34th European Mask and Lithography Conference EMLC 2018

MINATEC Conference Center, Grenoble, France
Monday, June 18th – Wednesday, June 20th 2018

Overview of Manuscripts for SPIE Proceedings Vol. 10775

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and

Presentation Downloads for EMLC2018 Website "Exclusive"

Monday, June 18th, 2018

14:00-17:00 **The EMLC2018 Tutorial Class**

14:00 **Welcome and Introduction of the 1st Tutorial Speaker**
Uwe Behringer, UBC Microelectronics, EMLC2018 Conference Chair

14:05-15:20 **Inspection Challenges in the EUV Area**
Aviram Tam, Applied Materials PDC, Israel

This Tutorial will cover the use cases for blank inspection, pattern inspection, outgoing inspection, and the possible solution for DUV mask inspection, eBeam MI, Actinic blank inspection, on-wafer qualification, and how those evolve in each of the different scenarios for pellicle (no pellicle / detachable / 13.5nm only / 193nm friendly).

15:20-15:40 Coffee Break

15:40 **Introduction of the 2nd Tutorial Speaker**
Jo Finders, ASML Netherlands B.V., EMLC2018 Conference Chair

15:45-17:00 **Review of OPC / RET / SMO**
Paul van Adrichem, ASML Netherlands B.V., Veldhoven, Netherlands
Presentation download to EMLC2018 Exclusive: Tutorial_01

This tutorial will provide an overview of advanced Optical Proximity Correction, Resolution Enhancement Technology as well as Source-Mask-Optimization.

17:00 **Get-Together and 1st Poster Session**
Uwe Behringer, Chair of EMLC2018, welcomes the participants and invites them to join the Get-Together concurrently with the first Poster Session.

17:05-18:00 **1st Part of Poster Presentations**
Chair: U. Behringer, UBC Microelectronics, Ammerbuch, Germany
Co-Chair: R. Seltmann, GLOBALFOUNDRIES, Dresden, Germany

As to the Poster Presentations: pls. see Session 5

Tuesday, June 19th, 2018

09:00 **Welcome and introduction**
U. Behringer, UBC Microelectronics, EMLC2018 Conference Chair
Presentation download to EMLC2018 Exclusive: Welcome_01

09:10 **City of Grenoble Welcome:**
Grenoble-Alpes Métropole Welcomes You (Invited)
M.-J. Salat,
Grenoble-Alpes Métropole, Grenoble, France
Presentation download to EMLC2018 Exclusive: Welcome_02

09:30-10:25 **Session 1 - 1st Plenary**
Chair: J. Finders, ASML Netherlands B.V., EMLC2018 Conference Chair
Co-Chair: J. Wiley, ASML US Inc., Santa Clara, USA

09:30 **Technology for Optical Sensors (Keynote)**
O. Noblanc,
STMicroelectronics, Crolles, France
Presentation download to EMLC2018 Exclusive: S01_01

10:00 **Best Poster of BACUS 2017:**
Transparent and conductive backside coating of EUV Lithography Masks for ultrashort pulse Laser Correction (Invited)
R. A. Maniyara[a], D. S. Ghosh[a], V. Pruneri[a,b]
a) ICFO - Institut de Ciències Fotòniques, The Barcelona Institute of Science and Technology, Barcelona, Spain
b) ICREA - Institució Catalana de Recerca I Estudis Avançats, Barcelona, Spain

10:25-10:50 Coffee Break

10:50-12:10 **Session 2 - 2nd Plenary**
Chair: R. Galler, EQUIcon, Jena, Germany
Co-Chair: U. Buttgereit, Carl Zeiss SMT, Jena, Germany

10:50 **The Battle Field of Lithography (Keynote)**
L. Pain,
CEA-LETI, Minatec Campus, Genoble, France
Presentation download to EMLC2018 Exclusive: S02_01

11:20 **Multi-Beam Mask Writer – Enabling Tool for EUV Lithography (Invited)**
P. Mayrhofer, C. Klein, E. Platzgummer,
IMS Nanofabrication GmbH, Vienna, Austria

11:45 **Multi-beam mask writer MBM-1000 for advanced mask making (Invited)**
H. Matsumoto, H. Yamashita, H. Matsumoto, N. Nakayamada,
NuFlare Technology, Inc., Yokohama, Kanagawa, Japan
Presentation download to EMLC2018 Exclusive: S02_03

12:10-13:20 Lunch Break

13:20-15:20 **Session 3 – Wafer Lithography - 193i and EUV**
Chair: J. Finders, ASML Netherlands B.V., Veldhoven, Netherlands
Co-Chair: S. Wurm, ATICE LLC, Albany, NY, USA

13:20 **Multi-Trigger Resist for Electron Beam and Extreme Ultraviolet Lithography (Invited)**
C. Popescu[1,2], A. McClelland[3], G. Dawson[3], J. Roth[4], A.P.G. Robinson[2,3]
1) Nanoscale Physics, University of Birmingham, UK
2) School of Chemical Engineering, University of Birmingham, UK
3) Irresistible Materials Ltd., Birmingham, UK
4) Nano-C., Westwood, MA, USA
SPIE Proceedings [10775-02]
Presentation download to EMLC2018 Exclusive: S03_01

13:45 **Photonic superlattice multilayers for EUV lithography infrastructure (Invited)**
F. Kuchar, R. Meisels, Montanuniversität Leoben, Austria
SPIE Proceedings [10775-03]

14:10 **EUV Pellicle Update (Invited)**
J.-W. van der Horst, D. Brouns, P. Broman, R. Lafarre, T. Modderman, G. Salmaso, ASML Netherlands B.V., Veldhoven, Netherlands
Presentation download to EMLC2018 Exclusive: S03_03

14:35 **NXE:3400B imaging performance assessed from a customer perspective**
G. Schiffelers, F. Wittebrood, C. Legein,
ASLM Netherlands B.V., Veldhoven, Netherlands
Presentation download to EMLC2018 Exclusive: S03_04

14:55 **Reticle CDU improvement by Zeiss CDC and the impact on real circuit pattern (Invited)**
R. Seltmann[1], T. Thamm[1], B. Geh[4], M. D. Kaufmann[2], A. Bitensky[3],
A. N. Samy[1], S. Maelzer[1], M. Sczyrba[5]
1) GLOBALFOUNDRIES Dresden, Germany
2) Carl Zeiss SMT GmbH, Oberkochen, Germany
3) Carl Zeiss SMS, D.N. Misgav, Israel
4) Carl Zeiss SMT, Chandler, Arizona, USA
5) Advanced Mask Technology Center GmbH & Co. KG, Dresden, Germany
Presentation download to EMLC2018 Exclusive: S03_05

15:20-15:45 Coffee Break

15:45-17:40 **Session 4 – ML2, NIL, and DSA**
Chair: I. Stolberg, Vistec Electron Beam GmbH, Jena, Germany
Co-Chair: B. Connolly, TOPPAN Photomask, Dresden, Germany

15:45 **Performance Validation of Mapper's FLX-1200 (Invited)**
J. Pradelles[a], Y. Blancquaert[a], S. Landis[a], L. Pain[a], G. Rademaker[a], I. Servin[a],
G. de Boer[b], P. Brandt[b], M. Dansberg[b], R. Jager[b], J. Peijster[b], E. Slot[b], S. Steenbrink[b],
M. Wieland[b]
a) CEA-LETI, Grenoble, France
b) MAPPER Lithography, Delft, The Netherlands
SPIE Proceedings [10775-14]

16:10 **Feasibility of monitoring a multiple e-beam tool using scatterometry and machine learning: CD and stitching error detection**
G. Rademaker[a,b], Y. Blancquaert[a], T. Labbaye[a], L. Mourier[a], N. Figueiro[c], F. Sanchez[c],
R. Koret[d], J. Pradelles[a], S. Landis[a], S. Rey[a], R. Haupt[c], B. Bringoltz[d], M. Shifrin[d],
D. Kandel[d,] A. Ger[d], M. Sendelbach[e], S. Wolfling[d], L. Pain[a]
a) CEA-LETI, Minatec Campus, Grenoble, France
b) University Grenoble Alpes, Grenoble, France
c) Nova Measuring Instruments GmbH, Dresden, Germany
d) Nova Measuring Instruments, LTD, Rehovot, Israel
e) Nova Measuring Instruments, Inc., Santa Clara, California, USA
SPIE Proceedings [10775-36]

16:30 **Wafer-Level UV-Nanoimprint Lithography for high resolution and complex 3D Structures (Invited)**
T. Glinsner[1], M. Eibelhuber[1], G. Berger[1], M. Chouiki[1], C. Lenk[2], M. Hofmann[2], S. Lenk[2],
T. Ivanov[2], I. W. Rangelow[2], A. Ahmad[3], A. Reum[3], M. Holz[3]
1) EV Group, St. Florian am Inn, Austria
2) TU Ilmenau, Germany
3) Nanoanalytik GmbH, Imenau, Germany

16:55 **Application of rules-based corrections for wafer scale nanoimprint processes and evaluation of predictive models**
H. Teyssedre[a], P. Quemere[a], J. Chartoire[a], F. Delachat[a,b], F. Boudaa[a], L. Perraud[a],
M. May[a]

a) CEA-LETI, Minatec Campus, Grenoble, France;
b) INTITEK, Lyon, France
SPIE Proceedings [10775-23]
Presentation download to EMLC2018 Exclusive: S04_04

17:15 **Silicon nanowires patterning using UV-assisted graphoepitaxy DSA lithography (Invited)**
M. Argoud[a], G. Claveau[a], P. Pimenta Barros[a], Z. Chalupa[a], G. Chamiot-Maitral[a], C. Navarro[b], C. Nicolet[b], I. Cayrefourcq[c], R. Tiron[a]
a) CEA-LETI, Minatec Campus, Grenoble, France
b) ARKEMA FRANCE, Lacq, France
c) ARKEMA FRANCE, Colombes, France

17:45-18:45 **Session 5 – 2nd Part of Poster Presentations**
Chair: U. Behringer, UBC Microelectronics, Ammerbuch, Germany
Co-Chair: R. Seltmann, GLOBALFOUNDRIES, Dresden, Germany

POSTER – WAFER LITHOGRAPHY - 193i and EUV

P01 Alternative absorber materials for mitigation of mask 3D effects in high NA EUV lithography
F.J. Timmermans, J. Finders, J. Mcnamara, E. van Setten,
ASML Netherlands B.V., Veldhoven, Netherlands
SPIE Proceedings [10775-46]
Presentation download to EMLC2018 Exclusive: S05_P01

P02 Advances in multi-layer deposition of EUV mask blanks: Current status and roadmap
K. Rook, S. Kohli, M. Lee, B. Druz, F. Cerio, A. Devasahayam,
Veeco, Plainview, NY, USA
Presentation download to EMLC2018 Exclusive: S05_P02

P03 Revival of grayscale technique in power semiconductor processing under low-cost manufacturing constraints
J. Schneider, D. Kaiser, N. Morgana, H. Feick
Infineon Technologies Dresden GmbH, Dresden, Germany
SPIE Proceedings [10775-21]
Presentation download to EMLC2018 Exclusive: S05_P03

P04 Towards Fab Cycle Time Reduction by Machine Learning based Overlay Metrology
F. Hasibi[a], L. van Dijk[a], M. Larranaga[a], A. Lam[b], A. Pastol[a], R. van Haren[a]
a) ASML Netherlands B.V., Veldhoven, Netherlands
b) STMicroelectronics, Crolles Cedex, France
SPIE Proceedings [10775-53]
Presentation download to EMLC2018 Exclusive: S05_P04

POSTER – ML2, NANO-IMPRINT LITHOGRAPHY and DSA

P05 Fabrication of nanoparticles for biosensing using UV-NIL and lift-off
T. Mitteramskogler[a], M. Haslinger[a], A. Shoshi[b], H. Brueckl[b], M. Muehlberger[a]
a) PROFACTOR GmbH, Steyr-Gleink, Austria
b) Danube University Krems, Wiener Neustadt, Austria
SPIE Proceedings [10775-07]

P06 Dry etching challenges for high-χ block copolymers
P. Bézard[a], X. Chevalier[b], C. Navarro[b], C. Nicolet[b], G. Fleury[c], I. Cayrefourcq[b], R. Tiron[d], M. Zelsmann[a]
a) University Grenoble Alpes, Grenoble, France
b) ARKEMA, Lacq, France
c) University of Bordeaux, Pessac, France
d) CEA-LETI, Minatec Campus, Grenoble, France

POSTER – MASK PATTERNING, METROLOGY and PROCESS

P07 Machine learning methods applied to process qualification
M. Herrmann, S. Meuseman, C. Utzny,
Advanced Mask Technology Center GmbH & Co. KG, Dresden, Germany
SPIE Proceedings [10775-04]

P08 Deposition Durability of e-Beam Mask Repair
C. Holfeld[b], T. Göhler[a], P. Nesladek[a], T. Krome[a]
a) Advanced Mask Technology Center GmbH & Co. KG, Dresden, Germany
b) GLOBALFOUNDRIES Dresden Module One LLC & Co. KG, Dresden, Germany
SPIE Proceedings [10775-12]

P09 Nikon's Large-Size Photomask Blanks for Production of High Resolution Panels
T. Yagami, Y. Takarada, K. Hayashi, T. Ozawa,
Nikon Corporation, Sagamihara, Kanagawa, Japan

P10 Maximizing Utilization of Large-Scale Mask Data Preparation Clusters
P. Gilgenkrantz[a], S. Kim[b], W. Han[c], M. Park[b], M. Tsao[b]
a) Mentor Graphics (Ireland) Ltd. French Branch, St Ismier, France
b) Mentor Graphics Corp., Fremont, California, USA
c) Mentor Graphics (Korea) LLC., Seongnam-si, Gyeonggi-do, Korea
SPIE Proceedings [10775-34]

P11 Best Practices Leveling, Vibration and for Reducing Reticle Haze in 193nm Retcle Scanner Environments
A. Jackson, CyberOptics Semiconductor Division, Minneapolis, MN, USA

POSTER – NON-IC APPLICATIONS, PLASMONICS & PHOTONICS

P12 ElectroHydroDynamic Lithography for complex polymer structures
C. Gourgon, J.H. Tortai, J. Boussey, M. Panabière, S. Labau,
Laboratoire des Technologies de la Microélectronique – CNRS-UGA-Minatec, Grenoble, France

P13 Plasmonic Resonances in Metal Covered 2D Hexagonal Gratings Fabricated by Interference Lithography
A. A. Ushkov, M. Bichotte, I. Verrier, T. Kampe, Y, Jourlin,
University Lyon, Saint-Etienne, France
SPIE Proceedings [10775-08]
Presentation download to EMLC2018 Exclusive: S05_P13

P14 Approach to combine Electron-Beam Lithography and Two-Photon Polymerization for enhanced nano-channels in network-based biocomputation devices
D. Reuter[a], S. Steenhusen[b], C. Meinecke[c], G. Heldt[a], M. Groß[b], G. Domann[b], T. Korten[d], S. E. Schulz[a]
a) Fraunhofer ENAS, Chemnitz, Germany
b) Fraunhofer ISC, Würzburg, Germany
c) Technische Universität Chemnitz, Germany
d) Technische Universität Dresden, Germany
SPIE Proceedings [10775-37] EMLC2018 Best Poster: Danny Reuter

POSTER – MASK2WAFER and WAFER2WAFER METROLOGY

P15 Limits of model-based CD-SEM metrology
J. Belissard[a], J. Hazart[a], S. Labbé[b], F. Triki[b]
a) CEA-LETI, Grenoble, France
b) University Grenoble Alpes, Saint Martin d'Hères, France
SPIE Proceedings [10775-06]

P16 **Manufacturing of roughness standard samples based on ACF/PSD model programming**
J. Reche[a,b], M. Besacier[b], P. Gergaud[a], Y. Blancquaert[a]
a) University Grenoble Alpes, CEA, LETI, DTSI, Grenoble, France
b) University Grenoble Alpes, CNRS, CEA-LETI Minatec, Grenoble, France
SPIE Proceedings [10775-50]
Presentation download to EMLC2018 Exclusive: S05_P16

POSTER – USING BIG DATA / DEEP LEARNING

P17 **Research on data augmentation for lithography hotspot detection using deep learning**
V. Borisov, J. Scheible,
Robert Bosch Center for Power Electronics, Reutlingen University, Germany
SPIE Proceedings [10775-35]
Presentation download to EMLC2018 Exclusive: S05_P17

18:45 **Street car or walk to the Cable Car Ground Station**
The walking distance from MINATEC Conference Center to the Cable Car Ground Station is about 25 minutes.

19:30-22:00 **Conference Dinner at the "Restaurant le Téléférique" on top of the "Bastille"** (300m above Grenoble)

after 22:00 From Cable Car ground station individual walk or taxi back to your hotel.

Wednesday, June 20th, 2018

09:00-10:00 **Session 6 - 3rd Plenary**
Chair: U. Behringer, UBC Microelectronics, Ammerbuch, Germany

09:00 **Announcements:**

U. Behringer: Best Poster EMLC2018

Jim Wiley: Announcement of SPIE Photomask Technology & EUV Lithography (BACUS) Conference, 17-20 Sept., Monterey, California, USA

09:05 **Silicon Photonics: from research to industrial reality (Keynote)**
F. Bœuf, STMicroelectronics, Crolles, France
Presentation download to EMLC2018 Exclusive: S06_01

09:35 **Lithography technology and trends for More than Moore devices – Advanced Packaging & MEMS devices (Invited)**
A. Pizzagalli, Yole Développement, Lyon, France
SPIE Proceedings [10775-45]
Presentation download to EMLC2018 Exclusive: S06_02

10:00 **Best Paper of Photomask Japan 2018 (Invited)**
Development of closed-type EUV pellicle
Y. Ono, k. Kohmura, A. Okubo, D. Taneichi, H. Ishikawa, T. Biyajima
Mitsui Chemicals Inc., Nagaura, Japan

10:25-10:50 Coffee Break

10:50-12:30 **Session 7 - Mask Patterning, Metrology and Process**
Chair: M. Tschinkl, AMTC, Dresden, Germany
Co-Chair: K.-D. Roeth, KLA-Tencor MIE, Weilburg, Germany

10:50 **Lithographic solution for yield detracting patterning defect signatures caused by Layout and Unit Process Recipe interaction**
M. Voigt, R. Gaertner, R. Seltmann,
GLOBALFOUNDRIES, Dresden, Germany
Presentation download to EMLC2018 Exclusive: S07_01

11:10 **CK-MASK semi-manual tool for mask inspection and blowing**
A. Leserri, U. Lessi, F. Ferrario,
ST Microelectronics, Agrate, Italy
SPIE Proceedings [10775-41]

11:30 **The (almost) completely automated 12”-lithography**
J. Seyfert, L. Albinus, J. Arnold, S. Fritsche, S. Habel, M. Mitrach, M. Stephan,
Infineon Technologies Dresden GmbH, Dresden, Germany
SPIE Proceedings [10775-20]
Presentation download to EMLC2018 Exclusive: S07_03

11:50 **Fast local registration measurements for efficient e-beam writer qualification and correction**
K.-D. Roeth, H. Steigerwald, R. Han, O. Ache, F. Laske,
KLA-Tencor MIE GmbH, Weilburg, Germany
SPIE Proceedings [10775-18] EMLC2018 Best Paper: Klaus-Dieter Roeth
Presentation download to EMLC2018 Exclusive: S07_04

12:10 **Failure analysis and prevention of patterning issues using OPC simulation and advanced method of contour analysis**
C. Beylier, F. Robert, B. Vianne,
STMicroelectronics, Crolles, France

12:30-13:40 Lunch Break

13:40-15:00 **Session 8 – Non-IC Applications, Plasmonics & Photonics**
Chair: R. Tiron, CEA-LETI, Grenoble, France
Co-Chair: T. Onanuga, Fraunhofer IISB, Erlangen, Germany

13:40 **Accurate determination of 3D PSF and resist effects in grayscale laser lithography**
T. Onanuga[a,b,c], C. Kaspar[d], H. Sailer[d], A. Erdmann[a,b,c]
a) Erlangen Graduate School in Advanced Optical Technologies (SAOT), Germany;
b) Friedrich-Alexander-Universität Erlangen-Nürnberg, LEB, Erlangen, Germany;
c) Fraunhofer Institute for Integrated Systems and Device Technology, Erlangen, Germany;
d) Institut für Mikroelektronik Stuttgart (IMS CHIPS), Stuttgart, Germany
SPIE Proceedings [10775-22]

14:00 **Photonic IC Lithography Software - Challenges and Solutions**
N. Ünal[a], U. Hofmann[a], J. Bolten[b], T. Wahlbrink[b], A. L. Giesecke[b], M. Hornung[b] ,
J. Bolk[c]
a) GenISys GmbH, Taufkirchen (Munich), Germany;
b) AMO GmbH, AMICA, Aachen, Germany;
c) Eindhoven University of Technology, NanoLab@TU/e De Zaale, Eindhoven, The Netherlands
Presentation download to EMLC2018 Exclusive: S08_02

14:20 **Curvilinear Data Processing Methods and Verification**
C. Browning, S. Postnikov, M. Milléquant, S. Bayle, P. Schiavone
Aselta Nanographics, Grenoble, France
SPIE Proceedings [10775-38]
Presentation download to EMLC2018 Exclusive: S08_03

14:40 **A Resist Reflow 3D Compact Model Approach for Imager Microlens Applications**
S. Bérard-Bergery[a], J. Hazart[a], P. Quéméré[a], C. Beylier[b], N. Allouti[a], M. Cordeau[a], R. Eleouet[a], F. Tomaso[a], J.-B. Henry[a], A. Ostrovsky[b], V. Rousset[b], V. Farys[b]
a) CEA-LETI, Minatec Campus, Grenoble, France,
b) STMicroelectronics, Crolles, France

15:00-15:25 Coffee Break

15:25-16:45 **Session 9 - Mask2Wafer and Wafer2Wafer Metrology**
Chair: J. H. Peters, bmbg consult, Radebeul, Germany
Co-Chair: F. Weisbuch, GLOBALFOUNDRIES, Dresden, Germany

15:25 **Tilted beam SEM, a novel approach for industry 3D metrology**
C. Valade[b], J. Hazart[a], S. Bérard Bergery[a], E. Sungauer[b], M. Besacier[c], C. Gourgon[c]
a) University Grenoble Alpes, CEA-LETI, DTSI, Grenoble, France
b) STMicroelectronics, Crolles, France
c) University Grenoble Alpes, CNRS, CEA-LETI, LTM, Grenoble, France

15:45 **On the Road to Automated Production Workflows in the Back End of Line**
G. Tabbone, K. Egodage, K. Schulz, A. Garetto,
Carl Zeiss SMT, Jena, Germany
SPIE Proceedings [10775-47]

16:05 **Measuring inter-layer edge placement error with SEM contour**
F. Weisbuch, J. Schatz,
GLOBALFOUNDRIES, Dresden, Germany
SPIE Proceedings [10775-31]
Presentation download to EMLC2018 Exclusive: S09_03

16:25 **FEM Simulation of Charging Effect during SEM Methodology**
D. Duc Nguyen[a,b], J.-H. Tortai[b], M. Abaidi[a], P. Schiavone[a]
a) ASELTA Nanographics, Grenoble, France
b) CEA-LETI, Grenoble, France
SPIE Proceedings [10775-42]
Presentation download to EMLC2018 Exclusive: S09_04

16:45-18:10 **Session 10 – Using Big Data / Deep Learning**
Chair: B. Le Gratiet, STMicroelectronics, Crolles, France
Co-Chair: S. A. Savari, Texas A&M University, College Station, TX, USA

16:45 **Automatic Defect Classification of SEM images using Deep Learning (Invited)**
L. Bidault, D. Mastroeni,
STMicroelectronics Rousset, France
Presentation download to EMLC2018 Exclusive: S10_01

17:10 **Deep Supervised Learning to Estimate True Rough Line Images from SEM Images**
N. Chaudhary, S. A. Savari, S. S. Yeddulapalli,
Texas A&M University, College Station, TX, USA
SPIE Proceedings [10775-15] EMLC2018 2nd Best Paper: Sarap A. Savari
Presentation download to EMLC2018 Exclusive: S10_02

17:30 **Microlens under Melt In-Line Monitoring based on application of Neural Network Automatic Defect Classification**
J. Ducoté[a], A. Lakcher[a], L. Bidault[b], A.-R. Philipot[a], B. Le-Gratiet[a]
a) STMicroelectronics, Crolles, France
b) STMicroelectronics, Rousset, France
SPIE Proceedings [10775-24]
Presentation download to EMLC2018 Exclusive: S10_03

17:50 **Machine Learning applications in overlay prediction**
A. Lam,
STMicroelectronics, Crolles, France
Presentation download to EMLC2018 Exclusive: S10_04

18:10 **Thanks to EMLC2018 participants & Announcement of EMLC2019**
U. Behringer, UBC Microelectronics, Ammerbuch, Germany

18:15 **End of EMCL2018 Conference**