IWAPS
International Workshop on Advanced Patterning Solutions

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The 7th International Workshop on Advanced Patterning Solutions
第七届国际先进光刻技术研讨会

October 25-26, 2023, Wyndham Hotel, Lishui, Zhejiang Province, China

2023 年 10 月 25 日至 26 日，温德姆酒店三楼会议室，浙江丽水，中国

(October 24 for registration, 10 月 24 日注册)

Agenda 会议日程

Program Chairs: Shiuh-Wuu Lee, Weimin Gao

Registration 注册		
24 Oct. 2023	**12:00-22:00**	**@酒店大厅 The hotel lobby**
25-26 Oct. 2023	**08:00-17:00**	**@酒店大厅 The hotel lobby**

DAY 1: **25 Oct. 2023 (Wednesday)** **Grand Ballroom 三层宴会厅**	
DAY 1–Morning	
08:30-09:00	**Opening Ceremony & Welcome Address** **Chair: Yayi Wei(韦亚一), Weimin Gao (高伟民)**
Welcome Address	**Jianlin Cao (曹健林)** **Tianchun Ye (叶甜春)** **Xu Liu (刘旭)** 楼志坚 丽水市委常委、常务副市长 刘志伟 丽水市政府党组成员，丽水经济技术开发区党工委书记、管委会主任 **Shiuh-Wuu Lee (李序武)**
09:00-10:10	**Plenary Session I** **Chair: Weimin Gao**
	5 minutes Q&A for each talk
09:00-09:35	**Yasin Ekinci (Paul Scherrer Institute):** (KEYNOTE) EUV Coherent Scattering and Imaging for Semiconductor Metrology
09:35-10:10	**Hai Cong (AMEC):** (KEYNOTE) 19 Years of AMEC Etch Product Innovation

10:10-10:40	**Group Photo & Coffee Break**
10:40-12:15	**Plenary Session II** **Chair: Xiangzhao Wang**
	5 minutes Q&A for each talk
10:40-11:15	**Zongchang Yu (DJEL):** (KEYNOTE) HPO™ Enables an Ultimate DTCO -- Chip Making from Art to Science to Intelligence
11:15-11:45	**Wenzhan Zhou (Shanghai Huali):** (INVITED) From AI Assist to AI Driven: AI Applications in Huali's Advanced Patterning Process Development
11:45-12:15	**Le Hong (Siemens EDA):** (INVITED) ML driven extended DTCO from technology launch to HVM
12:15-13:30	**Lunch**
DAY 1-Afternoon	
13:30-15:00	**Process Session** **Chair: Wenzhan Zhou**
	5 minutes Q&A for each talk
13:30-14:00	**Qiang Wu (Fudan University):** (INVITED) Impact of the Shrink of Photolithographic Design Rules by 10%
14:00-14:20	**Kan Zhou (Shanghai Huali):** A Lithography Process Window Decision Based on the Louvain Algorithm for Community Detection
14:20-14:40	**Maohua Ren (United Semiconductor (Xiamen) Co.):** The Ultimate Step to Predict Yield Impact from Mask by Lithography Printability Review
14:40-15:00	**Jiwei Shen (East China Normal University, Shanghai Huali):** A Masked Autoencoder-Based Approach for Defect Classification in Semiconductor Manufacturing
15:00-15:30	**Coffee Break**
15:30-17:00	**EUV Resist and Platform Session** **Chair: Mark Neisser, Guoqiang Yang**
	5 minutes Q&A for each talk
15:30-16:00	**Toru Fujimori (FUJIFILM):** (INVITED) Recent Progress of EUV Resist Development for Improving Chemical Stochastic

16:00-16:30	**Yanqing Wu (Shanghai Advanced Research Institute):** (INVITED) EUV Interference Lithography and Application in SSRF
16:30-17:00	**Mohammad S. M. Saifullah (Paul Scherrer Institute):** (INVITED) A Novel Metal-organic Resist Platform for High-Resolution Extreme Ultraviolet (EUV) Lithography
17:00-18:30	**Poster Session** **Authors should be present at your poster.**
18:30-20:30	**Welcome Banquet for all attendees** **晚宴 (Grand Ballroom 宴会厅)**

Day 2: **26 Oct. 2023 (Thursday)** —— **Parallel Session I, 并行报告会场 I** **Grand Ballroom Part A, 宴会厅 A**	
DAY 2–Morning	
08:30-10:20	**Equipment Session** **Chair: Yaobin Feng**
	5 minutes Q&A for each talk
08:30-09:00	**Tommy Oga (Gigaphoton Inc.):** (INVITED) Advancements in Lithography Technology: CD Bias controlling and LWR/ LER mitigation through Spectrum Bandwidth E95% tuning functionality
09:00-09:30	**Billy Tang (ASML- Cymer Light Sources):** (INVITED) Sustainability & Availability Improvements from Light Source Technology Enhancements
09:30-10:00	**Li Li (Harbin Institute of Technology):** (INVITED) Lithographic Stepping Trajectory Planning for Residual Vibration Suppression: An Asymmetric S-Curve Method
10:00-10:20	**Zhen MA (EDWARDS):** EUV System Waste Hydrogen Recycling and Noble Gas Recovery
10:20-10:40	**Coffee Break**
10:40-12:20	**Material and Equipment Session** **Chair: Bing Li**
	5 minutes Q&A for each talk
10:40-11:10	**Takanori Kawakami (JSR):** (INVITED) The Spin-on Multi-Layer Material Status for Advanced Device
11:10-11:30	**Dairen Lu (Red Avenue New Materials Group Co., Ltd.):** Challenges and Integral Solutions on Photoresist Resin Development and Industrialization

11:30-11:50	**Han Zhang (Feilihua Quartz Glass Co.):** Fabrication and Properties of Ultra-low Expansion Quartz Glass Materials for Photolithography
11:50-12:20	**Yonggang Xie (KingSemi):** (INVITED) KSM Advance Track Development and Application
12:20-13:30	**Lunch**
DAY 2-Afternoon	
13:50-14:50	**Metrology and Inspection Session** **Chair: Hong Xiao**
	5 minutes Q&A for each talk
13:50-14:10	**Trina Wong (Shenzhen Angstrom Excellence Technology Co. Ltd):** Ultra-thin Film Metrology Technique: Grazing Incident X-Ray Fluorescence
14:10-14:30	**Miao Jiang (Beijing Superstring Academy of Memory Technology):** Simulation Study on the Robustness of Polar Mark for Incident Light Polarization States
14:30-14:50	**Qi Wang (Fudan University):** An Optical Critical Dimension (OCD) Signal Response Study with Standard Structures
14:50-15:20	**Coffee Break**
15:20-16:40	**SEM Metrology Session** **Chair: Weimin Gao, Jiangliu Shi**
	5 minutes Q&A for each talk
15:20-15:40	**Hao Yu (Dongfang Jingyuan Electron Limited):** Extending DRSEM Inspection Capacities and Applications with the Introduction of D2DB Technology
15:40-16:00	**Jiwei Shen (East China Normal University & Shanghai Huali):** An Efficient Transformer-Based Approach for High NA DUV Lithography SEM Image Denoising
16:00-16:20	**Rui Wang (USTC, ZJU & Zhejiang ICsprout Semiconductor):** Evaluation of the Poly Gate Line End Patterning on Device Performance of the MOSFET by Using SEM Contours Extraction
16:20-16:40	**Gang Wang (Shanghai Huali):** Metrology Challenge for Monitoring Post CMP Pattern through CD SEM
16:40-16:45	**Closing Plenary Address** **闭幕致辞** **Chair: Weimin Gao, Yayi Wei**

Day 2: 26 Oct. 2023 (Thursday) —— Parallel Session II，并行报告会场 II **Grand Ballroom Part B，宴会厅 B**	
DAY 2–Morning	
08:30-10:10	**Computational Lithography Session** **Chair: Feng Shao, Chunshan Du**
	5 minutes Q&A for each talk
08:30-09:00	**Xima Zhang (Siemens EDA):** (INVITED) Full-chip Curvilinear OPC Solutions for Silicon Photonics and Advanced Nodes
09:00-09:30	**Cai Chen (Advanced Manufacturing EDA Co.):** (INVITED) A Rigorous-Simulation-Driven OPC Solution Was Built Before Obtaining Real Wafer Data
09:30-09:50	**XiaoLong Wang (GalaxyCore Semiconductor Limited):** Implementing an OPC-based Analysis Method for Evaluating the Capabilities of Photoresist and Identifying Hot Spots
09:50-10:10	**Xing Gao (HFC):** A Curvilinear OPC Workflow for Highly Repetitive Structures and High Aspect Ratio Patterns
10:10-10:40	**Coffee Break**
10:40-12:10	**Computational Lithography and ML Session** **Chair: Xiaodong Meng, Yanxiang Liu**
	5 minutes Q&A for each talk
10:40-11:10	**Yanli Li (Fudan University):** (INVITED) The Influence of Aberration on 193 nm Immersion (193i) Lithography Process Window
11:10-11:30	**Qiang Zhang (Advanced Manufacturing EDA Co.):** An Algorithm to Reduce Coloring Conflicts for Triple Patterning
11:30-11:50	**Xiaolong Jiang (Zhejiang University & Zhejiang ICsprout Semiconductor Co.):** Photolithography Hotspot Detection Based on Deep Learning LHD Model
11:50-12:10	**Xuan Li (Zhejiang University & Zhejiang ICsprout Semiconductor Co.):** Application of Genetic Algorithm to Solving Better SRAF Rules
12:10-13:30	**Lunch**
DAY 2-Afternoon	
13:30-15:10	**New Patterning Session** **Chair: Shisheng Xiong**
	5 minutes Q&A for each talk

13:30-14:00	**Massimo Tormen (GermanLitho):** (INVITED) Thermal NIL PRO: the Next Step in High Volume Manufacturing of Nano-devices
14:00-14:30	**Sihai Luo (Norwegian University of Science and Technology):** (INVITED) Adhesion Lithography for Patterning sub-3-nm Metallic Nanogaps
14:30-14:50	**Jianguang Xian (JiTong Technology Guang Zhou Co. Ltd):** Theoretical Review of a new approach of Lithography at nm Resolution
14:50-15:10	**Zhixin Wang (Eulitha AG):** Simulating Displacement Talbot Lithography for Volume Production of Photonic Devices
15:10-15:30	**Coffee Break**
15:30-16:50	**Computational Lithography Session** **Chair: Liguo Zhang, Jacky Cheng**
	5 minutes Q&A for each talk
15:30-15:50	**Kezhao Xing (Mycronic AB):** Laser-based Mask writers addressable to all major applications, made in Sweden
15:50-16:10	**Nan Liu (Beijing Zhongxiangying Technology Co.):** BOE-ziSIM: A Design-Technology-Fabrication Co-optimization Platform
16:10-16:30	**Wenhao Wang (Southern University of Science and Technology):** Feature Point-Based Electron Beam Lithography Proximity Effect Correction of Patterns
16:30-16:50	**Lingxue Yang (Zhejiang University & Zhejiang ICsprout Semiconductor Co.):** Test Pattern Sampling Methodology for Model Tuning Efficiency and Robustness Improvement
16:50-16:55	**Closing Plenary Address** **闭幕致辞** **Chair: Weimin Gao, Yayi Wei**

Agenda is subject to change

Poster Session

25 Oct. 2023

17:00-18:30 Outdoor of Grand Ballroom 宴会厅前廊

IWAPS2023-P-01	**Xinyi Zhang, Yuqing Chen, Yanbei Nan, Yanqiu Li (Beijing Institute of Technology)** Design of A Large Field of View High Numerical Aperture Extreme Ultraviolet Lithography Illumination System

IWAPS2023-P-02	**Peng Xu, Juan Wei, Jinlai Liu, Jingkang Qin, Song Sun, Qingchen Cao, Jiangliu Shi (Beijing Superstring Academy of Memory Technology)** Selecting test patterns with the pool-based sampling method
IWAPS2023-P-03	**Yao Jin, Kun Ren, Dawei Gao, Yongyu Wu, Zebang Lin, Xuan Li, Xuan Zhao, Xutao Chen, Sihang Zou (Zhejiang University, Zhejiang ICsprout Semiconductor Co.,Ltd)** An Approach to Extracting SRAF Rules from Inverse Lithography Technology Results
IWAPS2023-P-04	**Haoxin Leng, Changqing Xie (Nanjing Tech University, IMECAS)** A transmissive spectral purity filter for suppressing infrared radiation in extreme ultraviolet lithography source
IWAPS2023-P-05	**Yufei Sha, Jiahao Xi, Liang Li, Miao Jiang, Di Liang, Ran Zhang, Ganlin Song, Enqiang Tian, Xiuyan Cheng, Futian Wang, Cuixiang Wang, Guangying Zhou, Mingyi Yao, Jiangliu Shi (Beijing Superstring Academy of Memory Technology)** Line edge roughness analysis and simulation at advanced litho process
IWAPS2023-P-06	**HaoYu Wang, Zhinan Chen, Zili Li, ShiSheng Xiong (Fudan University, Zhang Jiang Laboratory)** Specialized Hardware Accelerator for Lithographic Aerial Image Simulation Based on FPGA
IWAPS2023-P-07	**Huwen Ding, Yayi Wei (IMECAS)** Fast imaging model of periodic patterns in plasmonic lithography
IWAPS2023-P-08	**Mei Dou, Xiaobing Xu, Shisheng Xiong (Fudan University, Zhang Jiang Laboratory)** The Rational Photomask Layout Design of Vias for Application in Double Patterning UV Photolithography
IWAPS2023-P-09	**Can Ma, Yiming Yao, Luyang Jie, Lilei Hu (Shanghai University, Shanghai Industrial µTechnology Research Institution)** A Novel Multi-Scale Feature Learning-based Residual Network Improves Semiconductor Wafer Defect Classification Accuracy
IWAPS2023-P-10	**Jiaheng He, Zhe Cheng, Chengcheng Li, Shujie Xie, Xuankun Wu, Lian Zhang, Chang Wu, Yun Zhang (Institute of Semiconductors, CAS)** Demonstration of 420GHz highly scaled InAlN/GaN HEMTs by Electron Beam Lithography
IWAPS2023-P-12	**Zhiyong Wu, Qingshu Dong, Jiacheng Luo, Kangrui Yuan, Zili Li, Yadong Liu, Shengxiang Ji, Weihua Li, Yan Zhang, Shisheng Xiong (Fudan University, Changchun Institute of Applied Chemistry, Zhangjiang laboratory)** Density Multiplication by Directed Self-assembly of Block Copolymer with Homopolymer-Blending
IWAPS2023-P-13	**Mingyi Yao, Yuejing Qi, Guangying Zhou, Liang Li, Miao Jiang, Elly Shi (Beijing Superstring Academy of Memory Technology,**

	IMECAS) Rigorous Simulation for Impact of Self-Aligned Multiple Patterning on Alignment
IWAPS2023-P-14	**Botong Zhao, Jiwei Shen, Hu Lu, Pengjie Lou, Wenzhan Zhou, Kan Zhou, Xintong Zhao, Shujing Lyu, Yue Lv (East China Normal University, Shanghai Huali Microelectronics Corporation)** Pix2PixHD-based generation of SEM image in the ETCH domain by SEM image of LITHO domain
IWAPS2023-P-15	**Yuteng Zhang, Xihui Liang, Kaiyao Wang, Quantong Li, Qirui Wang, Zhuming Liu (Wuyi University, Institute of Semiconductors of Guangdong Academy of Sciences)** Three-dimensional energy deposition analysis in electron-beam lithography
IWAPS2023-P-16	**Zhihuai Zhang, Ruiheng Zhang, Shisheng Xiong (Fudan University)** Accelerating Via/Contact Layout Decomposition by FPGA-based Annealing Processor and QUBO Model
IWAPS2023-P-17	**Guoping Liu, Yinsheng Yu, Chi Zhang, Hongwen Zhao, Wenzhan Zhou, Yu Zhang (Shanghai Huali Integrated Circuit Corporation)** A Novel Feedforward and Feedback Method for Overlay Control
IWAPS2023-P-18	**Yongcun Bao, Chi Zhang, Guanqiang Lin, Hongwen Zhao (Shanghai Huali Integrated Circuit Manufacturing Corporation)** New strategy to improve the measurement accuracy of asymmetrical mark caused by process
IWAPS2023-P-19	**Yuelong Yu, Yingfang Wang, Wei Zhang, Chenwei Sun, Norman Chen (HFC, SIEMENS-MGC)** An efficient method of calibrating a fast model for run-path development
IWAPS2023-P-20	**Kang Wang , ZhaoLong Luo , Pan Lu (Nexchip Semiconductor Corporation)** Solutions to calibration errors of OPC models for special pattern below 40 nm nodes
IWAPS2023-P-21	**Xiangyu Ma, Langfeng Wen, Yanzhong Ma (Skyverse Tech. Co. Ltd)** Study on the influence of spot sizes on Optical critical dimension measurement
IWAPS2023-P-22	**Xin Li, Yating Shen, Keeho Kim, Eric Parent (HFC)** Corner-rounding improvement by aggressive OPC methods
IWAPS2023-P-23	**Tao Zhang, Haolan Wang, Yuyang Liu, Yipeng Jiang, Dongchao Pan, Shisheng Xiong, Xiangzhao Wang, Sikun Li (Shanghai Institute of Optics and Fine Mechanics of CAS, University of Chinese Academy of Sciences, Zhangjiang Laboratory, Zhejiang University)** A DSA-aware Template Synthesis Method For Contact Layer Fabrication Based On Compact Model

IWAPS2023-P-24	**Yilei Zeng, Levi Tang, Xiuxuan Zhang, Yingjie Wang, Kun Chen, Adam Liu, Claire Zhang (ChangXin Memory Technologies)** Improve photomask writing error using Registration Correction (RegC) technology
IWAPS2023-P-25	**Shuying Deng, Jinjiang Fu, Junyao Luo, Zhenjiang Xing, Kunyang Li, Zhou Zhou (Sun Yat-sen University, Institute of Advanced Science Facilities)** Development of a synchrotron-based EUV microscope for actinic mask inspection
IWAPS2023-P-26	**Steven Zeng (CanSemi Technology Inc.)** Application in lithography inspection of phase basic image registration algorithm
IWAPS2023-P-27	**Chi Zhang, Yongcun Bao, Guoping Liu, Hongwen Zhao (Shanghai Huali Integrated Circuit Manufacturing Corporation)** Investigation of Multiple Feedforward Modes for On Product Overlay Control
IWAPS2023-P-28	**Libo Wang, Shunkui Ke, Xiaobo Guo (Shanghai Huali Integrated Circuit Cooperation)** The Effect of Illumination, Development and Post Exposure Bake Temperature on Through Pitch
IWAPS2023-P-30	**Tong Tong, Dongchao Pan, Yipeng Jiang, Xiangzhao Wang, Sikun Li (Shanghai University, Shanghai Institute of Optics and Fine Mechanics, UCAS, Zhejiang University)** An Optimization Method To Improve Accuracy of the Wavefront Aberration Measurement Technique Based on Principal Component Analysis of Aerial Image
IWAPS2023-P-31	**Zhaojie Song, Kai Ding, Shancheng Hu, Stone Zhao, Leslie Zhang, Shifeng Jiang (ChangXin Memory Technologies)** Exploration Charge Effect and Wafer Backside Materials Correlation to Diamond-Like Carbon Wafer Table Degradation
IWAPS2023-P-32	**Hao He, Haoqing Xu, Huaxiang Yin, Zhenhua Wu(IMECAS)** Nanosheet Count Optimization Strategy of Complementary FET(CFET) Scaling Beyond 2nm From Device to Circuit

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