



[TuA1] Nanoscale Thin Film Deposition I

Session Date	November 11 (Tue.), 2025
Session Time	13:00–14:40
Session Room	Room A (Capri Room, 2F)
Session Chair	Prof. Woo Hee Kim (Hanyang Univ., Korea)

[TuA1-1] [Invited]

13:00–13:30

Selective Atomic Layer Deposition in Advancing Semiconductor Manufacturing

Rong Chen (Huazhong Univ. of Science and Tech., China)

[TuA1-2] [Invited]

13:30–14:00

Development of a Selective-Area ALD Process for Buried Word Line in DRAM

Jongho Lee (SK hynix Inc., Korea)

[TuA1-3] [Invited]

14:00–14:20

Novel Organic Molecular Inhibitors for Improved Step Coverage in High-Temperature ALD Dielectrics

Seung Hyun Lee, Deok Hyun Kim, Kok Chew Tan, Sung Gi Kim, Jung Hun Lim, Young-Soo Park, and Jaesun Jung (Soulbrain Co., Ltd., Korea)

[TuA1-4]

14:20–14:40

Enhancing Oxide/Nitride Selectivity in Area-Selective ALD via Pyridine-Catalyzed Inhibition

Jieun Oh, Woohyuk Kim, and Woo-Hee Kim (Hanyang Univ., Korea)



[TuB1] Advanced Etchg I

Session Date	November 11 (Tue.), 2025
Session Time	13:00-14:40
Session Room	Room B (Grand Ballroom 1, 2F)
Session Chair	Prof. Heeyeop Chae (Sungkyunkwan Univ., Korea)

[TuB1-1] [Plenary]

13:00-13:45

Etch Innovation for 3D Electronic Devices

Thorsten Lill and Harmeet Singh (Lam Research, USA)

[TuB1-2] [Invited]

13:45-14:15

Nonhalogen Etching for Hard-to-Etch Materials: A Concept Developed from Wet-Like Plasma Technology for Semiconductor Device Fabrication

Thi-Thuy-Nga Nguyen (Nagoya Univ., Japan)

[TuB1-3] [Invited]

14:15-14:40

K-PIC: A Particle-in-Cell Plasma Simulation for RF Capacitively Coupled Plasmas

Hae June Lee (Pusan Nat'l Univ., Korea)



[TuC1] Advanced Metrology & Inspection, Process Diagnostics & Control, and Yield Management I

Session Date	November 11 (Tue.), 2025
Session Time	13:00-14:45
Session Room	Room C (Grand Ballroom 3, 2F)
Session Chair	Dr. Byoung-Ho Lee (Hitachi High-Tech Corp., Japan)

[TuC1-1] [Plenary] 13:00-13:45

Characterizing Complexity: Metrology Innovations for Next-Gen Logic Nodes

Daniel Schmidt (IBM Research, USA)

[TuC1-2] [Invited] 13:45-14:15

Progress of X-Ray Metrology for Analyzing Device Nanostructures in Advanced Semiconductors

Kazuhiko Omote (Rigaku Corporation, Japan)

[TuC1-3] [Invited] 14:15-14:45

Spatially Coherent Xray Imaging over a Large FOV, High-Resolution, within Seconds

Trevor A. Norman (NeXray Inc., Korea)



[TuD1] Power Devices I

Session Date	November 11 (Tue.), 2025
Session Time	13:00-14:40
Session Room	Room D (Sydney Room, 2F)
Session Chair	Prof. Hyemin Kang (KENTECH, Korea)

[TuD1-1] [Invited]

13:00-13:25

Cosmic-Ray Radiation Effects on Power Devices

Dong-Seok Kim (KAERI, Korea)

[TuD1-2] [Invited]

13:25-13:50

III-N Heterojunction Devices for Power Electronics and Extreme Environment Applications

Ho-Young Cha (Hongik Univ. and ChipsK Corp., Korea), Jun-Hyeok Yim, Do-Hyeong Yeo (Hongik Univ., Korea), and Jin-Hong Lim (Hongik Univ. and ChipsK Corp., Korea)

[TuD1-3] [Invited]

13:50-14:15

Possibility of AlN/GaN/AlN Heterostructure for Power Device Applications

Jeong-Gil Kim (Dong-A Univ., Korea)

[TuD1-4] [Invited]

14:15-14:40

Power Semiconductor Packaging Using Ceramic Clip

Youngdo Kang and Dongkwang Lee (Semipower Inc., Korea)



[TuE1] Innovative Abrasives and Carbon Layer CMP

Session Date	November 11 (Tue.), 2025
Session Time	13:00-14:40
Session Room	Room E (Sicily Room, 1F)
Session Chair	Dr. Yongsik Moon (EHWA Diamond, Korea)

[TuE1-1] [Invited]

13:00-13:30

Molybdenum CMP: Aspects of Thermodynamics and Kinetics

Ungyu Paik, Taeseup Song, Ganggyu Lee, Sumin Hong, and Giha Lee (Hanyang Univ., Korea)

[TuE1-2]

13:30-13:50

Mitigating Galvanic Corrosion in Cu/Ru Interfaces through Selective Surface Interactions for Ru Barrier Metal CMP

Ganggyu Lee, Sumin Hong, Giha Lee, Byungjoon Kim, Taeseup Song, and Ungyu Paik (Hanyang Univ., Korea)

[TuE1-3] [Invited]

13:50-14:20

Surface Modification Mechanism of Carbon-Metal-Carbon Structures for Enhanced Mechanical Polishing Performance in Hard Amorphous Carbon Layer Chemical-Mechanical-Planarization

Jea-Gun Park, Pil-Su Kim, Min-Uk Jeon, Man-Hyup Han, Hyun-Sung Koh, and Kyoo-Chul Cho (Hanyang Univ., Korea)

[TuE1-4]

14:20-14:40

Zirconia as a Novel Abrasive for CMP of Amorphous Carbon Layer (ACL)

Ikjoon Kim, Heesuk Kim, and Jin-Hyung Park (ENF Technology Co., Ltd., Korea)



[TuA2] Nanoscale Thin Film Deposition II

Session Date	November 11 (Tue.), 2025
Session Time	14:50–16:40
Session Room	Room A (Capri Room, 2F)
Session Chair	Prof. Rong Chen (HUST, China)

[TuA2-1] [Invited] 14:50–15:20

Ferroelectric Materials for Low Power Electronic Devices and Computing

Min Hyuk Park (Seoul Nat'l Univ., Korea)

[TuA2-2] [Invited] 15:20–15:40

Parametric Dependence of O(D) Flux and Density in O₂/Ar Inductively Coupled Plasmas: Effect of Gas Ratio and Pressure

Sanghyun Jo (Hanyang Univ., Korea), Kyoung-Ho Kim (Korea Polytechnics, Korea), and Ho Jun Kim (Hanyang Univ., Korea)

[TuA2-3] 15:40–16:00

Gate Metal Engineering for Tailoring Ferroelectric Properties of Hf_xZr_{1-x}O₂ Thin Films

Yoonseok Lee, Kyung-Soo Park, Sang-Myun Lim, Ji-Hoon Choi, Yeon-Woo Choi, Jin-Yeong Lee, Hyeon-Cheol Jeong, Tae-Suk Kim, and Changhwan Choi (Hanyang Univ., Korea)

[TuA2-4] 16:00–16:20

Role of Oxygen Incorporation in Ru Electrodes on Phase Stability and Reliability of Hf_{0.5}Zr_{0.5}O₂ Ferroelectrics

Hyojun Choi, Kun Yang (Seoul Nat'l Univ., Korea), Ji Sang Ahn, Eun Ji Ju (Seoul Nat'l Univ. of Science and Tech., Korea), Don In Han, Se Hyun Kim, Ju Yong Park, Heejin Hong, Kwan Hyun Park (Seoul Nat'l Univ., Korea), Jeong Hwan Han (Seoul Nat'l Univ. of Science and Tech., Korea), and Min Hyuk Park (Seoul Nat'l Univ., Korea)

[TuA2-5] [Invited] 16:20–16:40

Reactor-Scale Modeling and AI-Surrogate Approaches for Thin Film and Bulk Crystal Growth: Oxide ALD, Diamond MPCVD and SiC PVT

Seong-Min Jeong (KICET, Korea)



[TuB2] Sustainable Etch

Session Date	November 11 (Tue.), 2025
Session Time	14:50–16:05
Session Room	Room B (Grand Ballroom 1, 2F)
Session Chair	Dr. Thorsten Lill (Lam Research, USA)

[TuB2-1] [Invited]

14:50–15:20

Low-GWP Cyclic Etching of SiO₂ Contact Holes Using Heptafluoropropyl Methyl Ether

Sanghyun You and Chang-Koo Kim (Ajou Univ., Korea)

[TuB2-2]

15:20–15:35

Low Global Warming C₅F₁₀O/H₂O Plasma for Low Temperature Etching of SiO₂ and Si₃N₄

Daeun Hong, Sumin Park, Eunsu Lee, and Heeyeop Chae (Sungkyunkwan Univ., Korea)

[TuB2-3]

15:35–15:50

Comparative Study of C₃F₆ and CF₄ for Sustainable Plasma Etching of SiO₂

Inkyoung Cho and Chang-Koo Kim (Ajou Univ., Korea)

[TuB2-4]

15:50–16:05

Comparison of Etching Characteristics and Environmental Impact of Fluorocarbon Isomers in High Aspect Ratio (HAR) Etching Processes

Seyoung Choi, Chanhyuk Choi, Myeongho Park, Junsoo Lee, Akihide Sato, Sungtaek Kim, Dongwoo Kim, and Geunyoung Yeom (Sungkyunkwan Univ., Korea)



[TuC2] Advanced Metrology & Inspection, Process Diagnostics & Control, and Yield Management II

Session Date	November 11 (Tue.), 2025
Session Time	14:50-16:20
Session Room	Room C (Grand Ballroom 3, 2F)
Session Chair	Dr. WooSeok Kang (KIMM, Korea)

[TuC2-1] [Invited] 14:50-15:20

The Future Is Here: Next-Gen Semiconductor Metrology & Inspection

Taeyong Jo, Jinwoo Ahn, Jaewon Lee, Jeonghoi Kim, Hansaem Park, Myungjun Lee, and Sangjin Hyun (Samsung Electronics Co., Ltd., Korea)

[TuC2-2] [Invited] 15:20-15:50

The Importance and Role of MI in Semiconductor Devices' 3D Era

Byoung-Ho Lee (Hitachi High-Tech Corp., Japan)

[TuC2-3] [Invited] 15:50-16:20

Overlay Metrology for Layer Alignment Accuracy in Device Processing

Nahee Park (KLA Corp., USA)



[TuD2] Power Devices II

Session Date	November 11 (Tue.), 2025
Session Time	14:50–16:30
Session Room	Room D (Sydney Room, 2F)
Session Chair	Prof. Ho-Jun Lee (Pusan Nat'l Univ., Korea)

[TuD2-1] [Invited]

14:50–15:15

Radiation-Hardened Edge Termination Design for SiC Power Devices under Proton

Ogyun Seok (Pusan Nat'l Univ., Korea)

[TuD2-2] [Invited]

15:15–15:40

Development Status of SiC MOSFET in Powermaster Semiconductor

Hongki Kim and Jaegil Lee (Powermaster Semiconductor, Korea)

[TuD2-3] [Invited]

15:40–16:05

Fabrication of SiC SBD for 6.5 kV Edge-Termination Designs

Sung Mo Koo, Weon Chan Kim, Dong Ju Kang (EYEQ Lab Inc., Korea), Jun Seong Kim, Hyemin Kang (KENTECH, Korea), Sang Gi Kim, and Gwon Je Kim (EYEQ Lab Inc., Korea)

[TuD2-4] [Invited]

16:05–16:30

Performance of TES Tunable SiC Epitaxial System “TRION”

Geumchan Hwang and Ray Suh (TES, Korea)



[TuE2] CMP Consumables: Conditioning, Monitoring, and Abrasives

Session Date	November 11 (Tue.), 2025
Session Time	14:50–16:30
Session Room	Room E (Sicily Room, 1F)
Session Chair	Dr. Hyunkyu Moon (KIMM, Korea)

[TuE2-1] [Invited] 14:50–15:20

CMP Pad Conditioning of the Future: Fundamentals, Emerging Technologies, and Development Pathways

Yongsik Moon, Kyoung-Kuk Kwack, Joochan Lee, Jongkuk Park, Eunhwa Song, Youngtae Jeon, Juhee Lee, Sungyu Park, Yujeong Jin, and Jongjae Lee (EHWA Diamond, Korea)

[TuE2-2] [Invited] 15:20–15:50

Slurry Sensing for CMP Processes

Jin Su Hong, Min Cheol Kim, and Min Ku Kim (Hanyang Univ., Korea)

[TuE2-3] [Invited] 15:50–16:10

A Novel CMP Slurry Systems for Next-Generation Semiconductor Fabrication

Jongchul Shin and Sanghyun Ryu (Dongjin Semichem Co., Ltd., Korea)

[TuE2-4] [Invited] 16:10–16:30

Post CMP Cleaning Strategies for Amorphous Silicon in Wafer Bonding Processes

Arunkumar G V, Wei-Tsu Tseng, Nancy Wang, and Donald Canaperi (IBM Research, USA)



[TuF2] Processing for 3D Integration

Session Date	November 11 (Tue.), 2025
Session Time	14:50-16:25
Session Room	Room F (Panorama Room, 16F)
Session Chair	Dr. Kwang-Seong Choi (ETRI, Korea)

[TuF2-1] [Plenary]

14:50-15:35

Advanced Packaging Technology with Cu-Cu Hybrid Bonding

Takafumi (Tak) Fukushima (Tohoku Univ., Japan)

[TuF2-2] [Invited]

15:35-16:05

Vertical Fan-Out (VFO) Technology for Memory and Storage Applications

Ji Yong Park (SK hynix Inc., Korea)

[TuF2-3] [Invited]

16:05-16:25

Enabling 3D Integration: Advances in Hybrid Wafer Bonding Technology

Thomas Kasbauer (EV Group, Austria)



[WeA1] Nanoscale Thin Film Deposition III

Session Date	November 12 (Wed.), 2025
Session Time	09:00-10:40
Session Room	Room A (Capri Room, 2F)
Session Chair	Prof. Min Hyuk Park (Seoul Nat'l Univ., Korea)

[WeA1-1] [Invited]

09:00-09:30

Non-Fluorinated Molybdenum Metallization in 3D NAND

Jungho Lee (Lam Research Korea, Korea)

[WeA1-2] [Invited]

09:30-10:00

Atomic Layer Deposition of Molybdenum Thin Films: Enhancing Deposition Characteristics and Film Quality with Advanced Deposition Materials

Changbong Yeon and Jaesun Jung (Soulbrain Co., Ltd., Korea)

[WeA1-3]

10:00-10:20

Interlayer Engineering for Reliable Hybrid Channel NAND Flash

Taewon Hwang, So Young Lim, and Jin-Seong Park (Hanyang Univ., Korea)

[WeA1-4]

10:20-10:40

Atomic Layer Deposition of Binary Alloy Thin Films for Advanced Interconnects

Yeong-Seo Cho, Myung-Jin Jung, and Se-Hun Kwon (Pusan Nat'l Univ., Korea)



[WeB1] HARC Etch and Plasma Source

Session Date	November 12 (Wed.), 2025
Session Time	09:00-10:25
Session Room	Room B (Grand Ballroom 1, 2F)
Session Chair	Dr. Jie Li (imec, Belgium)

[WeB1-1] [Invited] 09:00-09:30

Next Generation HARC Etch Technologies Requiring Ultra-High Aspect Ratio, High Selectivity, and Very High Etch Rate for VNAND Device

Kyujin Jang, Hoki Lee, and Jaeho Min (Samsung Electronics Co., Ltd., Korea)

[WeB1-2] [Invited] 09:30-09:55

3D NAND Dielectric Etch Technology Challenges and Breakthroughs

Dongsoo Lee (Lam Research Korea, Korea)

[WeB1-3] 09:55-10:10

Investigation of Toroidal Slot Antennas for Microwave Heating and Plasma Generation

Sung-Hyeon Jung and Ho-Jun Lee (Pusan Nat'l Univ., Korea)

[WeB1-4] 10:10-10:25

Investigation of Plasma Density Distribution and Electron Heating Mechanisms in Capacitively Coupled Plasma

Seong Eun Oh and Ho-Jun Lee (Pusan Nat'l Univ., Korea)



[WeC1] Advanced Metrology & Inspection, Process Diagnostics & Control, and Yield Management III

Session Date	November 12 (Wed.), 2025
Session Time	09:00-10:30
Session Room	Room C (Grand Ballroom 3, 2F)
Session Chair	Dr. Huksang Kwon (KRISS, Korea)

[WeC1-1] [Invited] 09:00-09:30

Next-Generation Optical Metrology for Advanced Semiconductor Packaging

Joonho You and Jaeyoung Jang (Nexensor Inc., Korea)

[WeC1-2] [Invited] 09:30-09:50

Wafer Fracture Stress Due to Edge Cracks and Crack Inspection Method

Hyun-Jung Kim and Ju-Won Lee (Nexus1 Co., Ltd., Korea)

[WeC1-3] [Invited] 09:50-10:10

Development of Designing Motion Profile with Advanced Jerk for Vibration Suppression and High Wafer Throughput

Heejae Byun, Kyobong Kim, Jaewon Choi, Sangoh Kim, and Janghwan Kim (SEMES, Korea)

[WeC1-4] [Invited] 10:10-10:30

AI-Based Multi-Sensor Integrated Process Intelligence for Atomic Layer Deposition

Jihye Seo, Sung Kyu Jang (KETI, Korea), Jihun Kim, Hyeon Kim (KETI and Sungkyunkwan Univ., Korea), Hyun-Mi Kim, Sun Gil Kim, Seul-Gi Kim (KETI, Korea), Il Hwi Lee, Nam Young Kim (SurplusGLOBAL Inc., Korea), Jong Hyun Choi, and Hyeongkeun Kim (KETI, Korea)



[WeD1] Lithography Process

Session Date	November 12 (Wed.), 2025
Session Time	09:00-10:40
Session Room	Room D (Sydney Room, 2F)
Session Chair	Dr. Jeong-Ho Yeo (Applied Materials, Korea)

[WeD1-1] [Invited]

09:00-09:30

Journey to the Future: Low & High NA EUV Lithography for Next Generation Logic Devices

Jong-Hwa Baek (Samsung Electronics Co., Ltd., Korea)

[WeD1-2] [Invited]

09:30-10:00

EUV Mask Technology: Evolution and Future Outlook

Chan-Uk Jeon (Tekscend Photomask Corp., Japan)

[WeD1-3] [Invited]

10:00-10:20

SEM Overlay Target Optimization for NZO Improvement by Measuring Device Like Target Using E-Beam Simulation

You Jin Kim, Jeong Ho Yeo, Youngje Um (Applied Materials Korea, Korea), Jenny Perry, Noam Oved, Uri Smolyan, Tal Itzkovich, Michael Shifrin (Applied Materials Israel, Israel), Young Jin Cha, Baek Jun Kim (Applied Materials Korea, Korea), Ikjun Jang, Il Hwan Kim, Byoungsoon Kim, Sungbin Jeon, Muyeong Lee, Hyunju Song, Myeongcheol Go, Narim Noh, Hachul Shin, Sangsu Jeong, Eunho Choi, Jinhong Park, and Changmin Park (Samsung Electronics Co., Ltd., Korea)

[WeD1-4] [Invited]

10:20-10:40

Development of EUV Pellicles Supporting High EUV Power

Prashant Purwar, Dongyeong Yoo, Munsu Choi, Arim Kim, Chulkyun Park, Sangmin Jeong, Byoung Hoon Seung, and Juhee Hong (S&S TECH., Korea)



[WeE1] Nanostructured Materials and Surface Chemistry

Session Date	November 12 (Wed.), 2025
Session Time	09:00-10:50
Session Room	Room E (Sicily Room, 1F)
Session Chair	Prof. Jihoon Seo (Clarkson Univ., USA)

[WeE1-1] [Invited]

09:00-09:30

3D Observation Method of Transporting Nano-Particle near a Surface

Panart Khajornrungruang (Kyushu Inst. of Tech., Japan)

[WeE1-2] [Invited]

09:30-10:00

Oxidation Behavior of Co Metal for CMP Slurry Design

Seho Sun (Yeungnam Univ., Korea)

[WeE1-3] [Invited]

10:00-10:30

Surface Modified Nanoparticle Abrasives for Efficient CMP Process

Tae-Dong Kim (Hannam Univ., Korea)

[WeE1-4]

10:30-10:50

Si-Wafer Polishing Rate Enhancing Mechanism Through Accelerating Hydrolysis Reaction at Si-Wafer Surface

Pil-Su Kim, Hye-Min Lee, Min-Uk Jeon, Se-Hui Lee, Su-Bin Kim, Ji-Hye Shin (Hanyang Univ., Korea), Jin-Hyung Park (ENF Technology Co., Ltd., Korea), Kyoo-Chul Cho (Hanyang Univ., Korea), Tae-Dong Kim (Hannam Univ., Korea), Jin-Sub Park, and Jea-Gun Park (Hanyang Univ., Korea)



[WeF1] Processing for AI Semiconductor Modules

Session Date	November 12 (Wed.), 2025
Session Time	09:00-10:35
Session Room	Room F (Panorama Room, 16F)
Session Chair	Prof. Hongyun So (Hanyang Univ., Korea)

[WeF1-1] [Plenary]

09:00-09:45

Status of AI Packages and Its Manufacturing Issues

Seungbae Park (State Univ. of New York at Binghamton, USA)

[WeF1-2] [Invited]

09:45-10:15

Challenges of Hybrid Cu Bonding for High Bandwidth Memory

Jaewha Park, Byengjun Lee, Ilyoung Yoon, Cheolhyun Lim, and Kwangjin Moon (Samsung Electronics Co., Ltd., Korea)

[WeF1-3] [Invited]

10:15-10:35

Cu Post Bonding Technology, based on Laser-Assisted Bonding with Compression (LABC) and Fume-Free Laser Solder Paste for Advanced 3D Interconnections

Kwang-Seong Choi, Jiho Joo, Gwang-Mun Choi, Jungho Shin, Chanmi Lee, Ki-Seok Jang, Jin-Hyuk Oh, Ho-Gyeong Yun, Seok Hwan Moon, Gaeun Lee, Seong Cheol Kim, Yong-Sung Eom (ETRI, Korea), Geunsik Ahn, and Youn Sung Ko (PROTEC Co., Ltd., Korea)



[WeA2] Nanoscale Thin Film Deposition IV

Session Date	November 12 (Wed.), 2025
Session Time	14:10–15:50
Session Room	Room A (Capri Room, 2F)
Session Chair	Prof. Jin-Seong Park (Hanyang Univ., Korea)

[WeA2-1] [Invited]

14:10–14:40

2D Semiconductor Crystal Layer Deposition Toward Fab-Line Compatibility

Kibum Kang (KAIST and TDS Innovation Co., Ltd., Korea)

[WeA2-2] [Invited]

14:40–15:10

Innovations in Deposition Technologies at the Onset of 3D Devices

Kwangmin Park, J.U. Kim, I. Zoh, S.H. Jang, T. Lee, S. Jeong, I. Jeon, Y.S. Tak, S.W. Jung, S.Y. Yang, H.J. Kim, Z. Wu, S.C. Oh, J.H. Park, S.U. Han, M.H. Cho, Y. Kim, P. Yun, J.W. Han, S.W. Park, Daewon Ha, S.H. Lee, S.J. Ahn, S.J. Hyun, and Jaihyuk Song (Samsung Electronics Co., Ltd., Korea)

[WeA2-3] [Invited]

15:10–15:30

ALD/ALE for the Advanced Technology

Van Quang Nguyen, Minji Jeong, Dohoe Kim, and Jihye Kim (ISAC Research Inc., Korea)

[WeA2-4]

15:30–15:50

Development of ALD-Based Initial Surface Control Technology for Sub-10 nm Continuous Ir Films in Advanced Interconnect Metallization

Myung-Jin Jung and Se-Hun Kwon (Pusan Nat'l Univ., Korea)



[WeB2] Advanced Etch II

Session Date	November 12 (Wed.), 2025
Session Time	14:10-15:35
Session Room	Room B (Grand Ballroom 1, 2F)
Session Chair	Dr. Dongsoo Lee (Lam Research Korea, Korea)

[WeB2-1] [Invited]

14:10-14:40

Advanced Patterning of Metal Oxide Semiconductors for Memory Applications: IBE, RIE, and ALE Approaches

Jie Li, Shreya Kundu, Laurent Souriau, Yiqun Wan, Attilio Belmonte, and Katia Devriendt (imec, Belgium)

[WeB2-2] [Invited]

14:40-15:05

r-Wave Resonance-Enhanced ICP Etcher for High-Precision Dry Etching

Taeho Shin (ICD Ltd., Korea)

[WeB2-3]

15:05-15:20

Crystalline Ultra-Thin High-K Films Enabled by Fluorine-Radical-Based Atomic Layer Etching

Somyeong Shin, Chang Kyu Lee, Chan Lee, Hyeonjin Cha, Byung Chul Cho, Ju Hwan Park (WONIK IPS, Korea), Misoo Kim, Khabib Khumaini, Hye-Lee Kim, Gyejun Cho, Yewon Kim, Won-Jun Lee (Sejong Univ., Korea), and Min Kim (WONIK IPS, Korea)

[WeB2-4]

15:20-15:35

Study on SiO₂ Atomic Scale Etching Using Selective Control of Ar Metastable Atom Generation

Chang-Min Lim, Jae-Hwi Kim, Hyeon-Jun Cho, Young Don Kim, and Chin-Wook Chung (Hanyang Univ., Korea)



[WeC2] Advanced Metrology & Inspection, Process Diagnostics & Control, and Yield Management IV

Session Date	November 12 (Wed.), 2025
Session Time	14:10–15:40
Session Room	Room C (Grand Ballroom 3, 2F)
Session Chair	Dr. Ansoon Kim (KRISS, Korea)

[WeC2-1] [Invited]

14:10–14:40

Development of DUV & EUV Optics for Semiconductor Inspection

Hagyong Kihm (KRISS and Univ. of Science and Tech., Korea) and Jae-Hyuck Choi (KRISS, Korea)

[WeC2-2] [Invited]

14:40–15:10

Development of a High-Brightness LaB₆ Electron Source and REELS(Reflection Electron Energy Loss Spectroscopy)

Takashi Ogawa, Ha Rim Lee (KRISS, Korea), Youngkwon Haam (KRISS and Chungnam Nat'l Univ., Korea), Junhyeok Hwang, Jeong Woong Lee (KRISS, Korea), and In-Yong Park (KRISS, Univ. of Science and Tech., and Chungnam Nat'l Univ., Korea)

[WeC2-3] [Invited]

15:10–15:40

Applications of High-Speed AFM for Advanced Packaging, EUV Lithography and CMP

A.D. Giddings (Infinitesima Ltd., UK)



[WeD2] Material & Process

Session Date	November 12 (Wed.), 2025
Session Time	14:10-15:50
Session Room	Room D (Sydney Room, 2F)
Session Chair	Prof. Su-Mi Hur (Chonnam Nat'l Univ., Korea)

[WeD2-1] [Invited]

14:10-14:40

Advanced Patterning: Tackling the Big Problems in Printing Small Features

Ben Eynon (Lam Research, USA)

[WeD2-2] [Invited]

14:40-15:10

Overview of Innovative Lithography Patterning Process Materials Contributing to Next Wave of Challenge on Semiconductor Architecture

Ethan C B Lee, Seoung-Woo Jang, Sang-Hee Park, Byeri Yoon (Samsung SDI, Korea)

[WeD2-3] [Invited]

15:10-15:30

EUV vs. E-Beam Photoresists: Cross-Platform Analysis and Optimization Strategies

Hyungkun Lee, Jaehyun Kim, Myounghyun Hur, Jeongwoo Kim, and Jeongsik Kim (Dongjin Semichem Co., Ltd., Korea)

[WeD2-4] [Invited]

15:30-15:50

EUV Mask Local CD Correction System Development via Laser Irradiation

Hyun Yoon, Yujin Cho, Ki Hoon Choi, Hojong Hwang, Seung Eon Oh, Seryeyohan Cho, Jin Yeong Sung, Jangjin Lee, Taeshin Kim, Sang Hyeon Ryu, Youngho Park, Donggeun Lee, Joon Ho Won (SEMES, Korea), Yong Woo Kim, Jong Keun Oh, Jong Ju Park (Samsung Electronics Co., Ltd., Korea), and Byeonggeun Kim (SEMES, Korea)



[WeE2] AI-Driven CMP and Emerging Process Strategies

Session Date	November 12 (Wed.), 2025
Session Time	14:10-15:40
Session Room	Room E (Sicily Room, 1F)
Session Chair	Prof. Seho Sun (Yeungnam Univ., Korea)

[WeE2-1] [Invited]

14:10-14:40

Machine Learning-Based Strategic Corrosion Management for Targeted Inhibitor Implementation in CMP Applications

Jihoon Seo (Clarkson Univ., USA)

[WeE2-2]

14:40-15:00

Mechanism on Formation of Selective Hindrance Layer on Si-Film Enhancing Etch-Rate Selectivity of Si_{1-x}Gex- to Si-Film

Chang-Jin Lee and Jea-Gun Park (Hanyang Univ., Korea)

[WeE2-3]

15:00-15:20

Design Rules for Micro-Structured Chemical Mechanical Polishing Pads to Enhance MRR

Hyun Jun Ryu, Seounghee Yun, and Sanha Kim (KAIST, Korea)

[WeE2-4] [Invited]

15:20-15:40

CMP: Enabling Advanced Packaging for the AI Era

Nandan Baradanahalli Kenchappa, Taketo Sekine, Swetha Barkam, Christopher Lai, Jianshe Tang, and Asheesh Jain (Applied Materials, USA)



[WeF2] Materials and Processing for Advanced Packaging

Session Date	November 12 (Wed.), 2025
Session Time	14:10–15:50
Session Room	Room F (Panorama Room, 16F)
Session Chair	Prof. Ah-Young Park (Univ. of Seoul, Korea)

[WeF2-1] [Invited] 14:10–14:30

Development of an Eco-Friendly Photoresist Stripper for Advanced Semiconductor Packaging Processes

Bo Yeon Lee, Sangseung Park, Seungeun Lee, Ga Young Kim, Seok Jin Hong, and Jung Shik Heo (ENF Technology Co., Ltd., Korea)

[WeF2-2] [Invited] 14:30–14:50

FINE Cut and FINE Forming (TGV) of HBM4, Glass Core and Interposer

Seak-Joon Lee (ITI, Korea)

[WeF2-3] [Invited] 14:50–15:10

Glass Package Substrates for High-Performance Chiplet Systems

Jimin Kwon (UNIST, Korea)

[WeF2-4] [Invited] 15:10–15:30

Bonding Strength and Fracture Behavior in Patterned Cu–SiO₂ Hybrid Interfaces

Ah-Young Park (Univ. of Seoul, Korea), Hakyung Jeong (KIMM, Korea), and Kyung-Ho Park (KANC, Korea)

[WeF2-5] [Invited] 15:30–15:50

Development of Optical Interconnection Core Technologies for Implementation and Reliability Enhancement of Co-Packaged Optics

Hongyun So, Keuntae Baek, and Animesh Sinha (Hanyang Univ., Korea)



[WeA3] Nanoscale Thin Film Deposition V

Session Date	November 12 (Wed.), 2025
Session Time	16:05-17:45
Session Room	Room A (Capri Room, 2F)
Session Chair	Prof. Woo-Jae Lee (Pukyong National Univ., Korea)

[WeA3-1] [Invited] 16:05-16:35

Atomically Ordered ALD Oxide Semiconductors for High-Mobility, Low-Temperature Logic and BEOL Integration

Jin-Seong Park (Hanyang Univ., Korea)

[WeA3-2] [Invited] 16:35-17:05

High-Performance Transparent Conducting Oxides via Nano-Textured Substrates and Ag Interlayer

Sung-Yong Mun, Dong-Hwi Lee, and Young-Rae Cho (Pusan Nat'l Univ., Korea)

[WeA3-3] 17:05-17:25

Theoretical Study of Radical Decomposition of Low GWP Alternative Gases and Fluorocarbon Film Formation on SiO₂

Minji Kim and Sangheon Lee (Ewha Womans Univ., Korea)

[WeA3-4] 17:25-17:45

Work Function Modulation of Chlorine-Free TiAlN Films through Controlled Al Incorporation by Thermal ALD

Gyeong Min Jeong, Hae-dam Kim, and Jin-Seong Park (Hanyang Univ., Korea)



[WeD3] Computational Lithography & Mask

Session Date	November 12 (Wed.), 2025
Session Time	16:05-17:45
Session Room	Room D (Sydney Room, 2F)
Session Chair	Prof. Chawon Koh (Yonsei Univ., Korea)

[WeD3-1] [Invited] 16:05-16:35

EUV and High-NA EUV Patterning for DRAM Scaling: Challenges and Opportunities

Jeonghoon Lee (imec, Belgium)

[WeD3-2] [Invited] 16:35-16:55

From Molecular Simulations to Artificial Intelligence for Advanced Patterning Materials Designs

Su-Mi Hur (Chonnam Nat'l Univ., Korea)

[WeD3-3] 16:55-17:10

Pioneering Carboxylated Zirconium Oxo Cluster Resist for Precision Nanoscale Patterning

Seong-Ji Ha, Bo Kyu Kwon, Jinyoung Lee, and Ji-Hyun Jang (UNIST, Korea)

[WeD3-4] [Invited] 17:10-17:30

MBM-4000: Electron Multi-Beam Mask Writer for Advanced Mask Making

Rieko Nishimura, Hiroshi Matsumoto, Kenichi Yasui, Tomoo Motosugi, Hayato Kimura, and Yoshinori Kojima (NuFlare Technology, Inc., Japan)

[WeD3-5] 17:30-17:45

Contamination Control Strategies in Next-Generation EUV Pods

Elson Tu, Asheesh Nautiyal, and Chiaho Chuang (Gudeng Precision Industry Co., Ltd., Taiwan)



[WeE3] Reliability and Integration Challenges in Advanced Packaging

Session Date	November 12 (Wed.), 2025
Session Time	16:05-17:35
Session Room	Room E (Sicily Room, 1F)
Session Chair	Prof. Tae-Dong Kim (Hannam Univ., Korea)

[WeE3-1] [Invited]

16:05-16:25

Emerging CMP Solutions for Next Generation Advanced Packaging Process

Jae-Dong Lee, Eunok Kim, Yeongjung Kim, Hyungoo Kong, Jae Hak Lee, and Seung Mahn Lee (KCTech, Korea)

[WeE3-2] [Invited]

16:25-16:55

Wet Cleaning Process Issues with Memory Device Scaling

Young-Hoo Kim, Pyojin Jeon, Junho Yun, Junho Lee, Yongwook Lee, Gunshik Yun, Sunghyun Park, Jungwan Han, Ji-Hoon Jeong, Tae-Hong Kim, Woogwan Shim, Sungyong Park, and Hyosan Lee (Samsung Electronics Co., Ltd., Korea)

[WeE3-3]

16:55-17:15

Fenton Reaction Enhancing Significant Chemical Oxidation for Ag Chemical Mechanical Planarization

Man-Hyup Han, Hyun-Sung Koh, Il-Haeng Heo, Min-Ji Kim, Woo-Hyun Jin, Jin-Woo Kim, Seung-Hwan Kim, Jin-Sub Park, and Jea-Gun Park (Hanyang Univ., Korea)

[WeE3-4]

17:15-17:35

Si-Wafer Polishing Rate Enhancement by Amine Functional Group as Hydrolysis Reaction Accelerator

Min-Uk Jeon, Pil-Su Kim, Se-Hui Lee, Hye-Min Lee, Su-Bin Kim, Ji-Hye Shin (Hanyang Univ., Korea), Jin-Hyung Park (ENF Technology. Co., Ltd., Korea), Kyoo-Chul Cho (Hanyang Univ., Korea), Tae-Dong Kim (Hannam Univ., Korea), Jin-Sub Park, and Jea-Gun Park (Hanyang Univ., Korea)



[WeF3] Advanced Designs, Processing, and Reliability

Session Date	November 12 (Wed.), 2025
Session Time	16:05-17:45
Session Room	Room F (Panorama Room, 16F)
Session Chair	Dr. Tae-Ik Lee (KITECH, Korea)

[WeF3-1] [Invited]

16:05-16:25

Advanced Flip-Chip Bonding Process via Intense Pulsed Light Irradiation: From Single-Chip to Multi-Chip Stacking Applications

Young-Min Ju, Jong-Whi Park, Hyeong-bin Park, Yun-Joong Kim, and Hak-Sung Kim (Hanyang Univ., Korea)

[WeF3-2] [Invited]

16:25-16:45

Statistical Signal Integrity Analysis with Nonideal Buffer of DFE for Chiplet

Junyong Park (Kyung Hee Univ., Korea)

[WeF3-3] [Invited]

16:45-17:05

Visualized Thermo-Mechanical Failure Mechanisms in Advanced Semiconductor Package Interconnects via Microscale Deformation Analysis

Tae-Ik Lee (KITECH, Korea)

[WeF3-4]

17:05-17:25

3D-Printed Organic Interposer with Embedded Fan-Out Interconnects Enabled by Additive Manufacturing

Haksoon Jung and Jimin Kwon (UNIST, Korea)

[WeF3-5]

17:25-17:45

Predictive Analysis of Signal Transmission in Pogo Pin-Load Board

Jonghee Park and Youbean Kim (Myongji Univ., Korea)



[ThA1] Nanoscale Thin Film Deposition VI

Session Date	November 13 (Thu.), 2025
Session Time	09:00–10:10
Session Room	Room A (Capri Room, 2F)
Session Chair	Prof. Young-Rae Cho (Pusan Nat'l Univ., Korea)

[ThA1-1] [Invited] 09:00–09:30

Multi-Threshold Voltage (V_{ht}) Engineering Using ALD TaN-Based HKMG Gate Stack for Advanced Logic and DRAM Devices

Changhwan Choi (Hanyang Univ., Korea)

[ThA1-2] [Invited] 09:30–09:50

Ultrathin Freestanding Ceramic Membranes for Yield Enhancement in Extreme Ultraviolet Lithography

Seul-Gi Kim, Hyun-Mi Kim (KETI, Korea), Yongkyung Kim (KETI and Hanyang Univ., Korea), Hye-Young Kim, Kihun Seong (KETI and Sungkyunkwan Univ., Korea), Su Min Lee (KETI, Korea), Jonghyuk Yoon (KETI and Sungkyunkwan Univ., Korea), and Hyeongkeun Kim (KETI, Korea)

[ThA1-3] [Invited] 09:50–10:10

Transforming Semiconductor Manufacturing with AI: Changing the Paradigm of Next-Generation Semiconductor Processes

Jinwoo Kim, Changheon Han, Kwan Lee, Nuri Oh, Changmin Jung, Taehang Ahn, Minje Kim, and Beomju Yu (HEX A.I. Labs Inc., Korea)



[ThB1] Atomic Scale Etching

Session Date	November 13 (Thu.), 2025
Session Time	09:00-10:40
Session Room	Room B (Grand Ballroom 1, 2F)
Session Chair	Prof. Thi-Thuy-Nga Nguyen (Nagoya Univ., Japan)

[ThB1-1] [Invited]

09:00-09:30

Challenges and Approaches of HARC Patterning for AI Memory Devices

Yeonghun Han (SK hynix Inc., Korea)

[ThB1-2] [Invited]

09:30-10:00

Conversion-Free Atomic Layer Etching (ALE) of ZnO: Effect of Precursor on the ALE Process

Taewook Nam (Sejong Univ., Korea)

[ThB1-3] [Invited]

10:00-10:25

Ab Initio Analysis of Atomistic Diffusion of Halogen Species at the Etching Front

Sangheon Lee (Ewha Womans Univ., Korea)

[ThB1-4]

10:25-10:40

Investigation of Wafer Edge Tilting in Capacitively Coupled Plasmas via IEADF-Driven Monte Carlo Feature-Scale Simulation

Sanghyun Jo (Hanyang Univ., Korea), Kyoung-Ho Kim (Korea Polytechnics, Korea), and Ho Jun Kim (Hanyang Univ., Korea)



[ThC1] Advanced Metrology & inspection, Process diagnostics & control, and Yield management V

Session Date	November 13 (Thu.), 2025
Session Time	09:00-10:20
Session Room	Room C (Grand Ballroom 3, 2F)
Session Chair	Dr. Dae-Woong Kim (KIMM, Korea)

[ThC1-1] [Invited] 09:00-09:20

High-/Low-Pressure Swing Annealing for Uniform Curing of High-Aspect-Ratio TiN Electrodes in DRAM Capacitors

Won Jun Jang (Sungkyunkwan Univ. and Wonik IPS, Korea), Won Sik Ahn (Wonik IPS, Korea), Woo Hui Lee, and Hyoungsub Kim (Sungkyunkwan Univ., Korea)

[ThC1-2] [Invited] 09:20-09:50

A New Approach to High-Throughput Defect Review of Unpatterned Wafers for Leading Edge Nodes

Ali Ozhan Altun (UNISERS AG, Switzerland)

[ThC1-3] [Invited] 09:50-10:20

Advanced Technique for Analysis of Defect States in Future 3D Semiconductor Devices

Hagyoul Bae (Jeonbuk Nat'l Univ., Korea)



[ThD1] Process & Mask

Session Date	November 13 (Thu.), 2025
Session Time	09:00-10:50
Session Room	Room D (Sydney Room, 2F)
Session Chair	Mr. Jeonghoon Lee (imec, Belgium)

[ThD1-1] [Plenary]

09:00-09:45

Advances in Lithography and Patterning for Logic and DRAM

Kurt Ronse (imec, Belgium)

[ThD1-2] [Invited]

09:45-10:15

EUV ECO Equal Maximizing Productivity

Heeyoul Lim (SK hynix Inc., Korea)

[ThD1-3] [Invited]

10:15-10:35

Recent Progress in Tin-Based Inorganic Molecular Resists for EUV Lithography and Proposal of Cyclic Siloxane Resist for Blue-X Lithography

Hyun-Dam Jeong (Chonnam Nat'l Univ., Korea)

[ThD1-4] [Invited]

10:35-10:50

Cartridge-Based Van Der Waals Printing for Versatile Device Integration

Dong Hyup Kim (Chonnam Nat'l Univ., Korea)



[ThE1] CMP for Heterogeneous Integration and New Materials

Session Date	November 13 (Thu.), 2025
Session Time	09:00-10:45
Session Room	Room E (Sicily Room, 1F)
Session Chair	Prof. Kangchun Lee (Kwangwoon Univ., Korea)

[ThE1-1] [Plenary]

09:00-09:45

Role of CMP in Enabling New Materials for Heterogeneous Integration

K. Mikhaylichenko, C. Lee, T. Osterheld, S. Barkam, S. Deshpande, B. Brown, R. Sreenivasan, S. Krishnan, M. Khoury, J. Lei, Z. Chen, K. Sharma, B. Chen, and V. Sukumaran (Applied Materials, USA)

[ThE1-2] [Invited]

09:45-10:15

Oxide Layer Engineering for Cobalt CMP

Taeseup Song, Ungyu Paik, Ganggyu Lee, Sumin Hong, and Giha Lee (Hanyang Univ., Korea)

[ThE1-3] [Invited]

10:15-10:45

Hybrid Bonding Challenges and Advanced CMP Strategies for Yield Enhancement

Haeri Kim, Hyeok Joo Lee, Sangchul Kim, and Jong Han Shin (SK hynix Inc., Korea)



[ThF1] Carbon Neutrality in Semiconductor Industry I

Session Date	November 13 (Thu.), 2025
Session Time	09:00-10:35
Session Room	Room F (Panorama Room, 16F)
Session Chair	Prof. Hongsik Jeong (UNIST, Korea)

[ThF1-1] [Plenary]

09:00-09:45

Advances in Etching Technologies for Next Generation Semiconductor Manufacturing towards Sustainable Development Goals

Shih-Nan Hsiao (Nagoya Univ., Japan)

[ThF1-2] [Invited]

09:45-10:10

Estimating GWP based on a Comprehensive Analysis of R134a: A Method for Accurate Monitoring of Greenhouse Gas Emissions

Dongkyum Kim, Sang Woo Kim, Miyeon Park, and Jeongsoon Lee (KRISS, Korea)

[ThF1-3] [Invited]

10:10-10:35

Development of NF₃ Alternative Gas for Global Warming Potential Reduction

Wontae Noh, Woongbin Yim, Soo Namgoong, Sukhyun Hong, Sung Ryong Moon, Sangmin Lee, and Young Chul Choi (Wonik IPS, Korea)



[ThA2] Nanoscale Thin Film Deposition VII

Session Date	November 13 (Thu.), 2025
Session Time	10:50-12:00
Session Room	Room A (Capri Room, 2F)
Session Chair	Prof. Changhwan Choi (Hanyang Univ., Korea)

[ThA2-1] [Invited]

10:50-11:20

Atomic Layer Deposition Process Development of Molybdenum Dioxide for the DRAM Capacitor Electrode Applications

Chaeyeong Hwang, Soo Min Yoo, and Woojin Jeon (Kyung Hee Univ., Korea)

[ThA2-2] [Invited]

11:20-11:40

Optimization of Atomic Layer Deposition Chemistry Toward Advanced Semiconductor Applications

Woo-Jae Lee (Pukyong Nat'l Univ., Korea)

[ThA2-3]

11:40-12:00

Improved Thermal Stability and Retention in Carbon-Doped $\text{Ge}_2\text{Sb}_2\text{Te}_5$ -Based Phase-Change Random Access Memory

Jisu Park, Wooseong Son, Seung Min Kang, and Changhwan Choi (Hanyang Univ., Korea)



[ThB2] Etch Process Monitoring

Session Date	November 13 (Thu.), 2025
Session Time	10:50-11:50
Session Room	Room B (Grand Ballroom 1, 2F)
Session Chair	Prof. Taewook Nam (Sejong Univ., Korea)

[ThB2-1]

10:50-11:05

Endpoint Detection of Plasma Etching in Small Open Area based on Feature Extraction and Trend Identification

Zimeng Wang (Eindhoven Univ. of Tech., The Netherlands), Jaehyun Kim, Sanghee Han (Sungkyunkwan Univ., Korea), Alp Akçay (Northeastern Univ., USA), Heeyeop Chae (Sungkyunkwan Univ., Korea), and Juseong Lee (Eindhoven Univ. of Tech., The Netherlands)

[ThB2-2]

11:05-11:20

Quantitative Analysis of Radical Species in a Plasma Chamber Using RGA-Based Global Modeling

Seonghyeon Seo, Wonnyoung Jeong (Chungnam Nat'l Univ., Korea), Sijun Kim (LPP-CNRS, France), Youngseok Lee (Tokyo Electron Korea Ltd., Korea), Chulhee Cho, Inho Seong, Minsu Choi, Byeongyeop Choi, Woobeen Lee, Isak Lee, Dongki Lee, Wonkyun Park, Jinhyuk Jang, and Shinjae You (Chungnam Nat'l Univ., Korea)

[ThB2-3]

11:20-11:35

On-Wafer Type Wireless Temperature Sensor for Cryogenic Etch Temperature Monitoring

Kwan Jae Lee (Myongji Univ. and Fine Semitech Corp., Korea), Jae-Hwan Kim, Jaewon Oh (Fine Semitech Corp., Korea), and Sang Jeen Hong (Myongji Univ., Korea)

[ThB2-4]

11:35-11:50

Fault Detection in Plasma Processes Using Optical Emission Spectroscopy with Recurrent Neural Networks-Based Autoencoder

Jaehyeon Kim, Eunchong Park, and Heeyeop Chae (Sungkyunkwan Univ., Korea)



[ThC2] Advanced Metrology & inspection, Process diagnostics & control, and Yield management VI

Session Date	November 13 (Thu.), 2025
Session Time	10:50-12:30
Session Room	Room C (Grand Ballroom 3, 2F)
Session Chair	Dr. Jeong Won Kim (KRISS, Korea)

[ThC2-1] [Invited] 10:50-11:20

Data-Driven Plasma Science-based Plasma Etching Process Design in OLED and Semiconductor Mass Productions Referring to PI-VM

Seolhye Park, Jaegu Seong, Yoona Park (Samsung Display Co., Ltd., Korea), Haneul Lee, Namjae Bae, Ji-Won Kwon, and Gon-Ho Kim (Seoul Nat'l Univ., Korea)

[ThC2-2] [Invited] 11:20-11:50

Advances in Plasma Diagnostics for Process Chamber Monitoring and Characterization: Microwave Diagnostics

Dae-Woong Kim (KIMM, Korea), SangHo Lee, InYong Park, GeonWoong Eom (KIMM and Chungnam Nat'l Univ., Korea), ShinJae You (Chungnam Nat'l Univ., Korea), Min Hur, and WooSeock Kang (KIMM, Korea)

[ThC2-3] 11:50-12:10

Photon Momentum Induced Particle Extraction in the Low-Pressure Plasma

Jun-Hyung Park and Hyo-Chang Lee (Korea Aerospace Univ., Korea)

[ThC2-4] 12:10-12:30

Development of Microwave Patch Antenna Sensor for Plasma Process Monitoring

Gwang-Seok Chae (Korea Aerospace Univ. and KRISS, Korea), Hee-Jung Yeom (KRISS, Korea), Min-Young Yoon (KFE, Korea), Eun-Seok Choe (KRISS and Chungnam Nat'l Univ., Korea), Jung-Hyung Kim (KRISS, Korea), and Hyo-Chang Lee (Korea Aerospace Univ., Korea)



[ThD2] Alternative Lithography

Session Date	November 13 (Thu.), 2025
Session Time	10:50–12:30
Session Room	Room D (Sydney Room, 2F)
Session Chair	Dr. Jisung Kwon (Korea Univ., Korea)

[ThD2-1] [Invited] 10:50–11:10

Large Scaled Metasurface Design and Fabrication for Terahertz Electromagnetic Wave Modulation and Their Applications

Minah Seo (Sogang Univ., Korea)

[ThD2-2] [Invited] 11:10–11:30

Dynamic IR Beam Steering and Switching with Active Metasurfaces

Min Seok Jang (KAIST, Korea)

[ThD2-3] [Invited] 11:30–11:50

Nanopatterned Surfaces for Advanced Manipulation of Light

Soo Jin Kim (Korea Univ., Korea)

[ThD2-4] [Invited] 11:50–12:10

Scalable Nanomanufacturing for Optical Metasurfaces

Inki Kim (Sungkyunkwan Univ., Korea)

[ThD2-5] [Invited] 12:10–12:30

Unlocking the Optical Potential of MXenes: Discoveries in Plasmonics and Nonlinear Absorption

Jisung Kwon, Changhoon Park, and Myung-Ki Kim (Korea Univ., Korea)



[ThE2] Next-Generation Slurries and Pad Technologies

Session Date	November 13 (Thu.), 2025
Session Time	10:50-12:00
Session Room	Room E (Sicily Room, 1F)
Session Chair	Prof. Seho Sun (Yeungnam Univ., Korea)

[ThE2-1] 10:50-11:10

Synthesis Strategies of Ceria Abrasives for Optimizing Dielectric Chemical Mechanical Planarization Performance

Jae Uk Hur and Jeong Ho Lee (Soulbrain Co., Ltd., Korea)

[ThE2-2] [Invited] 11:10-11:40

New Pad for High Rate and Longer Life in W Bulk CMP

Ja-Eung Koo, Jung-Jik Cho, Chang-Il Kim, NanRong Chiou, and Dave Hui (DuPont, USA)

[ThE2-3] 11:40-12:00

Development of ITO Stop Ag Slurry Based on Structural Differences in Carboxylic Acids

Junhyuk Kim and Jeongho Lee (Soulbrain Co., Ltd., Korea)



[ThF2] Carbon Neutrality in Semiconductor Industry II

Session Date	November 13 (Thu.), 2025
Session Time	10:50-12:25
Session Room	Room F (Panorama Room, 16F)
Session Chair	Prof. Hu Young Jeong (UNIST, Korea)

[ThF2-1] [Invited]

10:50-11:15

Toward Sustainability: Green CVD Approaches for Decarbonizing Semiconductor Fabs

Chulhwan Choi, Mingyo Byeon, Jingyu Park, Byeongsun Yoo, Dongjoon Myung, and Changsoo Lee (Samsung Electronics Co., Ltd., Korea)

[ThF2-2] [Invited]

11:15-11:40

Improvement of PFC Gas Treatment Technology for Etching Using Catalysts and Its Additional Effects

Yongjin Kim, Sangyoon Kim, and Jongpil Yoon (ECO ENERGEN Co., Ltd., Korea)

[ThF2-3] [Invited]

11:40-12:05

Case Study on the Demonstration of a White Plume Reduction Device (K-Industry)

Sang Woo Lee, Hyeong Kee Lee, and Seung Han Kwon (NURI PLAN Co., Ltd., Korea)

[ThF2-4]

12:05-12:25

Low Temperature Etching of SiO₂ and Si₃N₄ Using Low Global Warming C₃F₆, C₃HF₅, and C₃H₂F₄

Sumin Park, Daeun Hong, Eunsu Lee, Minsung Jeon, and Heeyeop Chae (Sungkyunkwan Univ., Korea)



[P1] Poster Session I

Session Date November 11 (Tue.), 2025

Session Time 17:25-18:15

Session Room Grand Ballroom 4, 2F

[P1-1]

Temperature-Dependent Growth Characteristics and Dopant Activation in In Situ Boron-Doped SiGe Epitaxy Treated by Nanosecond Laser Annealing

Minho Jeong (Yonsei Univ. and Samsung Electronics Co., Ltd., Korea), Dongmin Yoon, Jungwoo Kim, Seokmin Oh, Seonwoong Jung, and Dae-Hong Ko (Yonsei Univ., Korea)

[P1-2]

Tailoring Dielectric Properties of Liquid Crystal Polymer Films via Non-Solvent Induced Phase Separation and Molecular Alignment

Baekman Kim, Geunjung Lee (KAIST, Korea), Jongseok Kim (Chungnam Nat'l Univ., Korea), Tae Gyun Hong (KAIST, Korea), Yeongsik Kim, Hyungju Ahn (POSTECH, Korea), Yun Ho Kim (KRICT, Korea), Hyun You Kim (Chungnam Nat'l Univ., Korea), and Dong Ki Yoon (KAIST, Korea)

[P1-3]

Development of Measurement Techniques for Cocktail Precursors in Atomic Layer Deposition Using Hafnium Zirconium Precursors

Jaeuk Lim (KRISS and Hanyang Univ., Korea), Inseok Jeong, Chanjung Kim (KRISS and Univ. of Science and Tech., Korea), Seonjeong Maeng (KRISS, Korea), Jong-Man Kim (Hanyang Univ., Korea), and Ju-Young Yun (KRISS and Univ. of Science and Tech., Korea)

[P1-4]

Effect of Ion Bombardment on Ti and TiW Thin Films Deposited by RF Magnetron Sputtering under Low-Temperature Conditions

Changyeong Ji, Chiyun Bang, and Ju-Hong Cha (Gyeongsang Nat'l Univ., Korea)



[P1-5]

Effects of Pulse-Widths on Weight-Update Characteristics in Synaptic Thin-Film Transistors

Youngeon Ko, Jaeyeong Ryu, Jeongseok Pi, Danyoung Cha, and Sungsik Lee (Pusan Nat'l Univ., Korea)

[P1-6]

Influence of Operating Regions on Weight Linearity Characteristics in Synaptic Thin-Film Transistors

Jeongseok Pi, Jimin Shin, Heonju Lim, Danyoung Cha, and Sungsik Lee (Pusan Nat'l Univ., Korea)

[P1-7]

Induction of Tetragonal Phase Transition of HfO_2 through Capping Layer and Utilization of Atomic Layer Etching

Juhwan Jeong, Hyunju Jung, Hanbin Lee, Myungil Kim, Jiyeon Han, Duckhyeon Seo, Yiun Park (EGTM Co., Ltd., Korea), Jeongsoo Kim, Jaehyeon Yun, Woojin Jeon (Kyung Hee Univ., Korea), and Kyuho Cho (EGTM Co., Ltd., Korea)

[P1-8]

Ultrathin Gate Dielectrics for Extremely Flexible MOSFETs via Atomic Layer Deposition (ALD) Process

Chang-Hyeon Park and Yei-Hwan Jung (Hanyang Univ., Korea)

[P1-9]

Novel Hybrid Ligand Stabilized Niobium Precursors with High Thermal Stability for Atomic Layer Deposition of Nb_2O_5

Sunyoung Baik, Shinbeom Kim, Taeyoung Lee, Woongjin Choi, Sungjun Ji, Kunhee Kim, Yiun Park, Jiyeon Han, Hyunju Jung, and Kyuho Cho (EGTM Co., Ltd., Korea)



[P1-10]

Enhancing Topographical Selectivity in Atomic Layer Deposition of HfO_2 Thin Films for High Aspect Ratio Structures Using Vapor-Dosed Surface Protector

Jiwoo Oh and Woo-Hee Kim (Hanyang Univ., Korea)

[P1-12]

Impact of HfO_2 Spacer Engineering for High-Performance Ultra-Short Channel InGaZnO Vertical Thin-Film Transistors

Nayoung Jang (Kyunghee Univ., Korea), Jae-Wook Lee, Young-Ha Kwon, Nak-Jin Seong, Kyu-Jeong Choi (NCD Co., Ltd., Korea), and Sung-Min Yoon (Kyunghee Univ., Korea)

[P1-13]

Unveiling Geometry Dependences for Vertical-Stack Configuration of Planar- and Vertical-Channel TFTs with Distinctive Single InGaZnO Active Layer

Ji-Won Kang (Kyung Hee Univ., Korea), Chi-Sun Hwang (ETRI, Korea), and Sung-Min Yoon (Kyung Hee Univ., Korea)

[P1-14]

A Novel Mesa-Type Vertical 2T0C DRAM Cell for High-Density Monolithic 3D Integration with Superior Write Speed and Reliable Data Retention

Kyung Min Kim, Ji Won Kang, and Sung Min Yoon (Kyung Hee Univ., Korea)

[P1-15]

Lateral Capacitive Coupling in an Atomic-Layer Deposited HfO_2 -Gated InGaZnO Transistors Enabling Spatiotemporal Synaptic Function

Hyunsik Woo and Sung-Min Yoon (Kyung Hee Univ., Korea)

[P1-16]

The Study of Molybdenum Oxidation for Applications of DRAM Devices

Kyong Min Kim, Byeong Hyeon Kang, Seok Nam Ko, Seok Jun Han, Tae Wan Lee, and Jin Tae Noh (Wonik IPS, Korea)



[P1-17]

High-Performance In_2O_3 Thin-Film Transistors via Sputtering Power Modulation and Al_2O_3 Interface Control Layer Optimization

Se-Hyun Chun and Sung-Min Yoon (Kyung Hee Univ., Korea)

[P1-18]

Interfacial-Defect Analysis in Morphotropic Phase Boundary $\text{Hf}_{1-x}\text{Zr}_x\text{O}_2$ for Enhanced DRAM Capacitor Performance

Donghyeon Bae, Taehyeon Yoon, Minje Lee, Guno Kim, and Hyungtak Seo (Ajou Univ., Korea)

[P1-19]

Gallium-Free IAZO Channels by PEALD: Rationale and Cation-Ratio Tuning for Stable TFTs

Taehyeon Yoon, Hyunmin Dang, Ayoung Kim, Jiyea Nam, and Hyungtak Seo (Ajou Univ., Korea)

[P1-21]

Electrical Characteristics and Reliability Evaluation of IGZO TFTs under Hydrogen Plasma Treatment and Thermal Stress

Taeyang Kim, Jiyoung Bang, Hyeonjeong Sun, Seungmin Choi, Seungjae Lee, Kyubin Hwang, Yeoeun Yun, Suhwon Choi, and Seung-Beck Lee (Hanyang Univ., Korea)

[P1-22]

Effect of H_2S Dosing Parameters on Growth and Crystallinity of Atomic Layer Deposited Grown SnS_2

Soohyun Yoon, TaeYoon Lee, Dowwook Lee, and Hyeongtag Jeon (Hanyang Univ., Korea)

[P1-23]

A SAM-Based Approach for Damage-Free Release of Ultrathin Silicon Devices from SOI Wafers

Sun Young Park and Yei Hwan Jung (Hanyang Univ., Korea)



[P1-24]

Catalyst-Engineered β -Ga₂O₃ Nanowire Photodetectors for Enhanced Solar-Blind UV Detection

Jung-Bok Lee, Min-Seok Jang, Hee-Jin Kim, Ju-Eun An, and Ho-Jun Lee (Pusan Nat'l Univ., Korea)

[P1-25]

Enhancement of Electrical and Structural Properties of Hf_{0.5}Zr_{0.5}O₂ Thin Films via Ar Plasma Surface Treatment

Jeonggwang Lee, Jaewook Lee, Hyun Woo Jeong, Hyojun Choi (Seoul Nat'l Univ., Korea), Young Yong Kim (POSTECH, Korea), and Min Hyuk Park (Seoul Nat'l Univ., Korea)

[P1-26]

Cycle Engineering of Hf_xZr_(1-x)O₂ Thin Films for Oxygen Vacancy Control and Enhanced Ferroelectric Reliability

Taehyung Kim, Dongchan Seo, Kiwon Yoon, Hyeonje Kim, and Jinsub Park (Hanyang Univ., Korea)

[P1-27]

The Influence of Annealing on Thermal Atomic Layer Deposition Indium Oxide Semiconductor Thin-Film Transistors

Kang Choi, Dong-Geun Kim, Su-Jin Sim, and Ji-Hoon Ahn (Hanyang Univ., Korea)

[P1-28]

Surface Inhibition of SiO₂ Atomic Layer Deposition by Silane Self-Assembled Monolayers with Varying Chain Lengths

Seo-Hyun Lee (Hanyang Univ., Korea), Jeong-Min Lee (Stanford Univ., USA), and Woo-Hee Kim (Hanyang Univ., Korea)

[P1-29]

Niobium Doping Effects on the Electrical Properties of Indium Oxide Thin Film Transistors Deposited by Atomic Layer Deposition

Su-Jin Sim, Dong Geun Kim, Kang Choi, and Ji-Hoon Ahn (Hanyang Univ., Korea)



[P1-30]

Improvement of Dielectric Constant and Leakage in TiO_2 Thin Films by Mg Doping Cycle Control

Taehyeon Kim, Seungwoo Lee, and Woojin Jeon (Kyung Hee Univ., Korea)

[P1-31]

Optimization of Gd Doping in HfO_2 Charge-Trap Layers for Wide-Window and Low-Voltage Operation in 3D V-NAND

Jonghyeok Lee, Jihun Nam (Kyung Hee Univ., Korea), Hansol Oh, Hanbyul Kim, Yongjoo Park (SK Trichem Co., Ltd., Korea), and Woojin Jeon (Kyung Hee Univ., Korea)

[P1-32]

Ultra-Thin La_2O_3 Interfacial Layer for TDDB Lifetime Extension in HZO Ferroelectric Devices

Hyeon-Cheol Jeong, Kyung-Soo Park, Yoon-Seok Lee, Yeon-Woo Choi, Sang-Myun Lim, Ji-Hoon Choi, Tae-Suk Kim, and Changwan Choi (Hanyang Univ., Korea)

[P1-33]

Optoelectronic-Synaptic Properties of Phototransistors Using Heterojunctioned $\text{ReS}_2/\text{MoS}_2$ Crystals Synthesized via Chemical Vapor Deposition

Dong Geun Kim, Seung Won Lee, and Ji-Hoon Ahn (Hanyang Univ., Korea)

[P1-34]

Comparison of Silane-Based Small Molecule Inhibitors for Enhanced Chemoselectivity in Area-Selective ALD

Eun Chong Cho (KRICT and Sungkyunkwan Univ., Korea), Jae Hun Hwang (KRICT, Korea), Jee-Eun Choi (Seoul Nat'l Univ., Korea), Jung Hoon Lee (KRICT, Korea), Won Bo Lee (Seoul Nat'l Univ., Korea), and Youngkwon Kim (KRICT, Korea)

[P1-35]

Nanoscale Thin-Film Deposition via Evaporation Point Source

Jae-hun Jung, Su-Young Cha, Jae-Young Lee, Seung-In Woo, and Soo-Bin Jeong (ALPHAPLUS Co., Ltd., Korea)



[P1-36]

Fabrication of High-Performance P-Type TFTs Using SnO Thin Films Grown by Atomic Layer Deposition with a Novel Sn Precursor

Sol-Hee Jo (KRICT and Hanyang Univ., Korea), Ji-min Seo, Bo-Keun Park (KRICT, Korea), Jin-Seong Park (Hanyang Univ., Korea), and Jung-Hoon Lee (KRICT, Korea)

[P1-37]

Effect of Hydrogen Plasma Parameters on Amorphous Carbon Thin Film Growth in CBr₄ PEALD Process

Yeong-Su Choi, Hak-Rim Lee, and Ju-Hong Cha (Gyeongsang Nat'l Univ., Korea)

[P1-38]

Defect-Free Gap Filling of SiO₂ Achieved by Bias-Pulsed and VHF Plasma Techniques

Da Hun Ko, Seon Jae Jung, Ji Eun Kang, Hye Won Han, Si Yeon Kim, Ga hee Oh, and Geun Young Yeom (Sungkyunkwan Univ., Korea)

[P1-39]

Development of Hybrid-ALD Process for Ultra-Thin TiO₂ Hardmask Films in Advanced Semiconductor Etching and Patterning

Hyuk-Min Kwon and Se-Hun Kwon (Pusan Nat'l Univ., Korea)

[P1-41]

Evaluation of the Characteristics of PtRu Bimetallic Alloy Thin Film for PMOS Gate Electrodes Deposited by Atomic Layer Deposition

Jae-Hyun Kim, Hyun-Jae Woo (Pusan Nat'l Univ., Korea), Kwang-Ho Kim, and Se-Hun Kwon (Pusan Nat'l Univ. and Global Frontier Research Center, Korea)

[P1-42]

Atomic Layer Deposition Assisted Double Patterning Lithography

Seo-Jun Lee and Se-Hun Kwon (Pusan Nat'l Univ., Korea)



[P1-43]

Effect of Substrate Pre-Treatment on the Growth and Properties of SnS Thin Films by Atomic Layer Deposition

Dowwook Lee and Hyeongtag Jeon (Hanyang Univ., Korea)

[P1-44]

Plasma-Assisted MLD of Thermally Stable Low-k SiONC Thin Films with Tetra-Isocyanate-Silane and Phloroglucinol

Gi-Beom Park, Hae Lin Yang, Ji Min Kim, Hyolim Jung, Jin-Seong Park (Hanyang Univ., Korea)

[P1-45]

High-Precision Microchip Transfer via Optimized Blister-Driven LIFT Process

Seong Ryu, Do Young Kim, and Seoung-Ki Lee (Pusan Nat'l Univ., Korea)

[P1-46]

Optoelectrical Properties of 3D Porous Graphene/Silicon Schottky Diode

Hong Gun Kim, Hee Ra Lee (Pusan Nat'l Univ., Korea), Sukang Bae (KIST, Korea), and Seoung-Ki Lee (Pusan Nat'l Univ., Korea)

[P1-47]

Non-Van Der Waals Layered Molybdenum Sulfide Wires with Perpendicular Layer Stacking and Tunable Interlayer Domains

Seo Hyeon Moon (Pusan Nat'l Univ., Korea), Hyeon-Sik Jang (Gyeongbuk Nat'l Univ., Korea), Sukang Bae (KIST, Korea), Jong-Seong Bae (KBSI, Korea), and Seoung-Ki Lee (Pusan Nat'l Univ., Korea)

[P1-48]

Metal-Anchored Graphene Composite for Efficient Heat Dissipation in Flexible Electronic Devices

Geonguk Kim (Pusan Nat'l Univ., Korea), Tae-Wook Kim (Jeonbuk Nat'l Univ., Korea), Sukang Bae (KIST, Korea), and Seoung-Ki Lee (Pusan Nat'l Univ., Korea)



[P1-49]

Permanent Strain Engineering in MoS₂ via Laser Processing for Improved Resistive Memory Devices

Gyu-been Kim, Hee Yoon Jang (Pusan Nat'l Univ., Korea), Sukang Bae (KIST, Korea), and Seoung-Ki Lee (Pusan Nat'l Univ., Korea)

[P1-50]

Enhanced Growth Stability of TiO₂ and SnO₂ Deposited by Liquid Injection Atomic Layer Deposition

Ji-Won Jang, Soon-Kyeong Park (Ajou Univ., Korea), Hee-Sung Kang (MKP Inc., Korea), and Il-Kwon Oh (Ajou Univ., Korea)

[P1-51]

BTBAS, BDEAS, and NSi-01: A Comparative Evaluation for VHF PE-ALD of Silicon Nitride

Yea-Ji Kim, Young-Jin Lim, Min-Jeong Rhee (Ajou Univ., Korea), Ngoc Le Trinh, Bonwook Gu, Youngho Kang (Incheon Nat'l Univ., Korea), Jae Hack Jeong (CN1 Co., Ltd., Korea), Han-Bo-Ram Lee (Incheon Nat'l Univ., Korea), and Il-Kwon Oh (Ajou Univ., Korea)

[P1-52]

Anisotropic Wet-Etching Enabled Transfer Printing of Single-Crystal Silicon MOSFETs for Flexible Electronics

Seol Ahn and Yei Hwan Jung (Hanyang Univ., Korea)

[P1-53]

Engineering of Thin Film for Flexible CTF Device

Beomhee Park, Changhan Kim, and Yei Hwan Jung (Hanyang Univ., Korea)

[P1-54]

Synthesis of Single-Crystal Cobalt and Copper Nanowires for BEOL Interconnect

Jae Wook Lee and Jae Yong Song (POSTECH, Korea)



[P1-55]

Void-Free Copper Electrochemical Filling of High Aspect-Ratio TGVs

Jun-Young Lee, Gi-Ho Jeong, Jae-Wook Lee (POSTECH, Korea), Van-Quang Nguyen, Ji-Hye Kim, Hyung-Sang Park (ISAC Research Inc., Korea), and Jae-Yong Song (POSTECH, Korea)

[P1-56]

Structural Design of Heat Sinks Microchannel for High Heat Flux Cooling of GaN HEMT Inverter Power Module

Joohyung Bang, Yonghyun Kim, Hoyoon Lee, and Hongyun So (Hanyang Univ., Korea)

[P1-57]

Development of PCM-PU Based Thermal Interface Materials for Efficient Thermal Management of Semiconductor Chips

Taegyong Yeo, Joohyung Bang, and Hongyun So (Hanyang Univ., Korea)

[P1-58]

Effects of EMC Degradation on Viscoelastic Properties and Reliability in Power Semiconductor Packages

Se-Jun Park, Se-Min Lee, Hee-Ju Han (Hanyang Univ., Korea), Hyun-Woo Jung, Kyung-Woo Lee, Dae-Un Sung (Hyundai Motor Co., Ltd., Korea), and Hak-Sung Kim (Hanyang Univ., Korea)

[P1-59]

Study of Reliability of Redistribution Layers in Advanced Packaging: Electrochemical Migration Analysis and Parametric Electrochemical Modeling

Ho-Jin Lee, Jeong-Hyeon Baek (Hanyang Univ., Korea), Tae-Hoon Kim, Ji-Hye Shim (Samsung Electronics Co., Ltd., Korea), and Hak-Sung Kim (Hanyang Univ., Korea)



[P1-60]

Enhanced Short-Circuit Robustness of Embedded-SBD 4H-SiC MOSFETs via Ni Silicide Process Optimization

Junseong Kim (KENTECH, Korea), Sungmo Koo (EYEQ Lab Inc., Korea), and Hyemin Kang (KENTECH, Korea)

[P1-61]

CTF Based VMM on Chip Learning Architecture Method

Ho Jin Lee and Keewon Kwon (Sungkyunkwan Univ., Korea)

[P1-62]

Analysis of Electrical Characteristics of 1.2 kV SiC MOSFETs with Embedded SBDs after Power Cycling Test

Gyuhyeok Kang (Kumoh Nat'l Inst. of Tech., Korea), Subin Choi, Jinwo Park, and Ogyun Seok (Pusan Nat'l Univ., Korea)

[P1-63]

A 1.2 kV SiC DMOSFET with Double Epitaxial for Reduced Specific On-Resistance

Seungwan Jung, Junki Jung, Dusan Baek, Seungri Yang, Gayeong Park, and Ogyun Seok (Pusan Nat'l Univ., Korea)

[P1-64]

Doping Profile Design for Simplifying Ion Implantation in the JFET Region of 1.2 kV SiC MOSFETs

Hee-Jin Kim, Ogyun Seok, and Ho-Jun Lee (Pusan Nat'l Univ., Korea)

[P1-65]

Comparison of GaN MPS Device Characteristics with Structural Variations

Ju Eun An and Ho-Jun Lee (Pusan Nat'l Univ., Korea)



[P1-66]

A New 4H-SiC Multi-Channel MOSFET with Additional Channel

Min-Seok Jang, Jungbok Lee (Pusan Nat'l Univ., Korea), Sung Mo Koo (EYEQ Lab Inc., Korea), and Ho-Jun Lee (Pusan Nat'l Univ., Korea)

[P1-67]

NFC-Based Smart Bicycle Grip Lock System

Yun-Ah Lee, Hong-geun Park, Ho-Jin Jang, Seo-Yeong Kwon, and Jung-Kyu Lee (Gyeongsang Nat'l Univ., Korea)

[P1-68]

Dynamic CGD for Hard-Switching in p-Gate GaN HEMTs

Taehyun Jang and Hyemin Kang (KENTECH, Korea)

[P1-69]

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Interfacial Evolution and Electrical Optimization of NiAl Ohmic Contacts on 4H-SiC by UV Laser Annealing at Varying Fluence Levels

Young Jae Park, Seongjun Kim, Kyeong-Keun Choi, Dae-Hwan Kang, Minjae Kang (POSTECH, Korea), Haseung Lee, Beomsang Kim, Chanho Hong, Sanghyun Ji (AP Systems, Korea), Sang-Mo Koo (Kwangwoon Univ., Korea), Byoung Hun Lee, and Hoon-Kyu Shin (POSTECH, Korea)

[P1-70]

Realization of 6-Inch 4H-SiC CMOS Inverters: Fabrication and Characterization

Seongjun Kim, Youngjae Park (POSTECH, Korea), Mathias Rommel (Fraunhofer IISB, Germany), Byoung Hun Lee, and Hoon-Kyu Shin (POSTECH, Korea)

[P1-71]

Development of GeSe Atomic Layer Deposition Using Novel Ge Precursor and Preliminary OTS Characteristics toward Selector-Only Memory Applications

Jiyeong Yang, Jung-Tae Kim, and Woo-Hee Kim (Hanyang Univ., Korea)



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[P1-72]

Crystallinity Enhancement of ALD MoO_x and Stable t-ZrO₂ formation through Post-Treatment Modification

Seohye Yoon, Yongju Kwon, and Woo-Hee Kim (Hanyang Univ., Korea)



[P2] Poster Session II

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Session Time	15:55-16:45
Session Room	Grand Ballroom 4, 2F

[P2-1]

Tungsten CMP Using Fe-Substituted Silica

Jun Lee, Seungmin Yang, Sihyun Moon, Seoyeong Choi, and Kangchun Lee (Kwangwoon Univ., Korea)

[P2-2]

Engineering Molybdenum Oxidation States via Catalytic-Oxidation

Ilhwa Hong, Donggeun Park, Dongwon Kim, Young min Kim, Sung min Ji, Soo young Lee (Kwangwoon Univ., Korea), Ganghyeok Kim, Minseo Kim (Kyonggi Univ., Korea), and Kangchun Lee (Kwangwoon Univ., Korea)

[P2-3]

Suppression of PAA-Si₃N₄ Electrostatic Interaction under Low-pH Conditions for Defect Mitigation in Consecutive Gate Poly Open CMP

Donggeun Park, Ilhwa Hong, Dongwon Kim, Youngmin Kim, Sungmin Ji, Sooyoung Lee (Kwangwoon Univ., Korea), Ganghyeok Kim, Minseo Kim (Kyonggi Univ. Korea), and Kangchun Lee (Kwangwoon Univ., Korea)

[P2-4]

Coordination Chemistry Approaches for Copper Corrosion Control in CMP Process

Ganghyeok Kim (Kyonggi Univ., Korea), Donggeun Park, Ilhwa Hong, Dongwon Kim, Youngmin Kim, Sungmin Ji, Sooyoung Lee (Kwangwoon Univ., Korea), Minseo Kim (Kyonggi Univ., Korea), and Kangchun Lee (Kwangwoon Univ., Korea)



[P2-5]

Ce³⁺-Enriched CeO₂ Nanoparticles via Hydrogen Reduction for Enhanced Silicate Adsorption

Giha Lee, Ganggyu Lee, Sumin Hong, Suntae Kim, Taeseup Song, and Ungyu Paik (Hanyang Univ., Korea)

[P2-6]

Surface Modification of Ceria Nanoparticles by Hydrogen Reduction for High-Efficiency CMP

Gimok Lee, Minhee Han, Seongmin Cho, Sangjun Chun, and Kangchun Lee (Kwangwoon Univ., Korea)

[P2-7]

Enhanced Polishing Performance Using Amine-Functionalized Silica Nanoparticles in CMP Slurry

Hyun-Ji Hwang (Hannam Univ., Korea), Min-Uk Jeon, Jea-Gun Park (Hanyang Univ., Korea), and Tae-Dong Kim (Hannam Univ., Korea)

[P2-8]

Development of High-Purity SiO₂ Nanoparticles via EDTA Chelation for Advanced CMP Applications

Ji-Soo Jung, Su-Ho Lee (Hannam Univ., Korea), Min-Uk Jeon, Jea-Gun Park (Hanyang Univ., Korea), and Tae-Dong Kim (Hannam Univ., Korea)

[P2-9]

Design of Highly Dispersed Colloidal Silica via Lattice Dissolution-Reprecipitation Replacement for Tungsten CMP

Yeongun Ju, Byeongjin Seo, Seungwon Ryu, and Seho Sun (Yeungnam Univ., Korea)



[P2-10]

Design of Copper with Ruthenium Barrier Film CMP Slurry by Difference of π -Backbonding Strength for Inhibition of Galvanic Corrosion

Byeongjin Seo, Yeongun Ju, Seungwon Ryu, and Seho Sun (Yeungnam Univ., Korea)

[P2-11]

Plasma Resistance Behavior of Y_2O_3 - Al_2O_3 - SiO_2 (YAS) Glass According to Sintering Conditions

Hwan-Yoon Jang and Hyun-Kwun Lee (Kumoh Nat'l Inst. of Tech., Korea)

[P2-12]

Flexible Single-Crystalline Si TFTs with Anisotropic Etching

Ji-Woong Cho and Yei-Hwan Jung (Hanyang Univ., Korea)

[P2-13]

Integrative Analysis of Residual Stress in Multiple Si/SiGe Heteroepitaxial Layers Grown by RPCVD

Gustavo Panama, Sang-Hoon Kim, Subin Heo, Jeong Woo Park, and Dongwoo Suh (ETRI, Korea)

[P2-14]

Atomistic Insights into CF_x Radical Adsorption and Early-Stage Fluorocarbon Film Growth on Amorphous Si₃N₄ Surfaces

Mihyeon Jo and Sangheon Lee (Ewha Womans Univ., Korea)

[P2-15]

Etching Characteristics of Silicon Nitride Film Using NF_3/NH_3 Plasma in a Cryogenic Reactive Ion Etching System

In-Young Bang, Ga-Eun Hwang, Hyo-Jong Shin, Yoon-Joo Jeong, Gwang-Ho Lee, Chang-Hee Lee, In-Hyeok Kho, Yu-Jin Heo, Hee-Sam Cheon, Jae-Hyeon Kim, Ji-Hwan Kim, Ye-Jun Cheon, Tae In Ha, and Gi-Chung Kwon (Kwangwoon Univ., Korea)



[P2-16]

Two-Dimensional Channel Type Control via Plasma-Induced Edge Chemistry

Seokjin Ko and Jihyun Kim (Seoul Nat'l Univ., Korea)

[P2-17]

CMOS-Compatible TiN Edge Contacts to 2D TMD FETs via Atomic Layer Deposition

Seongyun Yang, Gyeonghwan Kim, and Jihyun Kim (Seoul Nat'l Univ., Korea)

[P2-18]

Characteristics of Low-Temperature Etching at $CF_4/CH_2F_2/Ar$ Plasma in Reactive Ion Etching System

Ye-Jun Cheon, Ji-Hwan Kim, In-Young Bang, Jae-Hyeon Kim, Gwang-Ho Lee, Chang-Hee Lee, Yoon-Joo Jeong, Hyo-Jong Shin, In-Hyeok Kho, Yu-Jin Heo, Hee-sam Cheon, Ga-Eun Hwang, Tae-In Ha, and Gi-Chung Kwon (Kwangwoon Univ., Korea)

[P2-19]

Visualization of Dissolution Mechanism for Ti and Si₃N₄ by Quantum Simulation

Youngsu Jang, Jeongjun Park, and Heung Bin Lim (RAM Technology Co., Ltd., Korea)

[P2-20]

Thermal Atomic Layer Etching of Mo for Next-Generation Interconnect Applications

Giyeong Shin and Taewook Nam (Sejong Univ., Korea)

[P2-21]

Investigation of Neutral Gas Heating Effects in an Inductively Coupled Ar/C₄F₈ Plasma

Seong-Jin Park, Su-Gi An, and Ju-Hong Cha (Gyeongsang Nat'l Univ., Korea)

[P2-22]

Investigation of Environmentally Friendly Gas Alternatives for High-Selectivity SiN_x Etching with SiO_x Masks

Hyun Bong Jang, Jong Woo Hong, Sung Hyun Kim, Hyung Jun Uh, Chan Ho Kim, Jun Won Jung, and Geun Young Yeom (Sungkyunkwan Univ., Korea)



[P2-23]

High Selectivity Isotropic Dry Etching of SiGe Using NF₃ Gas in a Remote Plasma

Eun Seok Yoon, Hong Seong Gil, Woo Chang Park, and Geun Yeong Yeom (Sungkyunkwan Univ., Korea)

[P2-24]

High Aspect Ratio Etching of SiO₂ with Low Global Warming C₄F₈ Isomers

Minha Ku, Daeun Hong, Minsung Jeon, and Heeyeop Chae (Sungkyunkwan Univ., Korea)

[P2-25]

Electron Density Prediction with Equivalent Circuit Model Using VI-Probe in Inductively Coupled Plasma Reactor

Eunchong Park, Jaehyeon Kim, Sanghee Han, Minseong Kim, and Heeyeop Chae (Sungkyunkwan Univ., Korea)

[P2-26]

Low Temperature Atomic Layer Etching of SiO₂ Using CH₂F₂/Ar Plasma in an Inductively Coupled Plasma System

In-Hyeok Kho, Ji-Hwan Kim, In-Young Bang, Jae-Hyeon Kim, Gwang-Ho Lee, Chang-Hee Lee, Hyo-Jong Shin, Yoon-Joo Jeong, Yu-Jin Heo, Hee-Sam Cheon, Ye-Jun Cheon, Ga-Eun Hwang, Tae In Ha, and Gi-Chung Kwon (Kwangwoon Univ., Korea)

[P2-27]

Progress and Performance of 6×12 EUV Photomask in RSP612 Carrier

Asheesh Nautiyal, Elson Tu, and Chiaho Chuang (Gudeng Precision Industry Co., Ltd., Taiwan)



[P2-28]

Controlled Stacking of Discrete Polymeric Line Patterns toward 3D Nanostructure Formation

Yu Na Kim (Pukyong Nat'l Univ., Korea), Eun Bin Kang (UNIST, Korea), Yu Jin Kang, Hee Rak Choi (Pukyong Nat'l Univ., Korea), and Woon Ik Park (Pukyong Nat'l Univ. and RanoM Co., Ltd., Korea)

[P2-29]

Lithography-Free Interdigitated Electrodes by Trench-Filling Patterning on Polymer Substrate for Alzheimer's Disease Detection

Junsoo Moon, Heewoo Jeon, Wonho Lee, and Joonsub Shim (Kwangwoon Univ., Korea)

[P2-30]

Lithography-Friendly Metasurfaces Design for Both Polarization and Wavelength Selective Filtering

Yu Geun Ki and Soo Jin Kim (Korea Univ., Korea)

[P2-31]

Large-Scale Inverse Design of Volumetric Freeform Metasurfaces via Automatic Differentiation for Angle-Robust Nanophotonic Color Routing

Jaehyun Jeon, Chanhyung Park, Doyoung Heo (KAIST, Korea), Haejun Chung (Hanyang Univ., Korea), and Min Seok Jang (KAIST, Korea)

[P2-32]

Ti₃C₂T_x MXene Plasmonic Resonators for Nonlocal-Effect-Enhanced SWIR Photodetection

Hyeju Kim, Jisung Kwon, and Myung-Ki Ki (Korea Univ., Korea)



[P2-33]

Energy Level Alignment of Colloidal Quantum Dots for Hole Injection in Comparison with Organic Materials

Subeen Kim, Kyung-Geun Lim, Jun Hyung Kim (KRISS and Univ. of Science and Tech., Korea), In-Hye Lee (KRISS, Korea), Mahnmin Choi, Daekwon Shin, Sohee Jeong (Sungkyunkwan Univ., Korea), and Jeong Won Kim (KRISS and Univ. of Science and Tech., Korea)

[P2-34]

Study on CVD and ALD Processes for Al₂O₃ Coatings of Plasma Process Equipment Parts

Inseok Jeong (KRISS and Univ. of Science and Tech., Korea), Jaeuk Lim (KRISS and Hanyang Univ., Korea), Chanjung Kim (KRISS and Univ. of Science and Tech., Korea), Seonjeong Maeng (KRISS, Korea), and Ju-Young Yun (KRISS and Univ. of Science and Tech., Korea)

[P2-35]

Plasmonic Nanoparticles Effect on Polaronic Signal Enhancement for P3HT Based Organic Photovoltaic Device: A Comparative Study on Fullerene and Non-Fullerene Acceptors

Farris Hilmyafif Elli (KRISS and Univ. of Science and Tech., Korea), Taekyung Yu (Kyung Hee Univ., Korea), and JeongWon Kim (KRISS and Univ. of Science and Tech., Korea)

[P2-36]

Enhanced In-Plane Charge Transport in Dion-Jacobson Phase 2D Perovskites via Crystal Orientation Control

Doyoung Park (Yonsei Univ. and KRISS, Korea), Subeen Kim (KRISS and Univ. of Science and Tech., Korea), Kyung-Geun Lim (Yonsei Univ., KRISS, and Univ. of Science and Tech., Korea), Hyeonsam Goh (Yonsei Univ. and KRISS, Korea), Farris Hilmyafif Elli (KRISS and Univ. of Science and Tech., Korea), ChaeHo Shin (KRISS, Korea), Yeonjin Yi (Yonsei Univ., Korea), and Jeong Won Kim (Yonsei Univ., KRISS, and Univ. of Science and Tech., Korea)



[P2-37]

Improving the Accuracy of Subsurface CD Measurement in Scaled DRAM via AI-Based Inverse Modeling

Sanghee Han (Sungkyunkwan Univ. and SAIT, Korea) and Byoungdeog Choi (Sungkyunkwan Univ., Korea)

[P2-38]

Correlative Analysis of Oxygen Vacancies at the TiN/ZrO₂ Interface for MIM Capacitor Optimization

Yujeong Ahn, Seungwook Choi, and Ansoon Kim (KRISS and Univ. of Science & Tech., Korea)

[P2-39]

Robust Anomaly Detection Method for Advanced Packaging via Integration of PatchCore and DBSCAN

JiSeok Han (KITECH, Korea), Taell Kim, and WooYoung Jang (Dankook Univ., Korea)

[P2-40]

Metrology-Centric Elucidation of Ga₂O₃ Interlayer Band-Offset Engineering Enabling Low-Voltage Multilevel Storage in HZO FeCAPs

Guno Kim, Minwoo Kim, Hyunmin Dang, Kumar Mohit, and Hyungtak Seo (Ajou Univ., Korea)

[P2-41]

Fault Detection and Anomaly Monitoring System for PID-Based Flow Controllers in Semiconductor Manufacturing Equipment

Young-gi An and Jae-seong Jeong (KETI, Korea)

P2-42]

Giant Ferroelectric Response of Hf_{0.5}Zr_{0.5}O₂ (HZO) Capacitors by Robust Interface Engineering by MoN Electrodes Relative to W Electrodes

Minje Lee, Guno Kim, Minwoo Kim, Amir Sohail Khan, and Hyungtak Seo (Ajou Univ., Korea)



[P2-43]

Real-Time Temperature Monitoring of Wafer Chuck and Focus Ring at Ar Plasma

Ga-Eun Hwang, Jae-Hyeon Kim, Ji-Hwan Kim, In-Young Bang, Gwang-Ho Lee, Chang-Hee Lee, Hyo-Jong Shin, In-Hyeok Kho, Yoon-Joo Jeong, Yu-Jin Heo, Hee-Sam Cheon, Ye-Jun Cheon, Tae In Ha, and Gi-Chung Kwon (Kwangwoon Univ., Korea)

[P2-44]

Gas Ratio-Driven Passivation Film Deposition and Structural Evolution on Si and HfO₂ Substrates in Inductively Coupled C₄F₈/CH₄ Plasma

Woojin Park, Jonggu Han, Youngjun Yoon, and Se Youn Moon (Jeonbuk Nat'l Univ., Korea)

[P2-45]

3D Atomic Force Microscopy (AFM) for High-Precision 3D Metrology of Semiconductor and Display Devices

Hye Hyun Yu, Gyuho Han, Ji Hyun Kim, and Seung Yeon Sung (Park Systems Corp., Korea)

[P2-46]

In-Line AFM-Based Wafer Bonding Edge Profiling and Metrology

Seki Park, Jiwon Kim, Sooyeon Kim, and Seung Yeon Sung (Park Systems Corp., Korea)

P2-47]

Quantification of the Carbon-Containing Diatomic Radicals in Carbon-Based Inductively Coupled Plasma via Optical Absorption Spectroscopy

Youngjun Yoon, Woojin Park, and Se Youn Moon (Jeonbuk Nat'l Univ., Korea)

[P2-48]

Effects of UV/Ozone and Forming Gas Annealing Surface Treatments on the Minority Carrier Lifetime of Boron-Doped Silicon Wafers

Doyun Kim and Byoungdeog Choi (Sungkyunkwan Univ., Korea)



[P2-49]

Accurate Surface Oxide Vacancy Characterization in ALD HfO_2 , ZrO_2 , and HZO Films by XPS: Effect of Sputtering Method

Seungwook Choi, Yujeong Ahn, and Ansoon Kim (KRISS and Univ. of Science & Tech., Korea)

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