers: Theresa Ward, Yosef Gruenbaum, Nick Read

in vivo imaging is an exciting and emerging subject within various aspects of cell biology, developmental biology and pathology. A range of new and old techniques is able to capture the 3D organization, dynamics and multicellular complexity of living organisms. This session aims to highlight both technical developments in this field and novel biological applications in diverse areas of *in vivo* imaging. Contributions to the sessions on *in vivo* imaging are solicited from any area of research on humans or model systems, where *in vivo* imaging techniques are being applied to analyse their biology at the multicellular level.

Contributions to this session should focus on tools and techniques.

Confirmed Invited Speakers

Michal Neeman - The Weizmann Institute of Science, IL
Mark Coles - University of York, UK
Jim Haseloff - University of Cambridge, UK

Life Sciences: Tools and techniques

Symposium Chair: Prof. Tony Wilson

LS2.1: Super-resolution fluorescence microscopy for life sciences

Session co-organisers: Mark Bates, Michelle Peckham

This session is sponsored by Hamamatsu.

Fluorescence microscopy, a powerful tool for the study of cell and molecular biology, has undergone a period of rapid development in recent years. New concepts for optical imaging with nanometer-scale spatial resolution have led to new opportunities for the observation of biological ultrastructure. In general, these methods rely on a number of photophysical or photochemical mechanisms by which fluorescent probes may be converted between a detectable "on" state and a non-detectable "off" state, either at spatially well-defined regions of the sample (e.g. the STED method) or in a stochastic manner through the detection of photo-switchable single molecules (e.g. the PALM/STORM method). This session will highlight recent technical advances in super-resolution fluorescence microscopy, and will also focus on applications of these methods to biological imaging.

Confirmed Invited Speakers

Mark Cannell - University of Bristol, UK
Andreas Schoenle - GWDG, DE
Melike Lakadamyali - The Institute of Photonic Sciences, ES
Mark Bates - Max Planck Institute, DE

Physical Sciences: Applications

Symposium Chair: Prof. Mark Rainforth

PS1.1: Functional materials

Session co-organisers: David McComb, Wolfgang Jaeger, Etienne Snoeck

Understanding the synthesis-structure-property relationships and the precise control of microstructure and interfaces are of fundamental importance for novel functional materials and their technological applications. Advanced high-resolution imaging and spectroscopic techniques of electron microscopy play a key role in characterizing and quantifying these properties. The symposium invites contributions describing current research on novel functional materials, including:

- Magnetic materials and data storage
- Ferroelectric and multiferroic materials
- Plasmonic materials
- Metamaterials
- Ceramic and composite materials
- Electronic and spintronic materials
- Photonic materials
- Polymeric materials
- Biological materials and hybrid systems

Confirmed Invited Speakers

Susanne Stemmer - University of California, US
Joachim Loos - University of Glasgow, UK
Axel Lubk - Technische University, Dresden, DE
Amanda Petford-Long - Argonne National Laboratory, US

PS1.2: Thin films, coatings and interfaces

Session co-organisers: Gustaf Van Tendeloo, Aleksandra Czyrska-Filemonowicz

The session highlights recent achievements in the field of thin films, coatings and interfaces studied by various microscopic techniques (electron, light and probe microscopy). The goal of this session is to provide information on the relationship between microstructure, properties and processing of thin films, coatings and interfaces in different material systems. Particular attention will be focused to:

- quantitative analysis of atom configuration at interfaces
- characterisation of chemical composition at interfaces (by STEM-HAADF, high spatial resolution EDX EELS or EFTEM)
- *in-situ* observations of structural modifications at interfaces
- interfaces between dissimilar materials, e.g. organic/inorganic
- microstructural investigation of thin films and coatings for technological applications by different microscopy techniques

Confirmed Invited Speakers

Beata Dubiel - Akademia Gorniczko-Hutnicza, PL
Stuart Turner - University of Antwerp, BE

PS1.3: Art, heritage and forensics

Session co-organisers: Nick Schryvers, Philippe Sciau

We expect contributions in the fields of cultural heritage such as Archaeology and Fine Arts as well as Forensics, the latter not limited to criminal or medical examples. The type of materials or objects is virtually unlimited (metals, ceramics, glasses, textiles, paper, natural materials, paintings, sculptures, ...). In the field of Forensics, Conservation/Restoration and Palaeontology, contributions including biological examples (bugs, fungi, ...) are encouraged. This session provides an excellent opportunity to submit results obtained with a large variety of different microscopy techniques. Advances in sample preparation are also welcomed.

Confirmed Invited Speakers

Florian Meirer - Fondazione Bruno Kessler, IT
Peter Northover - University of Oxford, UK

PS1.4: Advanced materials

Session co-organisers: Rebecca Higginson, Miran Ceh

Microscopy is critical in the development of new and advanced materials for today's society. This session will consider the use of microscopy as a research tool in materials science and engineering covering areas from advanced material structures to material defects. This session includes all materials groups; metals and alloys; ceramics and polymeric materials, in various morphological forms (bulk, powders, layered structures, nanotubes, nanorods, etc.) where a range of microscopical techniques have been utilised in their study and development.

Confirmed Invited Speakers

Dorte Juul Jensen - Technical University of Denmark, DK
Mark Aindow - University of Connecticut, US
Erdmann Spiecker - Friedrich-Alexander-Universität, DE
Velimir Radmilović - University of Belgrade, RR

PS1.5: Healthcare I (multidisciplinary)

Session co-organisers: Paul Brown, Aldo Boccaccini, Etienne Bres, Roland Kroger, Rik Brydson

This session involves the application of electron and other related correlative microscopies to the areas of -

- Nanotoxicology
- Drug delivery
- Emerging Techniques
- Implants
- Magnetic nanoparticles for diagnosis and therapy
- Therapeutic materials i.e microscopy of medicine

Confirmed Invited Speakers

Bill Jones - Uni. of Cambridge, UK
Alexandra Porter - Imperial College London, UK

Clive Roberts - Nottingham Nanotechnology and Nanoscience Centre, UK
 Marco Cantoni - EPFL-CiMe, FR
 Nigel Browning - Uni. of California, US

PS1.6: Healthcare II (multidisciplinary)

Session co-organisers: Paul Brown, Aldo Boccaccini, Etienne Bres, Roland Kroger, Rik Brydson

This session involves the application of electron and other related correlative microscopies to the areas of -

- Biomaterials
- Biomineralisation
- Hard/soft interfaces
- Soft/soft interfaces
- Tissue engineering
- Scaffolds
- Bioactive and functionalised surfaces, biomolecule-biomaterial interactions

Confirmed Invited Speakers

Jonathan Powell - MRC Laboratory of Molecular Biology, Cambridge, UK
 Nico Sommerdijk - TUE Eindhoven, NL
 Jean Michel - University of Reims, FR

PS1.7: Nanomechanics

Session co-organisers: Asa Barber, Gerhard Dehm

Nanomechanical studies depend on a range of microscopy techniques to record and observe sample response to external loading. This nanomechanics session will highlight recent developments in microscopy techniques and their application in understanding the mechanical behaviour of materials, both natural and synthetic, at nanometre length scales. In particular, the development of novel microscopy and combinations of microscopy techniques as well as the application of nanomechanical investigations to novel materials and phenomena are encouraged.

Confirmed Invited Speakers

Paul Zaslansky - Max Planck, DE
 Cynthia Volkert - Goettingen University, DE

PS1.8: Towards sustainable energy and environmental protection

Session co-organisers: Richard Baker, Jose Calvino, Ferdinand Hofer

Realising the goals of sustainable development and improved environmental protection will require the design and preparation of novel materials in which the influence of synthetic methods and processing procedures on their nanostructure and atomic scale composition must be carefully controlled and understood on a fundamental level. Electron Microscopy will be central not only to providing direct proof of the success of the synthetic goals but also to elucidate correlations between structure, synthetic method, processing parameters and ultimate performance. This symposium aims to present innovative and state-of-the-art contributions in which Electron Microscopy and allied techniques are applied to the characterisation of

structural and functional materials for alternative energy sources, for the control and abatement of pollution and for new, greener, industrial processes.

Confirmed Invited Speakers

Pratibha L. Gai - University of York, UK
 Stig Helveg - Haldor Topsoe, DK
 Ying Shirley Meng - UC San Diego, US

PS1.9: Earth and planetary materials

Session organiser: Martin Lee

The rocks and minerals that make up the terrestrial planets, asteroids, and comets, present considerable challenges to characterisation and interpretation owing to their fine-scale variability in chemical compositions and microstructures coupled with their commonplace electron beam sensitivity. However the rapid developments in techniques including focused ion beam milling, electron backscatter diffraction, SEM, TEM, and X-ray microanalysis, have now provided us with a wealth of opportunities for understanding the properties and histories of natural materials with a detail and clarity not previously possible. This symposium welcomes contributions highlighting exciting and novel applications of these techniques to fields including geology, mineralogy, meteoritics, and environmental science.

Confirmed Invited Speakers

Penelope Wozniakiewicz - LLNL, US
 Patrick Orr - University College Dublin, IE

PS1.10: Low dimensional materials

Session co-organisers: Ursel Bangert, Jeremy Sloan, Reine Wallenberg

Materials, which are restricted in one, two or even three dimensions are playing an ever increasing role in electronics, optoelectronics, photonics, biology and medicine, due to their unusual physical properties, which can be tailored with controlled restraining of the dimensions.

Advanced high-resolution imaging and spectroscopy techniques are central to providing direct proof of the atomic-scale structure, which plays a key role in determining the specific properties of low-dimensional structures.

The symposium invites contributions describing current research on novel low dimensional materials, including:

- Nano-carbons, including graphene
- Nano-wires and -rods
- Quantum-wells and -dots
- Macromolecules

Confirmed Invited Speakers

Jamie Warner - University of Oxford, UK
 Valeria Nicolosi - Trinity College Dublin, IE
 Reine Wallenberg - Lund University, SE
 Quentin Ramasse - Lawrence Berkeley National Laboratory, US

Physical Sciences: Tools and Techniques

Symposium Chair: Dr John Hutchison

PS2.1: Advances in Scanning Probe Microscopy: applications at the nanoscale

Session co-organisers: Terry McMaster, Markus Morgenstern, Peter Hinterdorfer

Scanning probe microscopes probe various physical properties as, e.g., electronic wave functions, force fields or magnetic domains routinely down to the atomic scale. Recent developments concentrate on improving resolution, e.g., temporal resolution down to the relevant time scales, adapting microscopes for novel materials classes as, e.g. biological molecules, or probing novel properties. The session will cover the most recent developments in scanning probe microscopy with some emphasis on the technical aspects of implementation.

Confirmed Invited Speakers

Sebastian Loth - Max Planck (MPSD), DE
 Jascha Repp - University of Regensburg, DE
 Mervyn Miles - University of Bristol, UK
 Bruno Samori - University of Bologna, IT
 Olaf Magnussen - University of Kiel, DE
 Simon Scheuring - Institut Curie, FR

PS2.2: Advances in Scanning Electron Microscopy

Session co-organisers: Ed Boyes, Stefan Zaefferer

This session is sponsored by Hitachi High Technologies Europe GmbH.

The scanning electron microscope (SEM) is a well-established instrument for the observation of surfaces and quantitative chemical and crystallographic analysis of near-surface material. Despite its established character SEM continues to see very exciting developments which opens new fields in materials characterization. This includes improved spatial resolution, low voltage observation and x-ray spectroscopy, energy-sensitive electron detectors, environmental microscopy, 3D materials characterization and application of advanced diffraction techniques. We invite contributions to all of these fields.

Confirmed Invited Speakers

Ludek Frank - Academy of Sciences of the Czech Republic, CZ
 Stefan Zaefferer - Max-Planck Institute, DE
 John Mansfield - University of Michigan, US
 Mitsugu Sato - Hitachi, JP

PS2.3: in situ and environmental EM

Session co-organisers: Eva Olsson, Thomas Willum Hansen, Suzanne Giorgio

In situ and environmental electron microscopy enables the direct correlation between microstructure and materials properties. Investigations can be carried out at different length scales, ranging from the micro- to the atomic scale. Correlative microscopy, where different analysis techniques are combined to extend both length and time scales, further expands the information volume that can be extracted. This session addresses both in situ and environmental studies and the associated method and technique developments that open new possibilities for both fundamental understanding of materials, design of new materials with tailored properties and new applications. Various aspects of heating, cooling, gas treatments, electron beam induced deposition, sculpting and characterization of properties etc. within the microscope will be covered.

Confirmed Invited Speakers

Peter Crozier - Arizona State University, US
Henny Zandbergen - TU Delft, NL
Stephan Hofmann - University of Cambridge, UK

PS2.4: 3D/4D imaging

Session co-organisers: Guenter Moebus, Christian Keubel

Introducing higher dimensions into microscopy in the widest possible sense is at the core of this session. Methods and applications of 3D imaging will comprise tomographic reconstruction schemes to achieve 3D volume representations, and furthermore include non-tomographic 3D techniques, whether based on diffraction, low-depth of focus, or various slicing schemes. The session extends over all radiations and instrumentations with a focus on nanoscale resolutions. Examples could be X-ray/synchrotron techniques, electron microscopy, focused-ion beam, and field-ion atom probe techniques. Cross-disciplinary applications will complement methodology, ranging from inorganic materials science, over polymer structures, to the great variety of nanoobjects, including particles, rods, porous materials and nano-composites. The fourth dimension aspect of the session invites contributions beyond volume reconstructions, to possibly include time-domain or spectroscopic energy domain as a fourth coordinate. Chemical Mapping tomography is one main aspect, whether by analytical TEM or by Atom Probe, or X-ray absorption, while tomography of dynamic processes could be the second major topic.

Confirmed Invited Speakers

Nestor Zaluzec - Argonne National Laboratory, US
Simo Huotari - ESRF, Grenoble, FR
Sara Bals - University of Antwerp, BE
Frank Muecklich - Saarland University, DE

PS2.5: Advances in EM instrumentation and methods (Professor David Cockayne Memorial Symposium)

Session co-organisers: Peter Nellist, Joachim Mayer, Max Haider, Sarah Haigh

This session is sponsored by the Electron Microscopy and Analysis Group (EMAG), IOP Institute of Physics

Recent years have seen rapid developments in electron microscope instruments, in particular in the areas of aberration correctors, monochromators, high brightness guns, enhanced analytical performance, new detectors and phase plates. Combined with parallel advances in quantification, modelling and image processing, these developments have had a significant impact on the quality of the resultant data, with unprecedented spatial and energy resolutions being achieved. This session will seek to review the latest results and to explore the challenges and opportunities that arise in the use of such new instrumentation and methods.

Confirmed Invited Speakers

Joachim Zach - CEOS GmbH, DE
Ondrej Krivanek FRS - Nion Company, US
Sandra Van Aert - University of Antwerp, BE
Fabrizio Carbone - EPFL (Lausanne), CH
Ute Kaiser - University of Ulm, DE
Peng Wang - University of Oxford, UK

PS2.6: Electron diffraction and crystallography

Session co-organisers: Angus Kirkland, Damien Jacob

The session concentrates on electron diffraction applications to electron crystallography. It will highlight recent developments in the analysis of diffracted intensities for structural characterisation at the nanoscale. This session will include developments in, and applications of Convergent Beam Electron Diffraction (CBED), Nano Beam Diffraction (NBD), Precession Electron Diffraction (PED) and time resolved electron diffraction. Contributions dealing with diffraction methods, theory or modelling as well as applications in the physical and life sciences are welcomed.

Confirmed Invited Speakers

Jim Zuo - University of Illinois, US
Joke Hadermann - University of Antwerp, BE

PS2.8: Advances in ion microscopy

Session co-organisers: Beverley Inkson, Stefano Frabboni, Paul Alkemade

Ion beam microscopy is currently undergoing a rapid and exciting expansion of applications and new instrumentation. This symposium is aimed at Advances in Ion Microscopy, including focused Ga and He ion beams (FIB), secondary ion mass spectrometry (SIMS) and other novel ion sources. Contributions to the symposium are

particularly solicited in the areas of novel techniques, 3D FIB tomography and chemical analysis, micromachining and specimen preparation, nanomanufacture, nanopatterning and FIB analysis of biomaterials. This session should be an excellent opportunity for discussing developments and networking within the ion microscopy community.

Confirmed Invited Speakers

Diederik Maas - TNO Delft, NL
Daniel Pickard - National University of Singapore, SG
Ivo Utke - EMPA, CH
Bruno Humbel - University of Lausanne, CH

PS2.9: Emerging and late breaking topics in Physical Sciences

Session co-organisers: John Hutchison, Rafal Dunin-Borkowski

This session has two purposes. It is initially intended for emerging topics that may not match directly to other sessions. The abstract deadline remains the same as for the regular sessions, and papers will be considered for poster presentation only in the first instance. Papers are encouraged for both applied and tools and techniques-based work.

The session will then remain open for late breaking submissions through to August 2012. Many of the latter submissions will be also assigned as poster presentations. A limited number of papers will be selected for oral presentation.



emc2012
manchester
european microscopy congress

The 15th European Microscopy Congress is organised by the Royal Microscopical Society in co-operation with the European Microscopy Society, under the auspices of the International Federation of Societies for Microscopy.

IFSM



Conference sessions sponsored by

IOP Institute of Physics
Electron Microscopy and
Analysis Group



Society for general
Microbiology
www.sgm.ac.uk

HAMAMATSU
PHOTON IS OUR BUSINESS

 **FEI COMPANY**
TOOLS FOR NANOTECH

HITACHI
Inspire the Next


PerkinElmer
For the Better