

# Microscopy Conference MC 2011

28 August – 02 September 2011 • Kiel, Germany

[www.mc2011.de](http://www.mc2011.de)

## Event Report WebL

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Scientists and manufacturers from all over the world met in Kiel, Germany for 6 days, from August 28th to September 2nd, 2011, during the international Microscopy Conference 2011 and shared a week of lively exchange about the latest developments in Instrumentation and Methods and current topics in Materials Science and Life Science. The congress venue was the Christian-Albrechts-Universität zu Kiel, one of the leading universities in Germany.



Electron microscopy is one of the key techniques for the deeper understanding of materials and life. Aberration-corrected electron optics brings the resolution in electron microscopy to its theoretical limits and has opened up a new dimension for materials research. Due to these developments electron microscopes are now available for research in materials science and life sciences that allow imaging and investigating the nanoworld around us on scales that are not met by any other method. The present world record of image resolution in electron microscopy is 50 picometers, a distance between two objects which is inconceivably small but a handy length scale to describe the fascinating nanoworld of materials and life. Consequently, our colleagues Professor Maximilian Haider, now entrepreneur and Managing Director of CEOS in Heidelberg, a company that meanwhile has become the world's leading manufacturer of correctors for electron microscopes, Harald Rose, Professor at the Technical University Darmstadt, and Knut Urban, Professor at the Research Center Jülich, received numerous awards and, quite recently, have been awarded the renowned Wolf Research Prize in Physics in the Knesset. Also in 2011, the most prestigious prize of the Microscopy Society of America MSA, the Distinguished Scientist Award for Physical Sciences, has been awarded to our colleague Hannes Lichte, Professor at the TU Dresden. It is an honour and has been a particular pleasure to have our colleagues with us at the Microscopy Conference MC2011 in Kiel as speakers and as symposia organisers, together with many more distinguished fellow scientists and guests of honour.

930 participants, among those 140 student participants, attended the conference. The congress, chaired by Prof. Wolfgang Jäger (Institute for Materials Science, Kiel University), was organized by the German Society for Electron Microscopy (DGE), for the first time in collaboration with the European

Microscopy Society (EMS), the Nordic Microscopy Society (SCANDEM), the Polish Microscopy Society (PTMi), and with scientists from research Institutions in Estonia, Latvia, Lithuania, and St. Petersburg, Russia. The congress was actively supported by the Helmholtz-Zentrum Geesthacht Center for Materials and Coastal Research, by the Fraunhofer-Institute for Silicon Technology, and by Conventus Congressmanagement & Marketing GmbH (Jena, Germany) as professional conference organizer.

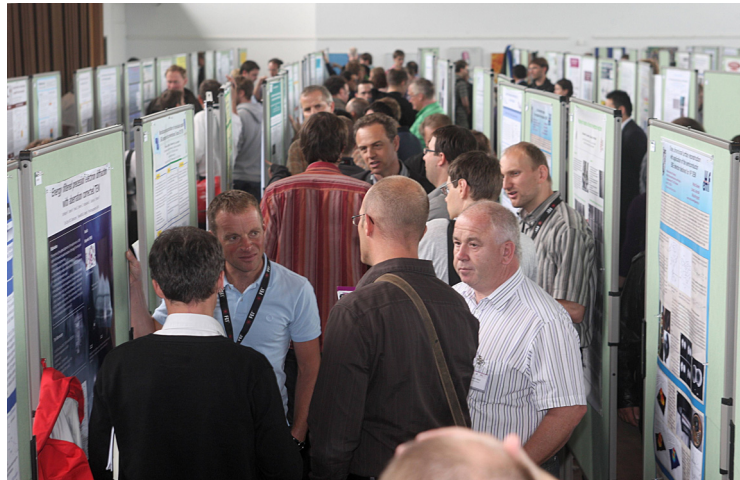
More than 500 scientific contributions were received from 44 countries within as well as from outside Europe, including Japan, China, Israel, South Africa, USA, and others. The scientific program which was designed by an international panel of distinguished scientists focused on electron microscopy and related methods and covered with 25 scientific symposia and workshops the current developments in Instrumentation and Methods, Materials Science, and Life Sciences. Numerous excellent contributions by scientists from universities, research institutions, and industry demonstrated convincingly the importance of electron microscopy methods and related methods in topical materials research and life sciences, in applications dedicated to the development of new materials, and for the advanced analysis of materials in current areas of technology. Plenary and invited talks, oral presentations as well as poster presentations for which ample time for discussions had been reserved proved to be a successful format for these scientific sessions. Several workshops focused on advanced methods and new developments in Cryo SEM/FIB (Chair Prof. Stanislav Gorb, Kiel), in Programming for Data Acquisition (Chair Dr. Thomas Gemming, Dresden), on Local assessment of magnetic and electrical inner fields (Chair Prof. Klaus Leifer, Uppsala), and on Image simulation for TEM and STEM (Chair Prof. Pierre Stadelmann, Lausanne). All workshops showed excellent attendance, bringing together invited experts, experienced scientists, and newcomers to the fields. Please consult the homepage [www.mc2011.de](http://www.mc2011.de) and the proceedings [1] of the Microscopy Conference 2011 Kiel for the details on the topics of the individual sessions and workshops and on the scientific contributions.

Part of the broad spectrum of topical areas was reflected by the opening lecture and the invited plenary talks of internationally leading scientists whose excellent contributions covered latest developments and interdisciplinary approaches and outlined future perspectives in topical areas of research and instrument development: 'Is there a need for further instrumental development?' (Prof. Maximilian Haider, Heidelberg, opening lecture), 'Structure determination of dynamic macromolecular complexes by single particle cryo-electron microscopy' (Prof. Holger Stark, Göttingen, EMS lecture), 'Understanding deformation mechanisms in nanoscale metals using in-situ electron microscopy' (Prof. Cynthia Volkert, Göttingen), 'Imaging systems for systems imaging in biology' (Prof. Heinrich Hohenberg, Hamburg), 'New techniques and instrumentation for the characterisation of magnetic and electrostatic fields in nanocrystals and working devices' (Prof. Rafal E. Dunin-Borkowski, Copenhagen-Lyngby and Jülich), 'Non-destructive 3D orientation maps of polycrystals on scales from 1 nm and 1 mm using transmission electron microscopy and 3D X-ray diffraction' (Prof. Henning F. Poulsen, Risoe), 'The physics and chemistry of nano-carbons explored by high-resolution electron microscopy' (Prof. Jannik C. Meyer, Vienna, EMS lecture). The lectures of Holger Stark and of Jannik Meyer were selected as 'EMS lecture', a special support awarded by the European Microscopy Society (EMS).

During the opening ceremony with numerous guests of honours and in presence of the conference participants, the 2011 laureates of the Ernst Ruska prize, Dr. Johan Verbeeck (Physicist from Antwerp, Belgium) and Prof. David Mastrorade (Cell Biologist from Boulder, Colorado, USA) were awarded this prestigious prize, named after the Nobel prize laureate Ernst Ruska, for outstanding contributions in electron microscopy of materials science and life sciences. The lectures of the awardees, titled 'Electrons with a twist: topological charge effects in a TEM' and 'Software tools for tomographic reconstruction of large volumes', gave excellent insight into the methods and their importance in research for materials and life. The congress has been inaugurated with addresses of welcome by the President of the Christian-Albrechts-University, Professor Gerhard Fouquet, by the Secretary of State of the Ministry of Science, Economic Affairs, and Transport (Federal State of Schleswig-Holstein), Dr. Cordelia Andreßen, and by the President of the City Council Kiel, Cathy Kietzer. We like to cordially express our sincere gratitude for this important support.

A number of further events and highlights received highest estimation and contributed substantially to the large success of this conference. The commercial exhibition, bringing together 50 manufacturers of microscopes and suppliers of equipment and products in all fields of microscopy and related techniques, a technical session, and many lunchtime sessions provided a forum for the exchange of information and for creating opportunities for useful contacts. During a special session about 'Funding Strategies in Germany', Dr. Burkhard Jahnen from the German Science Foundation DFG and Dr. Franz Dettenwanger from the Volkswagen Foundation gave valuable insights into current

research funding opportunities to a large audience of scientists. The Conference Dinner Event, considered as well to be outstanding, featured the awarding of several MC2011 prizes and the greetings of the presidents and representatives of the microscopy societies (Prof. Annette Gunnaes, Oslo: SCANDEM; Prof. Aleksandra Czyska-Filemonowicz, Cracow: PTMi; Prof. Dominique Schryvers, Antwerp: EMS; Prof. C. Barry Carter, Storrs, USA: International Federation of Societies for Microscopy IFSM; and Prof. Debbie Stokes, Cambridge: Chair of the emc2012 Manchester). Several 'MC2011 Best Poster' prizes were awarded to young graduate scientists for their outstanding research presentations, three 'MC2011 Outstanding Micrograph' prizes were selected from the MC 2011 Best Image Contest 'Art in Science', and an EMS Outstanding Paper Award 2011 was presented to Dr. Johan Verbeeck (Antwerp, Belgium). A pleasure and not unimportant to mention that the catering and the evening entertainment with music and dancing found highest appreciation!



*Scientific exchange at its best:  
one of the numerous poster sessions  
of the MC2011.*

Not only the scientific program, the special sessions, the commercial exhibition, and the organisation of the conference received highest estimation but also the offers for social activities and the manifold opportunities for lively information exchange between scientists and with representatives of the companies were considered outstanding. The positive response which we received from numerous conference participants was simply overwhelming!

We are grateful to all colleagues and to all participants for their invaluable support in turning Kiel into an international hub of microscopy during these days and in making the Microscopy Conference MC2011 Kiel such a great success and we are happy to have been part of it! Special thanks go to all members of the international and advisory committees, to all chairpersons and invited speakers, to all participating companies and sponsors, and, last but not least, to our congress management partners from Conventus for their excellent professional organisation. Special thanks go to the press department of the Kiel University for the valuable support in creating considerable presence through reports and interviews in the public media, for instance, in the local and regional press, in the regional NDR TV [2], and in the national German broadcasting Deutschlandfunk [3].

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[1] Proceedings of the Microscopy Conference MC 2011 Kiel, Germany (28 August – 02 September 2011). Vol.1 Instrumentation and Methods. Vol.2 Life Sciences. Vol.3 Materials Science. (Eds. W. Jäger, W. Kaysser, W. Benecke, W. Depmeier, S. Gorb, L. Kienle, M. Mulisch, D. Häußler, A. Lotnyk). ISBN 978-3-00-033910-3. (Copyright) 2011 DGE – German Society for Electron Microscopy e.V. Germany.

[2] Report in NDR TV - SH Magazin (Video)  
30.08.2011, [http://www.ndr.de/fernsehen/sendungen/s-h\\_magazin/media/shmag11267.html](http://www.ndr.de/fernsehen/sendungen/s-h_magazin/media/shmag11267.html)

[3] Interviews in Deutschland-Funk (Text + Audio)  
01.09.2011, <http://www.dradio.de/dlf/sendungen/forschak/1544438/>  
14.09.2011, <http://www.dradio.de/dlf/sendungen/forschak/1554838/>