The 4th International Workshop on Advanced Patterning Solutions

第四届国际先进光刻技术研讨会

November 5-6, 2020, Sichuan Tennis International Hotel, Chengdu, China

2020 年 11 月 5 日至 6 日，四川川投国际酒店，成都，中国

Agenda

Program Chairs: Shinji Okazaki, Xiangzhao Wang, Mark Neisser

Registration 注册		
4 Nov. 2020	12:00-22:00	@酒店大厅 The hotel lobby
5-6 Nov. 2020	08:00-17:00	@酒店大厅 The hotel lobby

DAY 1: 5 Nov., 2020 (Thursday) Shuyun Hall 蜀韵厅	
DAY 1–Morning	
08:30-09:00	**Opening Ceremony & Welcome Address** **Chair: Xu Liu, Yayi Wei**
Welcome Address	**Xu Liu (COS) 主持及介绍领导** **Tianchun Ye (IMECAS)** **Jian Li (Shuangliu District)** **Shinji Okazaki (Japan)**
09:00-10:05	**Plenary and DTCO Session** **Chair: Xiangzhao Wang**
	5 minutes Q&A for each talk
09:00-09:35	**H. –S. Philip Wong (Stanford University):** (KEYNOTE, Online) Materials and Devices for 3D Integrated Circuits
09:35-10:05	**Nan Fu (Hisilicon):** (INVITED) Patterning process-window aware DTCO for 12nm FinFET technology and fast yield ramp up

10:05-10:30	**Group Photo & Coffee Break**
10:30-12:00	**Computational Lithography Session** **Chair: Yanxiang Liu**
	5 minutes Q&A for each talk
10:30-11:00	**Steffen Schulze (Mentor):** (INVITED, Online) Providing Predictive Design & Process Insights to Accelerate Yield Ramp with Calibre Fab Solutions
11:00-11:30	**Xuelong Shi 时雪龙 (ICRD):** (INVITED) Fast and Accurate Machine Learning Inverse Lithography Using Physics Based Feature Maps and Specially Designed DCNN
11:30-12:00	**Xiaodong Meng (AMEDAC 全芯制造):** (INVITED) The impact of lenses aberration on CD and position for low k1 lithography
12:00-13:30	**Lunch**
DAY 1-Afternoon	
13:30-15:10	**Metrology and Inspection Session I** **Chair: Xuelong Shi**
	5 minutes Q&A for each talk
13:30-14:00	**Masami Ikota (Hitachi High-Tech):** (INVITED, Online) Electron Beam Metrology for Advanced Patterning
14:00-14:30	**Dean Wu 吴振国 (YMTC 长江存储):** (INVITED) 3D NAND Dual-Deck OVL measurement and control
14:30-14:50	**Junjun Zhang 张君君 (CXMT 长鑫存储):** Real time process monitoring using diffraction-based overlay measurements from YieldStar
14:50-15:10	**Dongyu Xu (HLMC 华力微电子):** CDSEM-Assisted Optical Metrology for Overlay Control
15:10-15:30	**Coffee Break**
15:30-17:05	**Advanced Material Session I**

	Chair: Guoqiang Yang 杨国强
	5 minutes Q&A for each talk
15:30-16:05	**Joost Frenken (ARCNL):** (KEYNOTE, Online) Materials challenges in EUV lithography
16:05-16:35	**Laurent PAIN (CEA Tech-Leti):** (INVITED, Online) The virtuous circles of the RTOs -- How to support and boost technology developments from materials to integration
16:35-17:05	**Fred Brouwer (ARCNL):** (INVITED, Online) Photon-induced reactions in hybrid molecular EUV photoresists
17:05-18:30	**Poster Session**
	Authors should be present at your poster.
18:40-20:30	**Banquet 晚宴 （Shuyun Hall 蜀韵厅）for all attendees**

Day 2: **6 Nov., 2020 (Friday) —— Parallel Session I, 并行报告会场 I** **Shuyun Hall Part A, 蜀韵厅 A**	
DAY 2–Morning	
08:30-10:00	**Equipment and Mask Session** **Chair: Jing Li**
	5 minutes Q&A for each talk
08:30-09:00	**Masahiro Morita (Nikon):** (INVITED, Online) Integrated Solution of Nikon Exposure, Metrology and Inspection
09:00-09:30	**Keita SAKAI (Canon Inc.):** (INVITED, Online) Nanoimprint Performance Improvements for High Volume Semiconductor Manufacturing
09:30-10:00	**Shingo Yoshikawa (DNP):** (INVITED, Online) 5nm node's EUV mask process studies using MBMW
10:00-10:20	**Coffee Break**

10:20-12:10	**Mask Optimization Session** **Chair: Yaobin Feng & Zhiyang Song**
	5 minutes Q&A for each talk
10:20-10:50	**Andy Chan (Microsoft):** (INVITED, Online) Running OPC workload in Azure, what we learned thus far
10:50-11:20	**Peng Liu (Synopsys Inc.):** (INVITED, Online) Mask Synthesis using Machine Learning Software & Hardware for EUV Lithography
11:20-11:50	**Boer Zhu (ASML):** (INVITED) Simulation investigation of resolution enhancement techniques (RETs) in low k1 EUV
11:50-12:10	**Fei Peng (Wuhan University):** Mask Optimization based on artificial desired pattern
12:10-13:30	**Lunch**
DAY 2-Afternoon	
13:30-15:00	**Process and Roadmap Session** **Session Chair: Weimin Gao**
	5 minutes Q&A for each talk
13:30-14:00	**Xuedong Fan (HLMC):** (INVITED) A novel SEM image based advanced lithography process control providing quick feedback
14:00-14:30	**Billy Tang (Cymer):** (INVITED) Improving DOF for an Advanced 3D NAND Via Layer using Multi-Focal Imaging
14:30-15:00	**Mustafa BADAROGLU (IEEE IRDS More Moore):** (INVITED, Online) More Moore roadmap for high-volume manufacturing – IRDS view
15:00-15:20	**Coffee Break**
15:20-17:00	**Equipment Session II** **Chair: Bob Dong**

	5 minutes Q&A for each talk
15:20-15:50	**Toshihiro Oga (Gigaphoton Inc.):** (INVITED, Online) Imaging performance improvement by spectral performance stability and Optical Pulse Stretching functionality
15:50-16:20	**Yonggang Xie 谢永刚 (KingSemi):** (INVITED) Localized Track is capable of advance Process
16:20-16:40	**Yiming Zhu (HLMC):** Domestic clean track development and improvement for advance node production
16:40-17:00	**Closing Plenary Address** **闭幕致辞**

Day 2: **6 Nov., 2020 (Friday)** —— **Parallel Session II, 并行报告会场 II** **Shuyun Hall Part B, 蜀韵厅 B**	
DAY 2–Morning	
08:30-09:50	**Metrology and Inspection Session II** **Chair: Wei Yuan**
	5 minutes Q&A for each talk
08:30-09:00	**Gary Zhang (ASML HMI):** (INVITED, Online) Enabling Holistic Patterning Applications with High Speed E-beam Metrology and Inspection
09:00-09:30	**Bo Hua (KLA):** (INVITED) Broadband Plasma Optical Wafer Defect Inspection for Mask Qualification
09:30-09:50	**Yunsheng Xia (CXMT 长鑫存储):** OPO Measurement Improvement in Advanced DRAM with Tunable Wavelength Imaging
09:50-10:20	**Coffee Break**
10:20-12:00	**Optical Lithography Session** **Chair: Vincent Chen**
	5 minutes Q&A for each talk
10:20-10:50	**Wei Yuan (ICRD):**

	(INVITED) Machine Learning Hotspot Prediction Significantly Helps to Increase Capture Rate on Wafer
10:50-11:20	**Qian Xie (Mentor):** (INVITED, Online) Reducing Systematic Defects using Calibre Wafer Defect Management and Machine Learning Solutions
11:20-11:40	**Xuelong Shi (ICRD):** An effective method of contour extraction for SEM image based on DCNN
11:40-12:00	**Zengzhi Huang (CUMEC):** The Preliminary Rounds of OPC Development in 180nm node Silicon Photonics MPW platform
12:00-13:30	**Lunch**
DAY 2-Afternoon	
13:30-15:00	**Advanced Material Session II** **Chair: Mark Neisser**
	5 minutes Q&A for each talk
13:30-14:00	**Takanori KAWAKAMI (JSR):** (INVITED, Online) Advanced Lithography Material Status toward 5nm Node and beyond
14:00-14:20	**Sams Hsu (PiBond):** New silicon-based materials for semiconductor manufacturing processes
14:20-14:40	**Garry Wang (3M):** 3M Immobilized Micro-Bed Ion Exchange Resin Bed Technology Treatment of PGMEA
14:40-15:00	**TORU FUJIMORI (FUJIFILM):** (Online) How to reduce the stochastic issue in EUV lithography
15:00-15:20	**Coffee Break**
15:20-17:10	**New Patterning Process Session** **Chair: Yayi Wei**
	5 minutes Q&A for each talk
15:20-15:50	**Eberhard Manske (Technische Universität Ilmenau):** (INVITED, Online) Alternative tip- and laser- based nanofabrication

	up to 100 mm on flat and non-flat surfaces with subnanometre precision
15:50-16:20	**Qi-Huo Wei (Southern University of Science and Technology 南方科技大学):** (INVITED) Photopatterning Molecular Orientations with Plasmonic Metamasks
16:20-16:50	**Shisheng Xiong (Fudan University):** (INVITED) Sub-10 nm high-resolution patterning combining directed self-assembly of block copolymer and double patterning
16:50-17:10	**Gaofeng Liang (Chongqing University):** Designing of multilayers for evanescent wave-based interference lithography
17:10-17:20	**Closing Plenary Address** **闭幕致辞**

Poster Session **5 Nov., 2020 (Thursday) 17:05-18:30 Outdoor of Shuyun Hall 蜀韵厅走廊**	
IWAPS2020-P-01	**Yu Chen, Shisheng Xiong (Fudan University)** Directed self-assembly of block copolymer for fabricating high-density nanowire arrays
IWAPS2020-P-02	**Chengyang Hou, Wenze Yao, Wei Liu, Yiqin Chen, Huigao Duan, Jie Liu (Hunan University)** Ultrafast and Accurate Proximity Effect Correction of Large-Scale Electron Beam Lithography based on FMM and SaaS
IWAPS2020-P-11	**Zinan Zhang, Sikun Li, Xiangzhao Wang, Wei Cheng, Shaobo Hu, Zhen Liu (SIOM, CAS)** Shadowing Effect Calibration using Neural Network for EUV Lithography
IWAPS2020-P-12	**Guodong Chen, Sikun Li, Xiangzhao Wang, Yuguang Chen, Xinhua Yang (SIOM, CAS)** A Particle-Collision-Based Etch Model
IWAPS2020-P-13	**Weimei Xie, Yanpeng Chen, Shirui Yu, Yu Zhang (HLMC)** Evaluating the process performances of binary, PSM and OMOG masks in 14nm technology node
IWAPS2020-	**Wei QI, Jing LI, Jinxin CHEN, Xianghong MA (IMECAS)**

P-14	A simulation study on measurement frame design based on multi-variable and multi-objective optimization
IWAPS2020-P-15	**Chao Fang, Jinyu Qiu, Pandeng Xuan, Yaobin Feng, Lingyi Guo, Jiahui He, Gang Xu, Jin Zhu, Jincheng Pei (YMTC & KLA)** Novel target design for thick resist layers overlay measurement improvement
IWAPS2020-P-16	**Jiaxin Lin, Lisong Dong, Xu Ma, Taian Fan, Rui Chen, Yayi Wei (IMECAS & BIT)** Fast mask near-field calculation using fully convolution network
IWAPS2020-P-17	**Pengjie Kong, Lisong Dong, Yayi Wei (IMECAS)** An application of chebyshev spectral method in the diffusion of the acid during PEB process
IWAPS2020-P-18	**Yang Liu, Yanqiu Li, Lihui Liu, Yiyu Sun, Pengzhi Wei, Enze Li (BIT)** Source Optimization under Thick Mask Model
IWAPS2020-P-19	**Le MA, Libin ZHANG, Liwan YUE, Zhibiao MAO, Yayi WEI (IMECAS & NATA)** Investigation of A New Method to Weigh the Data Used for OPC Model Calibration
IWAPS2020-P-22	**Peipei Tao, Li Sheng, Qianqian Wang, Hao Cui, Xiaolin Wang, Xiangming He, Hong Xu (Tsinghua University)** Photoresist for Extreme Ultraviolet Lithography
IWAPS2020-P-25	**Min Wang, Gabriel Ohlsson (Biolin Scientific AB)** Using QCM-D For Analysis Of Surface Interactions Affecting CMP
IWAPS2020-P-26	**Jiali Huo, Ying Zhao, Weixing Huang, Fan Zhang, Qiang Huo, Weizhuo Gan, Zhenhua Wu，Huaxiang Yin (IMECAS)** Device-Circuit Co-Optimization for Negative Capacitance FinFETs based on SPICE Model
IWAPS2020-P-27	**Junwu Wang, S. Zakharov Vassily, Xinbing Wang, Duluo Zuo (Huazhong University of Science and Technology / Russian Academy of Sciences)** Experimental Study and Simulation of Extreme Ultraviolet Emission in Laser Induced Discharge Plasma
IWAPS2020-P-31	**Yuyang Bian, XiJun Guan, Biqiu Liu, Xiaobo Guo, Cong Zhang, Jun Huang, Yu Zhang (HLMC)** Pattern Roughness Analyses in Advanced Lithography: Power Spectral Density and Autocorrelation

IWAPS2020-P-32	**Yan Yan, Xuelong Shi, Tao Zhou, Bowen Xu, Chen Li, Yifei Lu, Ying Gao (ICRD)** Machine Learning Virtual SEM Metrology
IWAPS2020-P-33	**Jing LI, Guanghua YANG, Minxia DING, Qingyang ZHANG (IMECAS)** Investigation of the relationship between segmented grating mark structure and the diffraction efficiency
IWAPS2020-P-34	**Zengxiong LU, Mengnan XU, Yuejing QI, Jing LI (IMECAS)** The Polarization tracing in Self-Referencing Interferometer for Displacement Measurement
IWAPS2020-P-35	**Libin Zhang, Cong Lu, Yaobin Feng, Yayi Wei (IMECAS & YMTC)** Overlay mark sub structure design to improve the contrast
IWAPS2020-P-36	**Zhipeng WU, Jing LI, Dongdong XIE, Minxia DING (IMECAS)** Modified Anti-windup Control for High Precision Motion System
IWAPS2020-P-37	**Jinxin Chen, Minxia Ding, Penghui Wang, Shidong Zhu (IMECAS)** Simulation Investigation on Rarefied Gas Flow in Vacuum Chamber
IWAPS2020-P-38	**Jos Donders, Anthony Keen, Mohamed Noorani, Niall Walsh, Amedeo Bellunato, Rene Heijink, David Engerran (Edwards)** Edwards Contribution to future EUV Lithography scaling

Agenda is subject to change

For update agenda and further information, please visit the website: www.iwaps.org

Locations