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)

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<td>Conference Platform website:</td>
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<th>DAY 1-Morning</th>
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<tr>
<td>08:30-09:00</td>
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<tr>
<td>Welcome Address</td>
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<td>09:00-10:05</td>
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<td>10:25-12:05</td>
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**DAY 1-Afternoon**

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<tr>
<td>13:30-15:00</td>
<td><strong>Process Session</strong>&lt;br&gt;Chair: Vincent Chen (PiBond)**&lt;br&gt;<em>5 minutes Q&amp;A for each talk</em></td>
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<tr>
<td>13:30-14:00</td>
<td><strong>Biqiu Liu</strong> (HLMC): (INVITED) Ranking the Different Circuit Design with EPE Margin at Initial Stage of Process Development</td>
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<td>14:00-14:30</td>
<td><strong>Hai Zhang</strong> (SMSC): (INVITED) A Novel Multiple Layers Overlay Run-to-Run Control Using New Algorithm Metrics for Logic Process</td>
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<tr>
<td>14:30-15:00</td>
<td><strong>Hao Cheng</strong> (CXMT): (INVITED) A comprehensive study of alignment, overlay and leveling in throughput effect under PEP -align for high volume manufacturing fab immersion group</td>
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<tr>
<td>15:00-15:20</td>
<td><strong>Coffee Break</strong></td>
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<tr>
<td>15:20-17:25</td>
<td><strong>Plenary Session II</strong>&lt;br&gt;Chair: Yaobin Feng (YMTC)**&lt;br&gt;<em>5 minutes Q&amp;A for each talk</em></td>
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<tr>
<td>15:20-15:55</td>
<td><strong>Ryoung-han Kim</strong> (IMEC): (KEYNOTE) Patterning, DTCO and STCO on the horizon of scaling paradigm evolution in the semiconductor industry</td>
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<td>15:55-16:25</td>
<td><strong>Andreas Erdmann</strong> (Fraunhofer IISB): (INVITED) Imaging physics of low-n absorbers for EUV lithography</td>
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<tr>
<td>Time</td>
<td>Speaker</td>
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<td>Avi Cohen (Zeiss):</td>
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<td>16:55-17:25</td>
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<tr>
<td>17:25-18:00</td>
<td>Poster Session</td>
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**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**

08:30-09:40  | Process and Metrology Session  | Chair: Hao Dong (KLA)                                               |
|            |                                | 5 minutes Q&A for each talk                                         |
| 08:30-09:00| Masuyuki Takashi (Nikon):      | (INVITED) Overlay control by absolute coordinate adjustment and calibration method |
| 09:00-09:20| Geoffrey Ying (KLA):          | Modulated Image Analysis system in Lithography Process Stability Diagnosis |

09:40-10:10  | Coffee Break                  |                                                                      |

10:10-11:50  | Equipment Session             | Chair: Jing Li (IMECAS)                                             |
<p>|            |                                | 5 minutes Q&amp;A for each talk                                         |
| 10:10-10:40| Will Conley (Cymer):          | (INVITED) KrF Multi-Focal Imaging (MFI) Holistic Imaging Solution   |
| 10:40-11:10| Keita Sakai (Canon):          | (INVITED) Latest updates on nanoimprint lithography for semiconductor device manufacturing |
| 11:10-11:30| Zhen Ma (Edwards):            | EUV lithography vacuum system energy and footprint reduction         |
| 11:30-11:50| Sherman Li (Jiangsu JITRI Sioux Technologies Co. Ltd): | Intelligent Motion Control Platform to accelerate mechatronic system R&amp;D |</p>
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<tr>
<th>Time</th>
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<tr>
<td>11:50-13:30</td>
<td>Lunch</td>
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**DAY 2-Afternoon**

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<tr>
<th>Time</th>
<th>Session</th>
<th>Chair/Presenter/Institution</th>
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<tr>
<td>13:30-15:10</td>
<td>Material and Process Session</td>
<td>Chair: Mark Neisser (Tsinghua Univ.)</td>
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<td>5 minutes Q&amp;A for each talk</td>
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<tr>
<td>13:30-14:00</td>
<td>Takanori Kawakami (JSR): (INVITED) Advanced Lithography Material Status beyond 5nm Node</td>
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<td>14:00-14:20</td>
<td>Xingang Pan (Xuzhou B&amp;C Chemical Co. Ltd):</td>
<td>Development and Evaluation of ArF immersion Photoresist without topcoats</td>
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<td>14:20-14:40</td>
<td>Liang Cai (HLMC):</td>
<td>Improvement of KrF photoresist performance by formulation and process optimization</td>
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<td>14:40-15:00</td>
<td>Victor Sumerin (PiBond):</td>
<td>The application of advanced Design of Experiments for the efficient development of spin-on-carbon hard masks</td>
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<tr>
<td>15:00-15:20</td>
<td>Coffee Break</td>
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<tr>
<td>15:20-16:40</td>
<td>EUV Photoresist Session</td>
<td>Chair: Guoqiang Yang (UCAS)</td>
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<td>5 minutes Q&amp;A for each talk</td>
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<tr>
<td>15:50-16:20</td>
<td>Toru Fujimori (Fujifilm):</td>
<td>(INVITED) Recent status of the stochastic issues of photoresist materials in EUV lithography</td>
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<tr>
<td>16:20-16:40</td>
<td>Luong Nguyen Dang (PiBond):</td>
<td>Advanced inorganic photoresist development for high NA EUV lithography</td>
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<tr>
<td>16:40-16:45</td>
<td>Closing Plenary Address</td>
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**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**

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<tr>
<td>08:30-09:50</td>
<td>Computational Lithography Session</td>
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<tr>
<td>08:30-09:00</td>
<td><strong>Process and Metrology Session</strong>&lt;br&gt;&lt;br&gt;Chair: Wenzhan Zhou (HLMC)</td>
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<td><strong>Weijie Shi (DJEL):</strong>&lt;br&gt;(INVITED) Practice on HPO: A Timing emphasis OPC Approach for OCV improvement</td>
</tr>
<tr>
<td>09:00-09:30</td>
<td><strong>Shanqi Tao (AMEDAC):</strong>&lt;br&gt;(INVITED) Improving OPC model accuracy and stability with aerial image contribution</td>
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<tr>
<td>09:30-09:50</td>
<td><strong>Travis Brist (Synopsys):</strong>&lt;br&gt;Mask Synthesis Solutions to Capture Maximum Lithography Process Entitlement</td>
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<tr>
<td>09:50-10:20</td>
<td>Coffee Break</td>
</tr>
<tr>
<td>10:20-11:40</td>
<td><strong>Process and Metrology Session</strong>&lt;br&gt;&lt;br&gt;Chair: Wenzhan Zhou (HLMC)</td>
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<tr>
<td>10:20-10:40</td>
<td><strong>Kan Zhou (HLMC):</strong>&lt;br&gt;Dose control by using mask pattern contour and massive metrology feed forward strategy in foundry HVM environment</td>
</tr>
<tr>
<td>10:40-11:00</td>
<td><strong>Yihan Xu (KLA):</strong>&lt;br&gt;A Novel Runtime Strategy for Abnormal Alignment/Overlay Detection due to Focus Spot</td>
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<td>11:00-11:20</td>
<td><strong>Helei Sun (CXMT):</strong>&lt;br&gt;Control Strategy for Improved After-Etch Overlay at Wafer Edge of DRAM Layers in High-Volume Manufacturing</td>
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<td>11:20-11:40</td>
<td><strong>Binbin Yan (Beijing Superstring Academy of Memory Technology):</strong>&lt;br&gt;Frame mark selection, placement, design and simulation</td>
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<tr>
<td>11:40-13:30</td>
<td>Lunch</td>
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**DAY 2-Afternoon**

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<th>Time</th>
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<tr>
<td>13:30-14:00</td>
<td><strong>New Patterning Process Session</strong>&lt;br&gt;&lt;br&gt;Chair: Shisheng Xiong (Fudan Univ.)</td>
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<tr>
<td>13:30-14:00</td>
<td><strong>Weihua Li (Fudan Univ.):</strong>&lt;br&gt;(INVITED) Recent Progress in the Self-Assembly of Block Copolymers</td>
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<td>14:00-14:30</td>
<td><strong>Xiaoyun Yu (Zhangjiang Lab.):</strong>&lt;br&gt;(INVITED) Area-Selective Deposition of Low-k Dielectrics for Nano-Interconnects</td>
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<td>14:30-14:50</td>
<td><strong>Zhiyong Wu (Fudan Univ.):</strong>&lt;br&gt;Improved processing window of contact hole with directed self-assembly of block copolymer blends</td>
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<td>15:30-16:50</td>
<td>Computational Lithography Session</td>
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<td>Chair: Xiaodong Meng (AMEDAC)</td>
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<td>5 minutes Q&amp;A for each talk</td>
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<tr>
<td>15:30-15:50</td>
<td>Jie Liu (Hunan Univ.): Accurate and Efficient Proximity Effect Correction for Electron Beam Lithography Based on Distributed Parallel Computing</td>
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<tr>
<td>15:50-16:10</td>
<td>Yadong Jin (Siemens EDA): Curvilinear OPC application on 180nm Si-Photonics layout for Better Performance</td>
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<td>16:10-16:30</td>
<td>Jinfeng Mu (ASML): Study influential factors on lithography imaging in implant layers with wafer topography</td>
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**Poster Session**

**IWAPS2022-P-01**
Xie Weimei, Chen Yanpeng, Yu Shirui, Zhang Yu (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, Qingchen Cao, Ruihua Liu, Juan Wei, Fu Li, Jingjing Fan, Chunlong Yu (Beijing Superstring
| IWAPS2022-P-05 | Academy of Memory Technology, Changxin Memory Technologies Inc)  
Resolution improvement review for the immersion lithography |
| IWAPS2022-P-06 | Gen Li, Tongtong Xie, Nanning Yuan, Zhewei Zhang, Sihao Cha, Dongmei Wu, Yifei Yu, Wei Chen, Jinghua Zeng, Yufeng Li, Vikram Tolani, Le Wang (Quanyi Mask Optoelectronics Technology (Jinan) Co, KLA)  
Production Efficiency Improvement with an Integrated Reticle Data Management System in Mask-shop |
| IWAPS2022-P-07 | 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-08 | Zhou Xin, Li Jing (IMECAS, UCAS)  
Position tracking control of an ultra-precision servo system |
| IWAPS2022-P-09 | Yilei Zeng, Debao Ding, Skyler Lu, Yu Zhang, Yi Zheng, Hunter Li, Miro Zhou (Changxin Memory Technologies, Inc.)  
New classification method: Use optical inspection tool to establish haze library |
| IWAPS2022-P-10 | 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-11 | Han Xiaoquan, Ji Yiwen , Ma He, Wu Xiaobin (IMECAS, UCAS)  
Study on defocus image-based template matching algorithm for EUV mask blank phase defect detection |
| IWAPS2022-P-12 | Guang Zhao, ZhaoLong Luo, YuanYuan Du (Nexchip Semiconductor Corporation)  
Process window analysis of post OPC SRAF placement |
| IWAPS2022-P-13 | Qinglong Zeng, Fang Wei, Han Chen, Daquan He, Tingting Gu, Baoyan Zhao (Shanghai Huali Integrated Circuit Cooperation)  
Hybrid Model OPC Solutions of Improving HMO Window |
| IWAPS2022-P-14 | Daquan He, Fang Wei, Xueyan Li, Han Chen, Chenming Zhang, Tingting Gu, Lulu Chen, Shen Ni, YiShuai Zhang (Huali integrated circuit corporation, Siemens Electronic Design Automation (Shanghai) Co.)  
Improving OPC Convergence by Dynamic SRAF Adjustment |
| IWAPS2022-P-15 | 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, Kailhua 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 |
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<th>Xin Li, Keeho Kim, Xing Gao, Xiaomei Li (HFC, Mentor Graphics Corp)</th>
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<td>SRAF Removal by Double Exposure Method to Overcome Forbidden Pitches by Strong SMO</td>
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<th>IWAPS2022-P-19</th>
<th>Yining Chen, Pang Guo, Joe Kwan, Aliaa Kabeel, Sarah Rizk, Chunshan Du, Xiyi Hu, Qijian Wan, Xizi Yan (School of Micro-Nanoelectronics, Zhejiang University, Siemens Fremont, CA USA, Siemens Cairo, Egypt, Siemens Shanghai, China)</th>
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<td>Designing high quality test chips with improved coverage for design rule exploration, process variation improvement and hotspot discovery</td>
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<th>Rui Xu, Xuan Li, Yao Jin, Kun Ren, Yongyu Wu, Dawei Gao, Hamming Wu, Fan Jiang, Liang Cao, Le Hong, Chunshan Du, Qijian Wan, Xinyi Hu, Sihang Zou (School of Micro-Nanoelectronics, Zhejiang University, Zhejiang ICsprout Semiconductor Co.)</th>
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<td>SONR based layout decomposition and applications</td>
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<th>IWAPS2022-P-21</th>
<th>Chengcheng Wang, Pengzhi Wei, Zhaoxuan Li, Ang Li, Lulu Zou, Lihui Liu, Yanqiu Li (Beijing Institute of Technology)</th>
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<td>Source optimization for anamorphic magnification high-numerical aperture extreme ultraviolet lithography based on thick mask model</td>
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<th>IWAPS2022-P-22</th>
<th>Zhong Xiaonan, Yan Xu, Liu Ke, Yanqiu Li (Beijing Institute of Technology)</th>
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<td>High efficiency graded multilayer coating design using least-square fitting for NA0.55 extreme ultraviolet lithography Objective</td>
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<th>Yuan Gan, Changlian Yan, Rongjia Zhang, Ming Ding, Junhai Jiang, Zongqiang Yu, ChunYing Han (Dongfang Jingyuan Electron Limited)</th>
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<td>Strategy-Oriented Exact Pattern Grouping Approaches for Integrated Circuit Designs</td>
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<th>IWAPS2022-P-24</th>
<th>Liwan Yue, Yanqiu Li, Zhibiao Mao, Congying Xu, Qiang Wu (Beijing Institute of Technology, Ningbo Nata Opto-electronic Materials Co., Fudan University)</th>
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<td>Mask Bias optimization for NTD lithography process</td>
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<th>IWAPS2022-P-25</th>
<th>Chi Yang, Zhiyong Wu, Qingshu Dong, Zili Li, Weihua Li, Shisheng Xiong (Fudan University)</th>
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<td>Measurement and Calculation Method for Sub-20 nm Line Patterns</td>
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<th>IWAPS2022-P-26</th>
<th>Jing Wang (Shanghai Industrial μTechnology Research Institute, Shanghai University)</th>
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<td>Theoretical Research and Simulation Demonstration of Bilayer Metal Superlens for Enhanced Super-resolution Imaging in DUV Photolithography</td>
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| 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) |
| IWAPS2022-P-28 | A Via/Contact Layout Decomposition Method for Directed Self-Assembly Based on Local Optimization  
Wenze Yao, Hongcheng Xu, Haojie Zhao, 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 | Hui Zeng, Xiao Yang, Zhenfei Zheng (Guangzhou Cansemi Technology Inc, Siemens EDA)  
Applications on SEM contour extraction: contact edge roughness and etch bias verification |
| 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, Xiao-Mei Li, 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, 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 |

Agenda is subject to change  
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