International Workshop on Advanced Patterning Solutions

The 6th International Workshop on Advanced Patterning Solutions

第六届国际先进光刻技术研讨会

October 21-22, 2022, Online, Beijing, China

2022 年 10 月 21 日至 22 日，线上会议，北京，中国

Agenda 会议日程

Program Chairs: Jianrui Cheng (SMEE),
Guoqiang Yang (UCAS),
Steffen Schulze (Siemens EDA)

DAY 1:
21 Oct. 2022 (Friday)

Conference Platform website:
https://www.koushare.com/lives/room/201979

DAY 1–Morning	
08:30-09:00	**Opening Ceremony & Welcome Address** **Chair: Yayi Wei**
Welcome Address	**Jianlin Cao (曹健林)** **Tianchun Ye (叶甜春)** **Xu Liu (刘旭，光学学会)** **Steffen Schulze (US)**
09:00-10:05	**Plenary Session I** **Chair: Jianrui Cheng (SMEE)**
	5 minutes Q&A for each talk
09:00-09:35	**Puneet Gupta (UCLA):** (KEYNOTE) Design-Technology Optimization for EUV
09:35-10:05	**Qiang Wu (Fudan Univ.):** (INVITED) An Alignment Tree for Logic CFET Lithographic Process under 3 nm Design Rule and Beyond
10:05-10:25	**Coffee Break**

10:25-12:05	**Computational Lithography Session** **Chair: Qiang Wu (Fudan Univ.)**
	5 minutes Q&A for each talk
10:25-10:55	**Ingo Bork (Siemens EDA):** (INVITED) Curvilinear Mask Process Correction - status quo and outlook
10:55-11:25	**Gandharv Bhatara (Synopsys):** (INVITED) Maximizing Lithography Entitlement with Design to Silicon Solutions
11:25-11:45	**Yue Ma (BIT):** Full Field Adaptive Tolerance Analysis of Extreme Ultraviolet Lithography Objective
11:45-12:05	**Yijiang Shen (GDUT):** Lithography hotspot detection with ResNet network
12:05-13:30	**Lunch**
DAY 1-Afternoon	
13:30-15:00	**Process Session** **Chair: Vincent Chen & Ray Hsu (PiBond)**
	5 minutes Q&A for each talk
13:30-14:00	**Kan Zhou (HLMC):** (INVITED) Dose control by using mask pattern contour and massive metrology feed forward strategy in foundry HVM environment
14:00-14:30	**Hai Zhang (SMSC):** (INVITED) A Novel Multiple Layers Overlay Run-to-Run Control Using New Algorithm Metrics for Logic Process
14:30-15:00	**Hao Cheng (CXMT):** (INVITED) A comprehensive study of alignment, overlay and leveling in throughput effect under PEP –align for high volume manufacturing fab immersion group
15:00-15:20	**Coffee Break**
15:20-16:25	**Plenary Session II** **Chair: Yaobin Feng (YMTC)**
	5 minutes Q&A for each talk
15:20-15:55	**Ryoung-han Kim (IMEC):** (KEYNOTE) Patterning, DTCO and STCO on the horizon of scaling paradigm evolution in the semiconductor industry
15:55-16:25	**Andreas Erdmann (Fraunhofer IISB):** (INVITED) Imaging physics of low-n absorbers for EUV lithography

16:25-17:30	**Poster Session**

Day 2:
22 Oct. 2022 (Saturday) —— Parallel Session I, 并行报告会场 I
Conference Platform website:
https://www.koushare.com/lives/room/878464

DAY 2–Morning	
08:30-09:50	**Process and Metrology Session** **Chair: Xu Ma (BIT)**
	5 minutes Q&A for each talk
08:30-09:00	**Masuyuki Takashi (Nikon):** (INVITED) Overlay control by absolute coordinate adjustment and calibration method
09:00-09:30	**Will Conley (Cymer):** (INVITED) KrF Multi-Focal Imaging (MFI) Holistic Imaging Solution
09:30-09:50	**Lin Yang (CEPREI):** A Traceable Diffraction-based Overlay Metrology Method: Target Design, Instrumentation and Analysis
09:50-10:20	**Coffee Break**
10:20-11:30	**Equipment Session** **Chair: Jing Li (IMECAS)**
	5 minutes Q&A for each talk
10:20-10:50	**Keita Sakai (Canon):** (INVITED) Latest updates on nanoimprint lithography for semiconductor device manufacturing
10:50-11:10	**Zhen Ma (Edwards):** EUV lithography vacuum system energy and footprint reduction
11:10-11:30	**Shunan Li (Jiangsu JITRI Sioux Technologies Co. Ltd):** Intelligent Motion Control Platform to accelerate mechatronic system R&D
11:30-13:30	**Lunch**
DAY 2-Afternoon	
13:30-15:00	**Material and Process Session** **Chair: Mark Neisser (Tsinghua Univ.)**
	5 minutes Q&A for each talk
13:30-14:00	**Takanori Kawakami (JSR):** (INVITED) Advanced Lithography Material Status beyond 5nm Node

14:00-14:20	**Xingang Pan (Xuzhou B&C Chemical Co. Ltd):** Development and Evaluation of ArF immersion Photoresist without topcoats
14:20-14:40	**Liang Cai (HLMC):** Improvement of KrF photoresist performance by formulation and process optimization
14:40-15:00	**Victor Sumerin (PiBond):** The application of advanced Design of Experiments for the efficient development of spin-on-carbon hard masks
15:00-15:20	**Coffee Break**
15:20-16:40	**EUV Photoresist Session** **Chair: Guoqiang Yang (UCAS)**
	5 minutes Q&A for each talk
15:20-15:50	**Xudong Guo (ICCAS):** (INVITED) Extreme Ultraviolet (EUV) Photoresists: strategies, materials, and applications
15:50-16:20	**Toru Fujimori (Fujifilm):** (INVITED) Recent status of the stochastic issues of photoresist materials in EUV lithography
16:20-16:40	**Luong Nguyen Dang (PiBond):** Advanced inorganic photoresist development for high NA EUV lithography
16:40-16:45	**Closing Plenary Address** **闭幕致辞**

Day 2:
22 Oct. 2022 (Saturday) —— Parallel Session II, 并行报告会场 II

Conference Platform website:
https://www.koushare.com/lives/room/515995

DAY 2–Morning	
08:30-09:50	**Computational Lithography Session** **Chair: Feng Shao (Siemens EDA)**
	5 minutes Q&A for each talk
08:30-09:00	**Weijie Shi (DJEL):** (INVITED) Practice on HPO：A Timing emphasis OPC Approach for OCV improvement
09:00-09:30	**Shanqi Tao (AMEDAC):** (INVITED) Improving OPC model accuracy and stability with aerial

	image contribution
09:30-09:50	**Travis Brist (Synopsys):** Mask Synthesis Solutions to Capture Maximum Lithography Process Entitlement
09:50-10:20	**Coffee Break**
10:20-11:20	**Process and Metrology Session** **Chair: Wenzhan Zhou (HLMC)**
	5 minutes Q&A for each talk
10:20-10:40	**Kan Zhou (HLMC):** Contour based process characterization and modeling for HVM
10:40-11:00	**Helei Sun (CXMT):** Control Strategy for Improved After-Etch Overlay at Wafer Edge of DRAM Layers in High-Volume Manufacturing
11:00-11:20	**Binbin Yan (Beijing Superstring Academy of Memory Technology):** Frame mark selection, placement, design and simulation
11:30-13:30	**Lunch**
DAY 2-Afternoon	
13:30-15:10	**New Patterning Process Session** **Chair: Shisheng Xiong (Fudan Univ.)**
	5 minutes Q&A for each talk
13:30-14:00	**Weihua Li (Fudan Univ.):** (INVITED) Recent Progress in the Self-Assembly of Block Copolymers
14:00-14:30	**Xiaoyun Yu (Zhangjiang Lab.):** (INVITED) Area-Selective Deposition of Low-k Dielectrics for Nano-Interconnects
14:30-14:50	**Zhiyong Wu (Fudan Univ.):** Improved processing window of contact hole with directed self-assembly of block copolymer blends
14:50-15:10	**Tao Zhang (SIOM, CAS):** A Generation solving Layout Decomposition Method for DSA-MP Hybrid Lithography
15:10-15:30	**Coffee Break**
15:30-16:30	**Computational Lithography Session** **Chair: Xiaodong Meng (AMEDAC)**
	5 minutes Q&A for each talk
15:30-15:50	**Jie Liu (Hunan Univ.):** Accurate and Efficient Proximity Effect Correction for Electron Beam

	Lithography Based on Distributed Parallel Computing
15:50-16:10	**Yadong Jin (Siemens EDA):** Curvilinear OPC application on 180nm Si-Photonics layout for Better Performance
16:10-16:30	**Jinfeng Mu (ASML):** Study influential factors on lithography imaging in implant layers with wafer topography
16:30-16:35	**Closing Plenary Address** **闭幕致辞**

Agenda is subject to change

Poster Session
21-22. Oct, 2022
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IWAPS2022-P-01	**Weimei Xie, Yanpeng Chen, Shirui Yu, Yu Zhang (HLMC)** Relationship between Normalized Image Log Slope and Exposure Latitude in advanced technodes
IWAPS2022-P-02	**Guoping Liu, Yinsheng Yu, Chi Zhang, Yuhui Li, Hongwen Zhao, Wenzhan Zhou (Shanghai Huali Integrated Circuit Manufacturing Corporation)** On-product Overlay Improvement for a Back-End-of-Line Immersion Layer
IWAPS2022-P-03	**Liang Li, Miao Jiang, Di Liang, Binbin Yan, Feng Tian, Mingqi Gao, Dajun Wu, Andy Lan, Jiangliu Shi (Beijing Superstring Academy of Memory Technology, Changxin Memory Technologies Inc)** Frequency doubling and resolution enhancement technique exploration for chrome-less phase shift mask
IWAPS2022-P-04	**Miao Jiang, Di Liang, Binbin Yan, Liang Li, Mingqi Gao, Joer Huang, Andy Lan, Jiangliu Shi (Beijing Superstring Academy of Memory Technology, Changxin Memory Technologies Inc)** Resolution improvement review for the immersion lithography
IWAPS2022-P-06	**WANG Dong-ping, GUO kang, YU Xin-feng (Beijing Gopptix Technology Co.)** Aberration Control Method of Parasitic Force for Ultra-Low Aberration Lithography Lens
IWAPS2022-P-07	**Zhou Xin, Li Jing (IMECAS, UCAS)** Position tracking control of an ultra-precision servo system
IWAPS2022-P-08	**Yilei Zeng, Debao Ding, Skyler Lu, Yu Zhang, Miro Zhou, Peisheng Li (Changxin Memory Technologies, Inc.)** New classification method: Use optical inspection tool to establish haze library

IWAPS2022-P-11	**Linghai Liu, Laura Luo, Peter Park, Al Zhang, Musa Zhuang, Jerome Hu, Vincent Wu, Xiang Zhang, Feng Yuan, Zhongzhen Li, Wensheng Li, Asaf Golov (CXMT, Applied Materials)** DRAM Word-line bottom roughness detection using BSE signal
IWAPS2022-P-12	**Xiaoquan Han, Yiwen Ji, Xiaobin Wu, Wanlu Xie, Pengfei Sha (IMECAS, UCAS)** Study on defocus image-based template matching algorithm for EUV mask blank phase defect detection
IWAPS2022-P-13	**Guang Zhao, ZhaoLong Luo, YuanYuan Du (Nexchip Semiconductor Corporation)** Process window analysis of post OPC SRAF placement
IWAPS2022-P-16	**Bowen Man, Xiaowei Yang, Qingsong Zhao, Ziwei Ren, Cong Zhang, Jiayi Wang, Wenjing Chen, Shuhui Li, Dandan Li, Shuqin Lv, Hao Xu, Shiyang Lu, Xiantao Shang, Tashi Xu, Huiyan Sun, Kaihua Cao, Hongxi Liu, Gefei Wang (Truth Memory tech. Corporation, Beihang-Goertek Joint Microelectronics Institute)** Uniformity of device performance improvement for the SOT-MRAM by optimizing the lithography process at 200-mm wafer manufacturing platform
IWAPS2022-P-19	**Yining Chen, Pang Guo, Joe Kwan, Aliaa Kabeel, Sarah Rizk, Chunshan Du, Xiyi Hu, Qijian Wan, Xizi Yan (Zhejiang University, Siemens)** Designing high quality test chips with improved coverage for design rule exploration, process variation improvement and hotspot discovery
IWAPS2022-P-20	**Rui Xu, Xuan Li, Yao Jin, Xiaolong Jiang, Lingxue Yang, Kun Ren, Yongyu Wu, Dawei Gao, Fan Jiang, Liang Cao, Le Hong, Chunshan Du, Qijian Wan, Xinyi Hu, Sihang Zou (Zhejiang University, Zhejiang ICsprout Semiconductor Co.)** SONR based layout decomposition and applications
IWAPS2022-P-21	**Chengcheng Wang, Pengzhi Wei, Zhaoxuan Li, Ang Li, Lihui Liu, Yanqiu Li (Beijing Institute of Technology)** Source optimization for anamorphic magnification high-numerical aperture extreme ultraviolet lithography based on thick mask model
IWAPS2022-P-22	**Xiaonan Zhong, Yue Ma, Xu Yan, Ke Liu, Yanqiu Li (Beijing Institute of Technology)** High efficiency graded multilayer coating design using least-square fitting for NA0.55 extreme ultraviolet lithography Objective
IWAPS2022-P-23	**Yuan Gan, Changlian Yan, Rongjia Zhang, Ming Ding, Junhai Jiang, Zongqiang Yu, ChunYing Han (Dongfang Jingyuan Electron Limited)** Strategy-Oriented Exact Pattern Grouping Approaches for Integrated Circuit Designs
IWAPS2022-P-24	**Liwan Yue, Yanqiu Li, Zhibiao Mao, Qiang Wu, Yanli Li (Beijing Institute of Technology, Ningbo Nata Opto-electronic Materials**

	Co., Fudan University) Mask Bias optimization for NTD lithography process
IWAPS2022-P-25	**Chi Yang, Zhiyong Wu, Qingshu Dong, Zili Li, Weihua Li, Shisheng Xiong (Fudan University)** Measurement and Calculation Method for Sub-20 nm Line and DSA Patterns
IWAPS2022-P-26	**Jing Wang (Shanghai Industrial μTechnology Research Institute, Shanghai University)** Enhanced Super-resolution Imaging by Bilayer Aluminum Superlens in DUV Photolithography
IWAPS2022-P-27	**Hengyu Zhou, Tao Zhang, Sikun Li, Ming Tang, Shisheng Xiong, Xiangzhao Wang (Institute of Optics and Fine Mechanics, Huazhong University of Science and Technology, Fudan University)** A Via/Contact Layout Decomposition Method for Directed Self-Assembly Based on Local Optimization
IWAPS2022-P-28	**Wenze Yao, Hongcheng Xu, Haojie Zhao, Yuejie Yang, Siyuan Zhang, Xin Zhang, Jie Liu (Hunan University)** Accurate and Efficient Proximity Effect Correction for Electron Beam Lithography Based on Multilayer Perceptron Neural Network
IWAPS2022-P-29	**Hongwen Zhao, Kan Zhou, Wenzhan Zhou, Yu Zhang (Shanghai Huali Integrated Circuit Manufacturing Corporation)** Investigation of the photoresist residue defect reduction by improving the surface condition
IWAPS2022-P-30	**Xiao Yang, Zhenfei Zheng, Germain Fenger, Guiqi Li, Zhuohong Zhou, Hui Zeng (Siemens EDA, Guangzhou Cansemi Technology Inc)** SEM contour extraction application on contact edge roughness
IWAPS2022-P-31	**Xiaosong Yang, Hai Zhang, Dekun Huang, Zhipan Gao (Semiconductor Manufacturing South China Corporation)** A Novel Litho-Litho-Etch Process to Realize Multi-Function SOC Chip Design
IWAPS2022-P-32	**Zhen-Fei Zheng, Wei Zhang, Chen-Wei Sun, Xiao Yang, Xiao-Mei Li, Feng Shao, Cynthia Zhu, Germain Fenger, Yue-Long Yu, Ying-Fang Wang (Siemens EDA, HFC Semiconductor Corp)** Optimal OPC model selection with SEM image contours
IWAPS2022-P-33	**Haifeng Sun, Qingyan Zhang, Chuan Jin, Haiyang Quan, Jian Wang, Song Hu, Junbo Liu (Institute of Optics and Electronics, Chinese Academy of Science, University of Electronic Science and Technology of China, UCAS)** Global Optimization of Lithographic Source via the Hybrid Genetic Algorithm
IWAPS2022-P-34	**Qingyue Wu, Jiamin Liu, Hao Jiang, Shiyuan Liu (Huazhong University of Science and Technology)** Lithography Hotspot Detection Based on Yolov5

IWAPS2022-P-35	**Chengzhen Yu, Xu Ma, Junbi Zhang (BIT)** Mask 3D model based on complex-valued convolution neural network for EUV lithography

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