Program

The 28th European Mask and Lithography Conference
EMLC 2012

January 17 – 18, 2012
Hilton Hotel
Dresden, Germany

www.EMLC2012.com
Welcome to the EMLC 2012 in Dresden

28th European Mask and Lithography Conference
EMLC 2012
being held on
January 17th and 18th 2012
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 28th European Mask and Lithography Conference, EMLC2012 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: “EUV Lithography & Masks Application”, “Mask Optimization”, “Lithography Optimization” “Lithography for MEMS”, “Mask Materials”, “ Mask Data Preparation”, “Emerging Lithography”, “Mask Handling, Cleaning & Haze”, “EUV Mask Defect Management”. For late submissions there is the “Last Minute Submissions” - Session at the end of the conference.

As Welcome Speaker we are pleased to announce Heinz Martin Esser, President Silicon Saxony, Dresden.

Our first keynote speaker is Dr. Burn Lin from TSMC, Taiwan. His presentation is entitled “Nanometer-Level Semiconductor for Micrometer-Level MEMS”.

Our second keynote speaker is Dr. Paul Chipman, Vice President, Global Strategy, Toppan Photomasks Inc, Corporate HQ, Austin, TX, USA.

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.

Conference Dinner Banquet

We plan to have the EMLC2012 Dinner Banquet in the “Festungsmauern” (citadel rampart) of Dresden.

So, please enjoy the Technical Sessions of the EMLC2012 as well as the Technical Exhibition, but also allow yourself to visit Dresden, one of the most beautiful cities in Europe!

Conference Chair Uwe Behringer
Co-Conference Chairs Chris Gale Naoya Hayashi
Program Chairs Wilhelm Maurer Jo Finders Rolf Seltmann
Members of the International Steering Committee and the International Program Committee (*) of the EMLC 2012

Conference Chair 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 Wilhelm Maurer, Infineon Technologies AG, Munich (*); Jo Finders, ASML, Veldhoven, The Netherlands; Rolf Seltmann (*), Globalfoundries, Dresden, Germany

Michael Arnz, Carl Zeiss SMT AG, Oberkochen, Germany (*)
Emanuele Baracchi, ST Microelectronics, Agrate Brianza, Italy
Joachim Bauer, IHP Microelectronics, Frankfurt Oder, Germany (*)
Uwe Behringer, UBC Microelectronics, Ammerbuch, Germany (*)
Carola Blaesing, Carl Zeiss SMS GmbH, Jena, Germany
Parkson Chen, Taiwan Mask Corp., Hsinchu, Taiwan (*)
Brid Connolly, Toppan Photomasks Inc., Dresden, Germany (*)
Roxann Engelstad, University of Wisconsin, Madison, WI, USA (*)
Jo Finders, ASML, Veldhoven, The Netherlands (*)
Chris Gale, Applied Materials, Dresden, Germany (*)
Brian J. Grenon, Grenon Consulting, Inc., Colchester, VT, USA
Naoya Hayashi, Dai Nippon Printing Co. Ltd., Saitama, Japan (*)
Rik Jonckheere, IMEC vzw, Leuven, Belgium (*)
Barbara Lauche, Photronics MZD GmbH, Dresden, Germany
Hans Loeschner, IMS Nanofabrication AG, Vienna, Austria (*)
Wilhelm Maurer, Infineon Technologies AG, Munich, Germany (*)
Chris Progler, Photronics Inc., San José, CA, USA
Emmanuel Rausa, Plasma-Therm USA, St. Petersburg, FL, USA (*)
Douglas J. Resnick, Molecular Imprints, Austin, TX, USA (*)
Klaus-Dieter Röth, KLA-Tencor MIE, Weilburg, Germany (*)
Carmelo Romeo, Numonyx, Agrate Brianza, Italy (*)
Hella Scheer, University of Wuppertal, Germany (*)
Thomas Scherübl, Carl Zeiss SMS GmbH, Jena, Germany (*)
Ronald Schnabel, VDE/VDI-GMM, Frankfurt am Main, Germany (*)
Steffen Schulze, Mentor Graphics Corp., Wilsonville, OR, USA(*)
Rolf Seltmann, Globalfoundries, Dresden, Germany (*)
Marc Staples, Globalfoundries, Dresden, Germany
Ines Stolberg, Vistec Electron Beam GmbH, Jena, Germany (*)
Serge Tedesco, CEA-LETI, Grenoble, France (*)
Michel Tissier, Toppan Photomasks S.A., Rousset, France (*)
Jacques Waelpoel, ASML, Veldhoven, The Netherlands
Guido Wenz, Wenz Consulting, Weil im Schoenbuch, Germany(*)
John Whittey, KLA-Tencor, San José, USA (*)
Hermann Wolf, Photronics MZD GmbH, Dresden, Germany (*)
Stefan Wurm, SEMATECH, Albany, NY, USA (*)
Larry Zurbrick, Agilent Technologies, Santa Clara, CA, USA (*)
Organizers

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Cover picture:
Courtesy of Toppan Photomasks

Program Overview

Tuesday, January 17th, 2012

08:50 Welcome and Introduction
U. Behringer, UBC Microelectronics, Ammerbuch, Germany, Conference Chair

09:00 Invited Welcome Speaker from Dresden
H. M. Esser, President Silicon Saxony e.V., Dresden, Germany

Session 1 - Plenary Session I
Session Chairs:
W. Maurer, Infineon Technologies AG, Munich, Germany;
R. Seltmann, Globalfoundries, Dresden, Germany

09:30 Keynote 1
Nanometer-Level Semiconductor for Micrometer-Level MEMS
B. Lin, Taiwan Semiconductor Manufacturing Company Limited, Taiwan

10:10 Industry Mask Assessment (Invited)
D. Chan, SEMATECH, Albany, NY, USA

10:40 Coffee Break

Session 2 - Plenary Session II
Session Chairs:
C. Gale, Applied Materials, Dresden, Germany
N. Hayashi, Dai Nippon Printing, Saitama, Japan

11:10 Keynote 2
Adapting Mask Fabrication and Service to New Customer Models
P. Chipman, Toppan Photomasks, Inc., Austin TX, USA
11:50 Best Poster BACUS 2011 (invited)
Optimization of Mask Shot Count Using MB-MDP and Lithography Simulation
G.S. Chua¹, W.-L.Wang¹, B. IL Choi¹, Y. Zou¹,
I. Borg², T. Nguyen², A. Fujimura²
¹ Global Foundries Singapore,
² D2S Inc., San Jose, CA

12:20 Lunch Break

Session 3 - EUV Lithography & Mask Application

Session Chairs:
T. Scherübl, Carl Zeiss SMS, Jena, Germany;
B. Connolly, Toppan Photomasks, Inc., Dresden, Germany

13:40 Mask Readiness for EUVL Pilot Line (Invited)
N. Hayashi, T. Abe, T. Takikawa, Dai Nippon Printing, Saitama, Japan

14:10 NXE: 3100 Full Wafer Imaging Performance and Budget Verification
E. v. Setten, K. v. Ingen Schenau, T. Hollink,
M.O. Mahony, F. Wittebrood, C.W. Man,
M. Eurlings, K. Feenstra, J. Finders, M. Dusa,
S. Young, ASML Netherlands, Veldhoven, The Netherlands

14:30 Modeling of Particle Transport and Multilayer Film Growth during EUV Mask 7 Blank Deposition
V. Jindal¹, A. John¹, P. Kearney¹, Y. Khopkar²,
H. Herbold², G. Denbeaux², A. Likhanskii³,
P. Stoltz³,
¹ SEMATECH, Albany, NY, USA
² College of Nanoscale Science and Engineering, University at Albany, NY, USA
³ Tech-X Corporation, Boulder, CO, USA

14:50 A Fast Approach to Model EUV Mask 3D and Shadowing Effects
Y. L. D. Peng, M. Satake, P. Hu, Luminescent Technology, Palo Alto, CA, USA

15:10 EUVL Mask Optimizations for 27nm Node and below
N. Davydova¹, E. V. Setten¹, R. de Kruif¹,
B. Connolly³, N. Fukugami⁴, A. Lammers¹,
K. Mehagnoul¹, J. Zimmerman³, N. Hamed³
¹ ASML, Veldhoven, The Netherlands
² ASML Wilton, CT, USA
³ Toppan Photomasks Inc., Dresden, Germany
⁴ Toppan Printing Co., Ltd., Saitama, Japan

15:30 Coffee Break

Session 4 - Mask Optimization

Session Chairs:
D. Farrar, Hoya Corporation, London, United Kingdom;
M. Arnz, Carl Zeiss, SMT AG, Oberkochen, Germany

16:00 AIMS D2DB Simulation for DUV and EUV Mask Inspection
D. Peng, Y. Li, M. Satake, P. Hu, Luminescent Technology Inc., Palo Alto, CA, USA

16:20 Correcting Image Placement Errors Using Registration Control (RegC) Technology Over The Photomask Periphery
A. Cohen¹, F. Lange², G. Ben-Zvi¹, E. Graitzer¹,
D. Vladimir¹
¹ Carl Zeiss SMS, Karmiel, Israel
² Advanced Mask Technology Center, Dresden, Germany
Session 5 - Lithography Optimization

Session Chairs:
J. Finders, ASML, Veldhoven, The Netherlands;
J. Whittey, KLA-Tencor, San José, CA, USA

16:40 Optimization Method of Photolithography Process by means of Atomic Force Microscopy
A. Sierakowski¹, P. Janus¹, D. Kopiec²,
K. Nieradka², K. Domański¹, B. P. Grabiec¹,
T. Gotszalk²
¹Institute of Electron Technology, Warsaw, Poland
²Wrocław University of Technology, Wrocław, Poland

17:00 Investigation and Mitigation of Field-Edge CDU Fingerprint for ArFi Lithography for 45nm to sub 28nm Logic Nodes
B. Le Gratiet¹, J. Finders², O. Mouraille²,
R.M.G.J. Queens², K. Jullian¹
¹STMicroelectronics Crolles, France
²ASML, Veldhoven, The Netherlands

17:20 Double Exposure as a Method to Correct for On-Wafer CD Variation: A Proposal
A. Hotzel, H. Bald, Global Foundries, Dresden, Germany

Session 6 - Lithography for MEMS

Session Chairs:
J. Bauer, IHP-Microelectronics, Frankfurt (Oder), Germany;
U. Behringer, UBC Microelectronics, Ammerbuch, Germany

17:00 Lithographic Aspects for the Fabrication of BiCMOS Embedded Bio-MEMS and RF-MEMS
P. Kulse, M. Birkholz, K.-E. Ehwald, M. Kaynak,
M. Wietstruck, J. Bauer, U. Haak, J. Drews,
K. Schulz, IHP - Innovations for High Performance microelectronics, Frankfurt (Oder), Germany

18:00 MEMS: Fabrication of cryogenic bolometers
J. Kunert¹, S. Anders¹, V. Zakosarenko¹,
G. Zieger¹, E. Kreysa², H.-G. Meyer¹
¹Institute of Photonic Technology, Jena, Germany
²Max Planck Institute for Radioastronomy, Bonn, Germany

19:10 Meet at the Hilton Lobby at 19:10 to go to the Conference Dinner

19:30 Conference Dinner at the “Festungsmauern” (citadel rampart) of Dresden

23:00 End of Conference Dinner
Wednesday, January 18th, 2012

Session 7 - Mask Materials
Session Chairs:
H. Wolf, Photronics MZD, GmbH, Dresden, Germany;
R. Seltmann, Global Foundries, Dresden, Germany

08:30 Impact of Reticle Absorber on the imaging Properties in ArFi Lithography (invited)

09:00 PSM and Thin OMOG Reticles Aerial Imaging Metrology Comparison Study
1 Applied Materials, Rehovot, Israel
2 ASML, Veldhoven, The Netherlands
3 Applied Materials, Nijmegen, The Netherlands
4 Applied Materials, Dresden, Germany
5 Toppan, Printing Co., Ltd, Niiza, Saitama, Japan

Session 8 – Mask Data Preparation
Session Chairs:
I. Stolberg, Vistec Electron Beam GmbH, Jena, Germany;
W. Maurer, Infineon Technologies AG, Munich, Germany

09:20 Pointwise Process Proximity Function Calibration – PPF-Explorer Application Results
M. Krueger1, M. Banasch2, R. Galler1, D. Melzer1, L.E. Ramos3, M. Suelzle1, U. Weidenmueller3, U. Zeitner2
1 EQUIcon Software GmbH, Jena, Germany
2 Fraunhofer Institute for Applied Optics and Precision Engineering IOF, Jena, Germany
3 Vistec Electron Beam GmbH, Jena, Germany

09:40 Mask Write Time Reduction – Deployment of Advanced Approaches and their Impact on Established Work Models
T. Lin, E. Sahouria, Mentor Graphics Corporation, Freemont, CA, USA; A. Elayat, S. Schulze, Mentor Graphics Corporation, Wilsonville, CA, USA

10:00 Frequent Pattern Detection Algorithm for Corner 2: A lossless Layout Image Compression for Maskless Lithography Systems
J. Yang, University of Michigan, Ann Arbor, MI, USA

10:20 Coffee Break
Session 9 - Emerging Lithography

Session Chair:
H. Scheer, University of Wuppertal, Wuppertal, Germany;
S. Tedesco, CEA-Leti, Grenoble, France

10:50 Using UV-based Nanoimprint Lithography to Fabricate Single and Multilayer Negative Index Materials
I. Bergmair¹, B. Dastmalchi², M. Bergmair², G. Hesser², M. Losurdo³, G. Bruno³, C. Helgert⁴, E. Pshenay-Severin⁴, T. Pertsch⁴, E.-B. Kley⁴, U. Hübner⁵, R. Penciu⁶, N.-H. Shen⁶, M. Kafesaki⁶, C.M. Soukoulis⁶, K. Hingerl², M. Muehlberger¹
¹Profactor GmbH, Steyr-Gleink, Austria
²Johannes Kepler University Linz, Austria
³University of Bari, Italy
⁴Friedrich-Schiller-Universität Jena, Germany
⁵Institute of Photonic Technology, Jena, Germany
⁶Institute of Electronic Structure & Laser, Hellas, Greece

11:10 Enhanced E-beam Pattern Writing for Nano-Optics Based on Character Projection
E.-B. Kley¹, H. Schmidt¹, U. Zeitner², M. Banasch³, B. Schnabel³
¹Friedrich-Schiller University Jena, Germany
²Fraunhofer Institute of Applied Optics and Precision Engineering, Jena, Germany
³Vistec Electron Beam GmbH, Jena, Germany

11:30 A Novel Tool for Frequency Assisted Thermal Nanoimprint
A. Mayer, S. Möllenbeck, K. Dhima, S. Wang, H.-C. Scheer, University of Wuppertal, Germany

11:50 Nanoimprint activities in Austria in the research project cluster NILaustria
M. Muehlberger¹, H. Fachberger¹, I. Bergmair¹, M. Rohn¹, B. Dittert¹, T. Rothländer², D. Nees², M. Knapp³, T. Fromherz⁴
¹Profactor GmbH, Steyr, Austria
²Johanneum Research Forschungsgesellschaft mbH, Weiz, Austria
³Onkotec GmbH, Vestenötting, Waidhofen/Thaya, Austria
⁴Johannes Kepler University, Linz, Austria

12:10 Phase-Shift at Sub-Wavelength Holographic Lithography (SWHL)
V. Rakhovsky¹, D. Knyazkov², A. Shamaev², V. Chernik², A. Gavrikov², D. Chelyubeev², P. Mikheev, M. Borisov, Moscov, Russian Federation
¹Nanotech SWHL, Moscow, Russian Federation
²IPMec RAS, Moscow, Russian Federation

12:30 Lunch Break

Session 10 – Mask Handling, Cleaning & Haze

Session Chairs:
N. Hayashi, Dai Nippon Printing Co. Ltd., Saitama, Japan;
R. Jonckheere, IMEC vzw, Leuven, Belgium

13:50 High Quality Mask Storage in an Advanced Logic-Waferfab
C. Jähnert, S. Fritsche, Infineon Technologies Dresden GmbH

14:10 Through Pellicle Management of Haze Formation in a Wafer Fab Environment
R. White, J. LeClaire, D. Brinkley, D. Doerr, Rave LLC, Delray Beach, FL, USA

14:30 Cleaning Aspects of Material Choice for High End Mask Manufacturing
P. Nesladek¹, S. Osborne², S. Rümmelin¹
¹Advanced Mask Technology Center GmbH & Co. KG, Dresden, Germany
²Beam Services, Inc., Pleasanton, CA, USA

14:50 The Effect of Puddle Megasonic Cleaning for Advanced Photomask with Sub-Resolution Assist Features (SRAFs)
M.-C. Chen, S. Yang, C.-R. Tseng, Taiwan Mask Corporation, Hsinchu, Taiwan

15:10 Coffee Break
Session 11 – EUV Mask Defect Management

Session Chairs:
S. Wurm, SEMATECH, Albany, NY, USA;
C. Gale, Applied Materials GmbH, Dresden, Germany

15:40 Integrated Cleaning and Handling Automation of NXE3100 Reticles (Invited)
R. Jonckheere¹, T. Waehler ², B. Baudemprez¹,
U. Dietze³, P. Dress², O. Brux², K. Ronse¹
¹ IMEC vzw, Leuven, Belgium
² HamaTech APE GmbH & Co.KG, Sternenfels, Germany
³ SUSS MicroTec Inc., Sunnyvale CA, USA

16:10 Towards the Optical Inspection Sensitivity Optimization of EUV Masks and EUV-Exposed Wafers
U. Okoroanyanwu¹, J. Heumann⁷, X. Zhu²,
P. Mangat¹, J. Schefske³, R. Moses⁴,⁸, O. Wood²,
N. Schmidt⁴, H. Rolff⁶, T. Schedel², R. Cantrell²,
P. Nesladek², M. Bender², N. LiCausi², X. Ca³,
W. Taylor³, R. Ghaskadavi³
¹ Globalfoundries, Dresden, Germany
² Advanced Mask Technology Center (AMTC) Dresden, Germany
³ Globalfoundries, Malta, NY, USA
⁴ Globalfoundries, Albany, NY, USA
⁵ KLA-Tencor, Dresden, Germany
⁶ KLA-Tencor, Albany NY, USA
⁷ Currently on assignment at AMTC
⁸ Currently on assignment at IMEC

16:30 EUV Mask Defects Characterization with TEM
A. Rastegar, SEMATECH, Albany, NY, USA

16:50 EUVL Defect Printability: An Industry Challenge
H. J. Kwon, R. Teki, J. Harris-Jones, A. Cordes,
SEMATECH, Albany, NY, USA

17:10 Advanced characterization of EUV mask blank defects
J. Harris-Jones, V. Jindal, C.C. Lin,
T. Chakraborty, E. Stinzianni, R. Teki,
H. J. Kwon, SEMATECH, Albany, NY, USA

Session 12 – Last Minute Submissions

Session Chairs:
U. Behringer, UBC Microelectronics, Ammerbuch, Germany

17:30 Block Copolymer Soft Mask Lithography for Silicon Nanowire Development and Seedless Fabrication of Copper & Germanium Nanowires
S. Rasappa¹,², D. Borah¹,²,
R. Senthamaraikanna¹,², M. Shaw¹,²,³,⁴
C. Faulkner², P. Gleeson²,⁴, M. Boese²,
T. Lutz², J.D. Holmes¹,²,³, M. A. Morris¹,²,³
¹ University College Cork, Ireland
² Trinity College Dublin, Dublin, Ireland
³ Tyndall National Institute, Cork, Ireland
⁴ Intel Ireland, Leixlip, Co. Kildare, Ireland

17:50 In-die Job automation for PROVE®
R.J. Lesnick Jr¹, S. Kim¹, M. Waechter²,
D. Seidel², A. Mueller², D. Beyer²
¹ Synopsys Inc., Mountain View, CA, USA
² Carl Zeiss SMS GmbH, Jena, Germany

18:10 More than Monitoring: Advanced Lithographicprocess Tuning
G. R. Cantrell, J. A. Dumaya, C. Bürgel,
A. Feicke, M. Häcker, C. Utzny, Advanced Mask Technology Center Dresden, Germany

18:30 Farewell

18:40 End of Conference
CONFERENCE INFORMATION

CONFERENCE HOURS
Tuesday, January 17th, 2012 08:30 am to 06:30 pm
Wednesday, January 18th, 2012 08:30 am to 06:00 pm

REGISTRATION HOURS
Tuesday, January 17th, 2012 07:30 am to 05:00 pm
Wednesday, January 18th, 2012 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
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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
The official deadline for manuscripts is December 9, 2011. All manuscripts will be subject to a critical peer review before they are accepted for publication in the SPIE Digital Library.
Please note: Late submissions may not be published.
Information on the format of the manuscripts and further details is also provided at the conference web site: www.emlc2012.com
The conference manuscripts will be published by SPIE
Manuscripts which are not delivered until the first day of the conference, Tuesday, January 17th, 2012 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 2012. Manuscripts not received until the first day of the conference can not be elected for Best Paper.
The author of the Best Paper will be invited to present at PMJ2012 in Yokohama, Japan, in April 2012 and at BACUS in Monterey, CA, USA in September 2012.
**GENERAL INFORMATION**

**EMLC 2012 OFFICE**

For detailed information please contact:

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fax: ++49 (0)69-6308-9828
e-Mail: gmm@vde.com

During the conference:
Tel: ++49 (0)171 4695 118

**CONFERENCE FEES**

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<tr>
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<th>until Dec. 16th, 2011</th>
<th>after Dec. 16th, 2011</th>
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<tr>
<td>Non-Members</td>
<td>€ 600.00</td>
<td>€ 750.00</td>
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<tr>
<td>VDE, VDI Members*</td>
<td>€ 560.00</td>
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<td>Lecturer</td>
<td>€ 550.00</td>
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<tr>
<td>Non-Member-Students**</td>
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<td>Student Members**</td>
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* 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, lunches and conference banquet dinner as well as one copy of the CD-ROM-proceedings.

**CONFERENCE REGISTRATION**

To register for EMLC 2012, 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. 16, 2011. 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.EMLC2012.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. 16, 2011, the registration fee will be fully refunded less a handling fee of EURO 60.00. After Dec. 16, 2011, 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 Terrassen-ufer. 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 2012 participants at the Hilton Hotel Dresden.

The special hotel room rates are:

- Twin Hilton Guest Room rates from 127.00 EUR
- Double Hilton Executive rates from 127.00 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.emlc2012.com](http://www.emlc2012.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 16th, 2011, 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 2012”.

All payments related to accommodation have to be made in the hotel before departure.
INTERNET ACCESS
The Hilton Hotel provides an Internet access in the room at € 13,- per 24 hours (per day). There is also a business center where you can use the hotel equipment at € 6,- per 30 minutes each.

BANQUET DINNER
Meeting-point for the banquet dinner on Tuesday, January 17th is the lobby of the Hilton Hotel, Dresden, where we meet at 07:10 pm. The banquet will start at about 07:30 pm. We plan to have the EMLC2012 Dinner Banquet in the “Festungsmauern” (citadel rampart) of Dresden.

INSURANCE
The organisers may not be held responsible for any injury to participants or damage, theft and loss of personal belongings.

PASSPORT AND VISA REQUIREMENTS
Foreign visitors entering Germany have to present a valid Identity Card or Passport. Delegates who need a visa should contact the German consular offices or embassies in their home countries. Please note that neither the VDE-Conference Services nor the VDE/VDI-Society Micro-electronics, Microsystems- and Precision Engineering (GMM) or the supporting bodies are able to extend any "Invitation" for application of visa.

ABOUT DRESDEN
The Elbe and the charming landscape between Saxon Switzerland and Meissen determine the nature in which the city on the Elbe river is embedded. The climate is equally beneficial for the development of the arts and for viniculture. The inhabitants are known for their own special charm, Saxon hospitality is proverbial.

At the same time Dresden is a modern city with the flair of the former Saxon residence – simply a place with life style. Many million guests visit Dresden every year.

More information you can find at: http://www.dresden.de
COOPERATING PARTNERS OF THE EMLC 2012