

GMM

VDE/VDI-GESELLSCHAFT
MIKROELEKTRONIK, MIKROSYSTEM-
UND FEINWERKTECHNIK



Program

The 27th European Mask and Lithography Conference EMLC 2011

January 18 – 19, 2011

Hilton Hotel

Dresden, Germany

www.EMLC2011.com



VDI

VDE

Welcome to the EMLC 2011 in Dresden

**27th European Mask and Lithography Conference,
EMLC 2011
being held on
January 18th and 19th 2011
at the Hilton Hotel, Dresden, Germany**

On behalf of VDE/VDI-GMM, the Sponsors, and the Organizing Committee, we would like to welcome you to the 27th European Mask and Lithography Conference, EMLC2011 at the Hilton Hotel in the city of Dresden, Germany.

The conference has annually brought together scientists, researchers, engineers, and technologists from research institutes and companies from around the world to present innovations at the forefront of mask lithography and mask technology.

The two-day conference is dedicated to the science, technology, engineering and application of mask and lithography technologies and associated processes, giving an overview of the present status in mask and lithography technologies and the future strategy where mask producers and users have the opportunity of becoming acquainted with new developments and results. This year's sessions include: "E-Beam Patterning" "NGL Lithography and Mask", "Wafer Patterning and Application", "EUV", "Metrology", "Mask Application", "Mask Cleaning & Haze", and "Data Prep / RET and Simulation", "ML2" as well as "NIL".

As Welcome Speakers we are pleased to announce that Dirk Hilbert, Mayor of Economic Affairs of the City of Dresden will provide opening comments.

Our first keynote speaker is Dr. Christopher Progler, Chief Technology Officer of Photronics, USA. His presentation is entitled "The Photomask Technology Roadmap: Hydra or Hyperbole".

Our second keynote speaker is Thomas Schmidt, General Manager of the Advanced Mask Technology Center, AMTC in Dresden Germany. His presentation is entitled "The Metamorphosis of a Mask Shop - how Foundry Requirements change Mask Making".

The third Keynote speaker comes from ASML, The Netherlands. Mr. Bert Koek will talk about "Advanced Lithography: More than Rayleigh".

Parallel to the Conference Presentations, a **Technical Exhibition** will take place on Tuesday and Wednesday where companies (mask suppliers, material suppliers and equipment suppliers) will exhibit their companies and products. To foster the exchange between the conference attendees and the exhibitors, the exhibition area will also be the place for all coffee and lunch breaks.

EMLC2011 Dinner Banquet will take place at the Watzke Brewery in Dresden where we will learn how to brew different kinds of beer. Info: www.watzke.de

So, please enjoy the Technical Sessions of the EMLC2011 as well as the Technical Exhibition, but also allow yourself to visit Dresden, one of the most beautiful cities in Europe!

- Conference Chair: Dr. Uwe Behringer (*), UBC
Microelectronics, Ammerbuch, Germany
- Co-Conference Chairs: Chris Gale (*), Applied Materials,
Dresden, Germany;
Naoya Hayashi (*), Dai Nippon Printing
Co. Ltd., Saitama, Japan
- Program Chairs: Rolf Seltmann (*), Globalfoundries,
Dresden, Germany
Jacques Waelpoel (*), ASML, Veldhoven,
The Netherlands
- Co-Program Chair: Warren Montgomery (*), CSNE assignee
at SEMATECH, Albany, NY, USA

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Members of the International Steering Committee and the International Program Committee (*) of the EMLC 2011

Conference Chair:	Dr. U. Behringer (*), UBC Microelectronics, Ammerbuch, Germany
Co-Conference Chairs:	Mr. C. Gale (*), Applied Materials, Dresden, Germany; Mr. N. Hayashi (*), Dai Nippon Printing Co. Ltd., Saitama, Japan
Program Chairs:	Dr. R. Seltmann (*), Globalfoundries, Dresden, Germany Mr. J. Waelpoel (*), ASML, Veldhoven, Netherlands
Co-Program Chair:	Warren Montgomery (*), CSNE assignee at SEMATECH, Albany, NY, USA

Mr. F. Aboud, Intel Corp., Santa Clara, CA, USA
 Dr. M. Arnz, Carl Zeiss SMT AG, Oberkochen, Germany (*)
 Mr. E. Baracchi, ST Microelectronics, Agrate Brianza, Italy
 Dr. C. Blaesing, Carl Zeiss SMS GmbH, Jena, Germany
 Mr. P. Chen, Taiwan Mask Corp., Hsinchu, Taiwan (*)
 Prof. R. Engelstad, University of Wisconsin, Madison, WI, USA (*)
 Mr. D. Farrar, HOYA Corporation, London, UK
 Mr. C. Gale, Applied Materials, Dresden, Germany (*)
 Mr. B. Grenon, Grenon Consulting, Inc., Colchester, VT, USA (*)
 Mr. N. Hayashi, Dai Nippon Printing Co. Ltd., Saitama, Japan (*)
 Dr. G. Hughes, SEMATECH, Albany, NY, USA
 Mr. R. Jonckheere, IMEC, Leuven, Belgium (*)
 Mr. K. Kimmel, SEMATECH, Albany, NY, USA
 Ms. B. Lauche, Photonics MZD GmbH, Dresden, Germany
 Dr. H. Loeschner, IMS Nanofabrication AG, Vienna, Austria (*)
 Dr. W. Maurer, Infineon Technologies AG, Munich, Germany (*)
 Dr. W. Montgomery, SEMATECH, Albany, NY, USA
 Dr. C. Proglar, Photonics Inc., San José, CA, USA
 Mr. E. Rausa, Plasma-Therm LLC, Saint Petersburg, FL, USA (*)
 Mr. D. J. Resnick, Molecular Imprints, Austin, TX, USA (*)
 Dr. F. Reuther, micro resist technology GmbH, Berlin, Germany
 Dr. K.-D. Röth, KLA-Tencor MIE, Weilburg, Germany (*)
 Dr. C. Romeo, Numonyx, Agrate Brianza, Italy (*)
 Mr. K. Ronse, IMEC, Leuven, Belgium
 Prof. H. Scheer, University of Wuppertal, Germany (*)
 Dr. T. Scherübl, Carl Zeiss SMS GmbH, Jena, Germany (*)
 Mr. G. Scheuring, Mue Tec GmbH, Munich, Germany (*)
 Dr. R. Schnabel, VDE/VDI-GMM, Frankfurt, Germany (*)
 Dr. R. Seltmann, Globalfoundries, Dresden, Germany (*)
 Mr. M. Staples, Globalfoundries, Dresden, Germany
 Mrs. I. Stolberg, Vistec Electron Beam GmbH, Jena, Germany (*)
 Dr. S. Tedesco, CEA-LETI, Grenoble, France (*)
 Dr. M. Tissier, Toppan Photomasks S.A., Rousset, France (*)
 Mr. J. T. Weed, SYNOPSYS, Inc., Mountain View, CA, USA
 Mr. J. Whitley, KLA-Tencor, San José, USA (*)
 Mr. H. Wolf, Photonics MZD GmbH, Dresden, Germany (*)
 Mr. S. Wurm, SEMATECH, Albany, NY, USA (*)
 Mr. L. Zurbrick, Agilent Technologies, Santa Clara, CA, USA (*)

Organizers

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Cover picture:
Courtesy of Toppan Photomasks

Program Overview

Tuesday, January 18th, 2011

- 08:30 Welcome and Introduction**
U. Behringer, UBC Microelectronics, Ammerbuch, Germany, Conference Chair
- 08:45 Invited Welcome Speaker**
D. Hilbert, Mayor of Economic Affairs of the City of Dresden

Session 1 - Plenary Session I

Session Chairs:

R. Seltmann, Globalfoundries, Dresden, Germany; J. Waelpoel, ASML, Veldhoven, The Netherlands

- 09:15 Keynote 1:**
The Photomask Technology Roadmap: Hydra or Hyperbole? (invited)
C. Progler, Photronics Inc., Brookfield, USA
- 09:55 Keynote 2:**
The Metamorphosis of a Mask Shop – How Foundry Requirements Change Mask Making (invited)
T. Schmidt, AMTC, Dresden, Germany
- 10:35 Coffee Break**

Session 2 - Plenary Session II

Session Chairs:

*C. Gale, Applied Materials, Dresden, Germany
N. Hayashi, Dai Nippon Printing, Saitama Japan*

- 11:05 Keynote 3:**
Advanced Lithography: More than Rayleigh (invited)
B. Koek, ASML, Veldhoven, The Netherlands

11:45 Mask Industry Assessment Trend Analysis: 2011 (invited)
D. Chan, G. Hughes, SEMATECH, Albany, NY, USA

12:15 Lunch Break

Session 3 - E-Beam Patterning

Session Chairs:

*I. Stolberg, Vistec Electro Beam, Jena, Germany;
H. Wolf, Photronics MZD, Dresden, Germany*

**13:20 Best Paper of PMJ 2010 (invited)
Evaluation of a Next Generation EB Mask
Writer for hp 32nm Lithography**

K. Kono, R. Yamamoto, N. Nishida, Hoya Corporation, Tokyo, Japan; T. Komagata, T. Hasegawa, K. Goto, Y. Nakagawa, Jeol Ltd., Tokyo, Japan

**13:50 Best Poster of BACUS 2010 (invited)
Mask Process Correction (MPC) Modeling
and its Application to EUV Mask for Electron
Beam Mask Writer, EBM-7000**

T. Kamikubo, T. Ohnishi, S. Hara, H. Anze, Y. Hattori, S. Tamamushi, NuFlare Technology, Yokohama, Japan; S. Bai, J.-S. Wang, R. Howell, G. Chen, J. Li, J. Tao, J. Wiley, Brion Technologies, Inc., Santa Clara, CA, USA; T. Kurosawa, Y. Saito, T. Takigawa, Brion Technologies KK (Japan), Tokyo, Japan

14:20 Multiresolution Mask Writing
E. Sahouria, Mentor Graphics Corp., San José, CA, USA

14:40 MSB for ILT Masks
J. Gramss, U. Weidenmüller, A. Stöckel, R. Jaritz, H.-J. Döring, M. Böttcher, Vistec Electron Beam GmbH, Jena, Germany

15:00 Coffee Break

Session 4 - NGL Lithography and Masks

Session Chairs:

*H. Scheer, University of Wuppertal, Germany;
K.-D. Röth, KLA-Tencor MIE, Weilburg, Germany*

15:30 NGL Masks: Development Status and Issue (invited)

N. Hayashi, Dai Nippon Printing Co. Ltd., Saitama, Japan

16:00 Thermal Nanoimprint (T-NIL) with Photoresists for Hybrid Lithography

K. Dhima, C. Steinberg, S. Möllenbeck, A. Mayer, H.-C. Scheer, University of Wuppertal, Germany

Session 5 - Wafer Patterning & Application

Session Chairs:

R. Seltmann, Globalfoundries, Dresden, Germany; U. Behringer, UBC Microelectronics, Ammerbuch, Germany

16:20 Multilayer Reticles: Advantages and Challenges for 28nm Chip Making

A. Hotzel, R. Seltmann, J. Busch, E. Cotte, Globalfoundries, Dresden, Germany

16:40 Alignment Technology for Backside Integration Technique

*J. Bauer¹, P. Kulse¹, U. Haak¹, G. Old², G. Scheuring³, St. Döbereiner³, F. Hillmann³, H.-J. Brück³, M. Kaynak¹, K.-E. Ehwald¹, St. Marschmeyer¹, M. Birkholz¹, K. Schulz¹
¹ Institut für Halbleiterphysik (IHP) GmbH, Frankfurt/Oder, Germany
² Nikon Precision Europe GmbH, Langen, Germany
³ MueTec GmbH, München, Germany*

Session 6 - EUV Mask 1

Session Chairs:

Ch. Proglar, Photonics, Photonics,

S. Wurm, SEMATECH, Albany, NY, USA

17:00 Using Synchrotron Light to Accelerate EUV Resist and Mask Materials Learning (invited)

P. P. Naulleau, Lawrence Berkeley National Laboratory, Berkeley CA, USA

17:30 EUV Mask Readiness and Challenges for 22nm Half Pitch and Beyond

D. Chan, SEMATECH, Albany, NY, USA

17:50 Actinic EUV-Mask Metrology: Tools, Concepts, Components

R. Lebert, A. Fahrazadi, W. Diets, Bruker Advanced Supercon GmbH, Bergisch-Gladbach, Germany; S. Herbert, A. Maryasov, L. Juschkin, RWTH Aachen University and JARA, Aachen, Germany; D. Schäfer, Ch. Phiesel, T. Wilhein, University of Applied Sciences Koblenz, Remagen, Germany; D. Esser, M. Hofer, D. Hoffmann, Fraunhofer Institute for Laser Technology (ILT), Aachen, Germany

18:10 EUV Actinic Mask Blank Defect Inspection: Results and Status of Concept Realization

A. Maryasov, S. Herbert, L. Juschkin, RWTH Aachen University and JARA, Aachen, Germany; R. Lebert, Bruker Advanced Supercon GmbH, Bergisch-Gladbach, Germany; K. Bergmann, Fraunhofer Institute for Laser Technology, Aachen, Germany

19:30 Banquet Dinner: Meet for Busses at the Hilton Lobby

Wednesday, January 19th, 2011

Session 7 – Metrology

Session Chairs:

T. Scherübl, Carl Zeiss, SMS, Jena, Germany

J. Whitley, KLA-Tencor, Oakdale, CA, USA

08:30 The Evolution of Pattern Placement Metrology for Mask Making (invited)

D. Beyer, N. Rosenkranz, C. Blaesing-Bangert, Carl Zeiss SMS GmbH, Jena, Germany

09:00 Correlation Method Based Mask to Mask Overlay Metrology for 32nm Node and beyond

D. Seidel^a, M. Arnz^b, D. Beyer^a

^a Carl Zeiss SMS GmbH, Jena, Germany;

^b Carl Zeiss SMT AG, Oberkochen, Germany

09:20 Update on Next Generation Metrology Tool for DPL Reticles

K.-D. Röth, J. Bender, F. Laske, D. Adam, K.-H. Schmidt, KLA-Tencor MIE GmbH, Weilburg, Germany

09:40 First Steps towards Traceability in Scatterometry

F. Scholze¹, B. Bodermann², H. Groß¹, A. Kato¹, M. Wurm²

¹ Physikalisch-Technische Bundesanstalt, Berlin, Germany

² Physikalisch-Technische Bundesanstalt, Braunschweig, Germany

10:00 YieldStar: a New Metrology Platform for Advanced Lithography Control

J. Maas, M. Ebert, K. Bhattacharyya, H. Cramer, A. Becht, S. Keij, R. Plug, A. Fuchs, M. Kubis, H. Megens, ASML, Veldhoven, The Netherlands

10:20 Coffee Break

Session 8 - Mask Application

Session Chairs:

*J. Finders, ASML, Veldhoven, The Netherlands
J. Waelpoel, ASML, Veldhoven, The Netherlands*

- 10:50 Mask 3D Effects: Impact on Imaging and Placement (invited)**
*J. Finders, T. Hollink, ASML, The Netherlands
B.V., Veldhoven, The Netherlands*
- 11:30 Use of Scatterometry for Scanner Matching**
H. Bald, R. Seltmann, K. Bubke, Globalfoundries, Dresden, Germany; M. Ruhm, M. Noot, D. Woischke, P. van Adrichem, P. Luehrmann, ASML, Veldhoven, The Netherlands
- 11:50 Mask Tuning for Process Window Improvement**
*U. Buttgereit¹, R. Birkner¹, E. Graitzer², A. Cohen², B. Triulzi³, C. Romeo³
¹Carl Zeiss SMS GmbH, Jena, Germany
²Carl Zeiss SMS, Karmiel, Israel
³Numonyx Italy S.r.l., Agrate Brianza (MI), Italy*
- 12:10 Model-based Scanner Tuning for Process Optimization**
R. Aldana, V. Velanki, W. Shao, R. Goosens, Z. Yu, X. Xie, Y. Cao, BRION Technologies, Santa Clara CA, United States; K. Schreel, ASML Netherlands B.V., Veldhoven, The Netherlands
- 12:30 Augmented Reality for Wafer Prober**
P. Gilgenkrantz, STMicroelectronics, Crolles, France
- 12:50 Lunch**

Session 9 – Mask Cleaning & Haze

Session Chair:

*J. Jonckheere, IMEC, Leuven, Belgium
W. Schmidt, AMTC, Dresden, Germany*

- 13:50 Effective EUVL Mask Cleaning Technology Solutions for Mask Manufacturing and in-fab Maintenance**
*U. Dietze¹, P. Dress¹, T. Waehler¹, S. Singh², R. Jonckheere³
¹HamaTech APE, Sternenfels, Germany
²Suss MicroTec Inc., Waterbury Center, VT, USA;
³IMEC, Leuven, Belgium*
- 14:10 Investigation on full 6” Masks Using Innovative Solutions for direct Physico-Chemical Analyses of Mask Contamination and Haze**
*L. Dussault¹, B. Pelissier¹, F. Dufaye², S. Gough², O. Chaix³, P. Sergent⁴, M. Tissier⁴
¹CEA-LETI, Grenoble, France
²STMicroelectronics, Crolles, France
³Grenoble INP, Grenoble, France
⁴Toppan Photomasks Corbeil, Corbeil Essonnes, France*
- 14:30 Comparison of Cleaning Processes with Respect to Cleaning Efficiency**
*P. Nesladek^a, S. Osborne^b, T. Rode^a
^aAdvanced Mask Technology Center, Dresden, Germany
^bBeam Services, Inc., Pleasanton, CA, USA*
- 14:50 Minienvironment Solutions: Special Concepts for Mask-Systems**
M. Dobler, M. Rüb, T. Billen, MCRT GmbH, Heuchelheim, Germany

Session 10 - Data Prep / RET & Simulation

Session Chairs:

W. Maurer, Infineon Technologies AG, Munich, Germany; M. Arnz, Carl Zeiss, SMT, Oberkochen, Germany

15:10 DOE Experiment for Scatterbar Optimization at the 90nm Node

G. Bouton¹, B. Connolly², D. Courboin³, A. Di Giacomo¹, F. Gasnier¹, R. Lallement¹, D. Parker¹, M. Pindo³, J.C. Richoilley³, F. Royere³, A. Rameau-Savio⁴, M. Tissier³

¹ *ST Microelectronics, Rousset, France*

² *Toppan Photomasks Germany, Dresden*

³ *Toppan Photomasks France, Corbeil-Essonnes*

⁴ *Elsys Design, Aix-en-Provence, France*

15:30 Geometrically Induced Dose Correction - Method and Performance Results

R. Galler¹, K.-Choi², M. Gutsch², C. Hohle², M. Krüger¹, D. Melzer¹, L. Ramos³, M. Sülzle¹, U. Weidenmüller³

¹ *Equicon Software GmbH Jena, Germany*

² *Fraunhofer Center Nanoelectronic Technologies, Dresden, Germany*

³ *Vistec Electron Beam GmbH, Jena, Germany*

15:50 Line End Shortening and Application of Novel Correction Algorithms in E-Beam Direct Write

M. Freitag, M. Gutsch, K.-H. Choi, C. Hohle, Fraunhofer Center Nanoelectronic Technologies, Dresden, Germany

16:10 Coffee Break

Session 11 – EUV Mask II

Session Chairs:

*D. Chan, SEMATECH, Albany, NY, USA
U. Behringer, UBC Microelectronics, Ammerbuch, Germany*

16:30 Concept and Feasibility of Aerial Imaging Measurements on EUV Masks

S. Perlitz¹, W. Harnisch¹, U. Strößner¹, H. Feldmann², D. Hellweg²

¹ *Carl Zeiss SMS GmbH, Jena, Germany*

² *Carl Zeiss SMT AG, Oberkochen, Germany*

16:50 Current Status of EUV Mask Inspection Using 193nm Optical Inspection System in 30nm Node and beyond

S. H. Han¹, J. H. Na¹, W. I. Cho¹, D. H. Chung¹, C. U. Jeon¹, H. K. Cho¹, L. Shoval²,

D. Bernstein², E. Y. Park², A. Sreenath², S. Mangan²

¹ *Samsung Electronics, Co., Ltd., Hwasung-City, Gyeonggi-Do, Korea*

² *Applied Materials®, Rehovot, Israel*

17:10 Evidence of Printing Blank-Related Defects on EUV Masks Missed by Blank Inspection

R. Jonckheere, D. Van Den Heuvel, E. Hendrickx, K. Ronse, IMEC vzw, Leuven, Belgium

17:30 Imaging Performance Improvements by EUV Mask Stack Optimization

E. van Setten¹, N. Davydova¹, R. de Kruif¹, D. Oorschota¹, M. Dusa², C. Wagner¹, J. Jiang³, W. Liu³, H. Kang³, H.-yu Liu³, P. Spies⁴, N. Wiese⁴, M. Waiblinger⁴

¹ *ASML Netherlands B.V., Veldhoven, The Netherlands*

² *ASML Belgium bvba., Leuven, Belgium*

³ *Brion Technologies Incorporated, Santa Clara, CA, USA*

⁴ *Carl Zeiss SMS GmbH, Jena, Germany*

17:50 Farewell

18:00 End of Conference

CONFERENCE INFORMATION

CONFERENCE HOURS

Tuesday, January 18th, 2011 08:30 am to 06:30 pm
Wednesday, January 19th, 2011 08:30 am to 05:30 pm

REGISTRATION HOURS

Tuesday, January 18th, 2011 07:30 am to 05:00 pm
Wednesday, January 19th, 2011 08:00 am to 05:00 pm

TECHNICAL EXHIBITION

Parallel to the conference presentations on Tuesday and Wednesday we offer you to take part in a technical exhibition. There is space for about 25 exhibitors. Presentation tables and pin boards will be available.

If you intend to participate in the technical exhibition as an exhibitor, please contact the chairperson as soon as possible as the exhibition area is limited (please use the enclosed registration form).

UBC Microelectronics, Dr. Uwe Behringer
Auf den Beeten 5 , 72119 Ammerbuch, Germany
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e-Mail: uwe.behringer.ubc@t-online.de

INFORMATION FOR AUTHORS

YOUR PRESENTATION AND CV

The most convenient way for you and the organizers is to provide your slides in the form of MS-Powerpoint format (ppt) on a USB-stick, as early as possible, but latest during the break before your session. You should download and test them on the presentation computer. Your Session Chair will surely be glad to assist you. You may also use your own laptop computer, but experience has shown to do better not.

Please send in - if not yet done - your short CV to the Conference Chairs and to your Session Chair, so that he may introduce you appropriately to the audience.

MANUSCRIPTS AND PROCEEDINGS

Manuscripts should be sent **as soon as possible (deadline: January 14th 2011)** to the Program- and the Conference Chairpersons:

Mr. Jacques Waelpoel.: jacques.waelpoel@asml.com
Mr. Rolf Seltmann: rolf.seltmann@globalfoundries.com
Dr. Uwe Behringer: uwe.behringer.ubc@t-online.de
and to www.myspie.org link

Since the manuscripts will be directly reproduced in the proceedings, please send them as a pdf-file AND word-file by e-mail. The manuscripts should be between 6 and 12 pages (figures included).

Again, your last chance of delivering the manuscript will be the first day of the conference, Tuesday, January 18th, 2011. **Unless manuscripts are delivered until the first day of the conference, they will not be published in the combined SPIE/VDE volume and will not be a part of the SPIE Digital Library.**

Each attendee of the conference will receive one copy of the proceedings as a CD which will be sent after the event.

BEST PAPER AWARD

All conference attendees will elect the best paper of the EMLC 2011. Manuscripts not received until the first day of the conference can not be elected for best paper.

Excursion on January 20th, 2011

On Thursday morning, January 20th 2011, we plan a company tour to the Infineon 200mm line in Dresden. As this tour is a real "Cleanroom Tour", the number of participants is very limited. There will be 4 tours with 4 persons each. In case you are interested in participating in this tour, would you please sign up at our internet portal: www.emlc2011.com

GENERAL INFORMATION

EMLC 2011 OFFICE

For detailed Information please contact:

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e-Mail: gmm@vde.com

During the conference:

Tel: ++49 (0)171 4695 118

CONFERENCE FEES

	until Dec. 17 th , 2010	after Dec. 17 th , 2010
Non-Members	€ 650.00	€ 730.00
VDE,VDI Members*	€ 620.00	€ 700.00
Lecturer	€ 590.00	€ 670.00
Non-Member-Students**	€ 100.00	€ 150.00
Student Members**	€ 60.00	€ 110.00

* Participants claiming for the membership fee must attach a copy of their membership card to the registration form.

** A photocopy of the student card must be attached.

The conference fee includes admission to all sessions as well as to the daily coffee-breaks, one copy of the CD-ROM-proceedings, lunches, dinners and one ticket for the river cruise.

CONFERENCE REGISTRATION

To register for EMLC 2011, please fill in the registration form attached to this program and return it to VDE Conference Services, Stresemannallee 15, 60596 Frankfurt, Germany. To benefit from the "early-bird-discount", VDE Conference Services must receive the form before Dec. 17, 2010. Full payment or credit card information must accompany all registrations in order to be accepted. Completed forms may be sent by fax (+49 (0)69 96 31 5213) or e-mail (vde-conferences@vde.com). A confirmation of the registration will be sent upon receipt of full payment.

ONLINE REGISTRATION

Registrations for the conference and payment by credit card may be done online. Please, see the conference homepage www.EMLC2011.com

PAYMENT OF CONFERENCE FEE

Payment for registration, including bank charges and processing fees, must be made in Euro. The conference fee has to be fully paid in advance. Your registration can only be confirmed if VDE-Conference Services has recorded receipt of your full payment. The following methods of payment are accepted:

- Payment by credit card authorisation as per registration form. The 16 digit card number, expiry date, security No. (last 3 digits on rear side of credit card) and holder's name must be indicated on the registration form. Signature of the card holder is mandatory.
- Cash payment on-site in EURO (€)

CANCELLATION

In case of cancellation, provided that written notice has been given to VDE-Conference Services before Dec. 17, 2010, the registration fee will be fully refunded less a handling fee of EURO 60.00. After Dec. 17, 2010, no refund will be made. Proceedings and CD-ROM-proceedings will then be sent to the registrant after the conference.

PROCEEDINGS

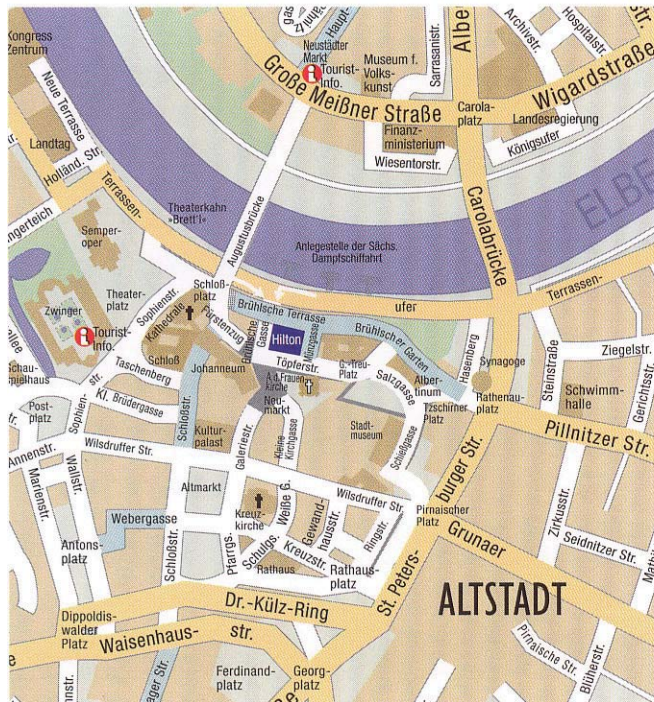
All papers accepted for presentation at the conference will be published with the proceedings on a SPIE CD-ROM. The proceedings will be sent after the conference to all delegates attending the event. All Manuscripts will also be published in the SPIE Digital Library.

CONFERENCE VENUE

Hilton Dresden, An der Frauenkirche 5, 01069 Dresden, Germany, Phone: ++49 (0)351/86420, Fax: ++49 (0)351/8642-725, <http://www.hilton.com/>

Hilton Dresden, located in the heart of the old town, next to the Frauenkirche, is situated on Bruehl's Terrace.

The Semper Opera House and the world-renowned "Zwinger" are within walking distance. The piers of the world's largest and oldest paddle steamer fleet are next to the hotel.



TRANSPORT

By Air

Dresden Airport

From Dresden Klotzsche Airport, follow signs to city centre. After passing the Elbe Bridge, turn right onto Terrassenufer. From here, follow signs to the Hilton Dresden hotel. The 5-mile journey normally takes about 20 minutes from the airport to the hotel forecourt.

Getting to and from Dresden airport:

Bus Service, typical minimum charge is EURO 8,00
Limousine, typical minimum charge is EURO 70,00
Taxi, typical minimum is EURO 25,00

By train

from Frankfurt in 5 hours
from Berlin in 3 hours

By car

From the A14/A4 (coming from Chemnitz/Leipzig), take exit 78 towards Dresden Altstadt. Follow the B6 signs in direction of Zentrum. At the Bremer/Hamburger Strasse junction, turn left into Bremer Strasse. Drive along the Elbe riverbank until you see signs for the Hilton Dresden hotel on your right. The 4-mile journey normally takes around 10 minutes from exit 78 to the hotel forecourt.

PARKING

The hotel car park has got 150 spaces. Parking costs EURO 20.00 per day. There is a valet service at no extra charge. Please book your parking space when booking your room at the hotel.

HOTEL RESERVATION

A block of rooms has been reserved for the EMLC 2011 participants at the Hilton Hotel Dresden.

The special hotel room rates are:

Twin Hilton Guest Room	rates from 125.00 EUR
Double Hilton Executive	rates from 125.00 EUR

per night, including breakfast.

Accommodation is NOT included in the conference fee.

For reservation please contact the Hilton Hotel or go to the conference website: www.emlc2011.com

Hilton Dresden, An der Frauenkirche 5, 01069 Dresden, Germany,

phone: ++49 (0)351/86420,
fax: ++49 (0)351/8642-725,
e-Mail: info.dresden@hilton.com
<http://www.hilton.com/>

You should reserve your rooms by December 17th, 2010, as after that date our rooms blocked at a group rate might be released by the hotel for general reservations. Please use the following code for booking: "EMLC 2011".

All payments related to accommodation have to be made in the hotel before departure.

COOPERATING PARTNERS OF THE EMLC 2011

