



Session Title:	[TuA1] Advanced Ceria Abrasive Based CMP
Session Date:	November 12 (Tue.), 2024
Session Time:	13:00-14:35
Session Room:	Room A (Capri Room, 2F, Paradise Hotel Busan)
Session Chair:	Prof. Jihoon Seo (Clarkson Univ., USA)

[TuA1-1] [Invited] 13:00-13:25

Effect of Ceria Surface Orientation on SiO₂ CMP

Satoyuki Nomura (Resonac Corp., Japan)

[TuA1-2] [Invited] 13:25-13:50

Development of Spherical Wet Ceria Slurry for Improved Chemical and Mechanical Planarization Performances

Deoksu Han (SK Enpulse Co., Ltd., Korea) and Keon-Soo Jang (The Univ. of Suwon, Korea)

[TuA1-3] [Invited] 13:50-14:15

Colloidal Ceria Innovation and Its Behaviors in Accordance with Abrasive Size

Jae-Dong Lee (KCTech, Korea)

[TuA1-4] 14:15-14:35

Dependency of Amine Surfactant on Diameter and Morphology of Colloidal Silica Abrasives

Min-Uk Jeon, Pil-Su Kim, Ju-Yeon Kim, Eun-Ha Park, Se-Hui Lee, Hye-Min Lee (Hanyang Univ., Korea), Jin-Hyung Park (ENF Tech. Inc., Korea), Jin Sub Park, and Jea-Gun Park (Hanyang Univ., Korea)



Session Title:	[TuB1] Power Device I
Session Date:	November 12 (Tue.), 2024
Session Time:	13:00-14:40
Session Room:	Room B (Grand Ballroom 1, 2F, Paradise Hotel Busan)
Session Chair:	Dr. Jang-Kwon Lim (RISE Research Insts. of Sweden AB, Sweden)

[TuB1-1] [Plenary] 13:00-13:45

Silicon Carbide MOSFETs for Efficient EV Drivetrains and Renewable Energy Conversion

Scott T. Allen (onsemi, USA)

[TuB1-2] [Invited] 13:45-14:15

SiC MOSFET: Recent Research Trends on Device Structures and Deep-Level Defects

Sang-Mo Koo (Kwangwoon Univ., Korea)

[TuB1-3] [Invited] 14:15-14:40

Interface Engineering of Ultra-Wide Bandgap Gallium Oxide-Based Power Devices

You Seung Rim (Sejong Univ., Korea)



Session Title:	[TuD1] Advanced Lithography I
Session Date:	November 12 (Tue.), 2024
Session Time:	13:00-14:45
Session Room:	Room D (Sidney Room, 2F, Paradise Hotel Busan)
Session Chair:	Dr. Youssef Drissi (imec, Belgium)

[TuD1-1] [Plenary] 13:00-13:45

Next-Generation Semiconductor Manufacturing: Role of EUV Lithography and Advanced Process Development

Sandip Halder (imec, Belgium)

[TuD1-2] [Invited] 13:45-14:15

The Challenges of EUVL Patterning and Discussion about the Technology to Prepare for Next Generation Devices

Woo Jin Jung, Seongbo Shim, and Chan Hwang (Samsung Electronics Co., Ltd., Korea)

[TuD1-3] [Invited] 14:15-14:45

Integrating Actinic EUV Metrology with Advanced Analytical Technologies

Sangsul Lee (POSTECH, Korea)



Session Title:	[TuE1] Plasma Surface Interaction
Session Date:	November 12 (Tue.), 2024
Session Time:	13:00-14:25
Session Room:	Room E (Sicily Room, 1F, Paradise Hotel Busan)
Session Chair:	Prof. Chin-Wook Chung (Hanyang Univ., Korea)

[TuE1-1] [Plenary]

13:00-13:45

Atom Recombination on Surfaces in Plasmas - an Experimental Study

Jean-Paul Booth (Inst. Polytechnique de Paris, France)

[TuE1-2]

13:45-14:05

Plasma Etching of Silicon Carbide Using Low-GWP Heptafluoroisopropyl Methyl Ether

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

[TuE1-3]

14:05-14:25

Plasma-Enhanced Atomic Layer Etching of Tantalum Nitride with Surface Fluorination and Ar Sputtering

Hojin Kang, Sangbae Lee, Minsung Jeon, and Heeyeop Chae (Sungkyunkwan Univ., Korea)



Session Title:	[TuF1] Nano Thin Film Deposition I
Session Date:	November 12 (Tue.), 2024
Session Time:	13:00-14:40
Session Room:	Room F (Ballroom, 5F, Grand Josun Busan)
Session Chair:	Prof. Woo Hee Kim (Hanyang Univ., Korea)

[TuF1-1] [Plenary] 13:00-13:45

New Mechanisms for Metal Thermal Atomic Layer Etching

Steven George (Univ. of Colorado, USA)

[TuF1-2] [Invited] 13:45-14:15

Surface Reaction Mechanisms of SiN ALD Analyzed with Atomic-Scale Simulations

Abdullah Y. Jaber, Jomar U. Tercero, Tomoko Ito, Kazuhiro Karahashi, Kazumasa Ikuse, Michiro Isobe, and Satoshi Hamaguchi (Osaka Univ., Japan)

[TuF1-3] [Invited] 14:15-14:40

Surface Adsorption/Desorption Reactions and Precursor Design for ALD/ALE

Sang-Ick Lee, Sangyong Jeon, Taeseok Byun, Yonghee Kwon, and Sangchan Lee (DNF Co., Ltd., Korea)



Session Title:	[TuG1] Frontier Metrology and Modeling I
Session Date:	November 12 (Tue.), 2024
Session Time:	13:00-14:25
Session Room:	Room G (Meeting Room, 5F, Grand Josun Busan)
Session Chair:	Prof. Hyungtak Seo (Ajou Univ., Korea)

[TuG1-1] [Plenary]

13:00-13:45

Process Optimization and Control in Dry Etch

Ye Feng (Intel, USA)

[TuG1-2]

13:45-14:05

Etch Rate Uniformity Monitoring for Photoresist Etch Using Multi-Channel Optical Emission Spectroscopy in an Inductively Coupled Plasma Reactor

Sang Hee Han, Sanghoon Lee, Jaehyeon Kim, Eunchong Park, and Heeyeop Chae (Sungkyunkwan Univ., Korea)

[TuG1-3]

14:05-14:25

Measuring Electrical Resistivity of p-Type Si Wafer with Low Dopant Concentration and Its Dependence on Thermal Donor Formation and Surface Treatments

Seob Shim, Gyuhyeok Choi, Mingyu Park, and Woosung Lee (SK Siltron, Korea)



Session Title:	[TuA2] Challenges and Opportunities in CMP
Session Date:	November 12 (Tue.), 2024
Session Time:	14:55-16:35
Session Room:	Room A (Capri Room, 2F, Paradise Hotel Busan)
Session Chair:	Prof. Keon-Soo Jang (Univ. of Suwon, Korea)

[TuA2-1] [Invited]

14:55-15:25

Planarization for Advanced Semiconductor Processing: Challenges and Opportunities

Hyo-Chol Koo and Jiho Kang (SK hynix Inc., Korea)

[TuA2-2] [Invited]

15:25-15:55

Eco-Innovations in Semiconductor Manufacturing: Sustainable CMP Approaches for the Next Generation

Jihoon Seo (Clarkson Univ., USA)

[TuA2-3]

15:55-16:15

Monitoring of Slurry Components and Concentrations for CMP Process via Raman Spectroscopy

Eun Su Jung and Sung Gyu Pyo (Chung-Ang Univ., Korea)

[TuA2-4]

16:15-16:35

Sulfate Radical Oxidation for Enhancing Polishing-Rate for WC-Film Chemical Mechanical Planarization

Man-Hyup Han, Myung-Hoe Kim, Hyun-Sung Koh (Hanyang Univ., Korea), Jin-Hyung Park (ENF Tech. Inc., Korea), and Jae-Gun Park (Hanyang Univ., Korea)



Session Title:	[TuB2] Power Device II
Session Date:	November 12 (Tue.), 2024
Session Time:	14:55-16:35
Session Room:	Room B (Grand Ballroom 1, 2F, Paradise Hotel Busan)
Session Chair:	Prof. Ogyun Seok (Pusan Nat'l Univ., Korea)

[TuB2-1] [Invited]

14:55-15:25

High Quality SiC Single Crystals Obtained with Modification of Crucible Structure and Process Condition in PVT Growth

Won Jae Lee (Dong-Eui Univ., Korea), Jung Gyu Kim, and Kap Ryeol Ku (Senic, Korea)

[TuB2-2] [Invited]

15:25-15:50

Investigation of β -Ga₂O₃ Based Hetero-Junction Barrier Schottky Diode

Yusup Jung, TaiYoung Kang, and SinSu Kyoung (PowerCubeSemi Inc., Korea)

[TuB2-3] [Invited]

15:50-16:15

Flat Wire Inductor for Wide Bandgap Power Devices' Characterization

Hyemin Kang (KENTECH, Korea)

[TuB2-4]

16:15-16:35

Study for the 4H-SiC FIN-Channel MOSFET with Additional Channels with Improved the Electrical Characteristics

Min Seok Jang, Hee Jin Kim (Pusan Nat'l Univ., Korea), Sung Mo Koo (Nat'l Inst. for Nanomaterials Tech., Korea), Yu Jeong Lee (Kyungpook Nat'l Univ., Korea), and Ho Jun Lee (Pusan Nat'l Univ., Korea)



Session Title:	[TuD2] Advanced Lithography II
Session Date:	November 12 (Tue.), 2024
Session Time:	15:00-16:30
Session Room:	Room D (Sidney Room, 2F, Paradise Hotel Busan)
Session Chair:	Prof. Sangsul Lee (POSTECH, Korea)

[TuD2-1] [Invited]

15:00-15:30

TEL's Challenge for High NA EUV

Kyounggho Jang, Chang-Sub Mun, Hyungi Kim, Sangwoo Lee, Youngseop Rah, Chang-gu Jung, Changwon Choi, Seongtae Oh, Jun Kim, Jay Lee, and Youngwoo Park (Tokyo Electron Korea Ltd., Korea)

[TuD2-2] [Invited]

15:30-16:00

High NA EUV Lithography: Prospects and Challenges

Seo-Min Kim (SK hynix Inc., Korea)

[TuD2-3] [Invited]

16:00-16:30

High NA EUV: What does it change for Design, OPC and Mask?

Youssef Drissi, Yasser Sherazi, Victor Blanco, Kenichi Miyaguchi, Werner Gillijns, and Ryan Ryoung Han Kim (imec, Belgium)



Session Title:	[TuE2] Advanced Device and Processes
Session Date:	November 12 (Tue.), 2024
Session Time:	15:00-16:20
Session Room:	Room E (Sicily Room, 1F, Paradise Hotel Busan)
Session Chair:	Dr. Jean-Paul Booth (Inst. Polytechnique de Paris, France)

[TuE2-1] [Invited]

15:00-15:30

The Next Generation of Complementary FET (CFET) Etch Challenge and Progress

I. G. Koo, S. Choudhury, V. Brissonneau, E. Dupuy, H. Puliyalil, M. Hosseini, D. Batuk, C. Cavalcante, A. Vandooren, A. Veloso, L. P. B. Lima, S. Demuynck, N. Horiguchi, S. Biesemans, and F. Lazzarino (imec, Belgium)

[TuE2-2] [Invited]

15-30-16:00

Recent Trend and Challenge of Advanced Dry Etching Technology

Huichan Seo (SK hynix Inc., Korea)

[TuE2-3]

16:00-16:20

Selective Isotropic Atomic Layer Etching of Si_3N_4 over SiO_2 with Surface Fluorination Using $\text{CF}_4/\text{H}_2\text{O}$ Plasma and Thermal Heating

Daeun Hong, Hyeongwu Lee, Minsung Jeon, and Heeyeop Chae (Sungkyunkwan Univ., Korea)



Session Title:	[TuF2] Nano Thin Film Deposition II
Session Date:	November 12 (Tue.), 2024
Session Time:	14:55-16:30
Session Room:	Room F (Ballroom, 5F, Grand Josun Busan)
Session Chair:	Prof. Satoshi Hamaguchi (Osaka Univ., Japan)

[TuF2-1] [Invited]

14:55-15:25

The Challenges and the Future of Thin Film Technology in the New Era of Paradigm Shift

Jinhee Park and Dongwon Choi (SK hynix Inc., Korea)

[TuF2-2] [Invited]

15:25-15:50

Recent Development of Area-Selective Atomic Layer Deposition for Electronic Devices

Il-Kwon Oh (Ajou Univ., Korea)

[TuF2-3]

15:50-16:10

Development of Warpage Control Technique for High-STACK 3D NAND Flash Memory Device

Sangyeop Lee, Jeong Jun Lee, Ji Min Seo, Ah Yeong Choi, Yudeuk Kim, and Jaegab Lim
(Wonik IPS, Korea)

[TuF2-4]

16:10-16:30

Low Temperature Flow Modulation (FM)-CVD for High Thermal Conductivity AlN Film
Formation for Advanced 3DICs

Y. Otaka, J. Yamaguchi, N. Sato, A. Tsukune, and Y. Shimogaki (The Univ. of Tokyo, Japan)



Session Title:	[TuG2] Frontier Metrology and Modeling II
Session Date:	November 12 (Tue.), 2024
Session Time:	15:00-17:00
Session Room:	Room G (Meeting Room, 5F, Grand Josun Busan)
Session Chair:	Prof. Tae-Hun Shim (Hanyang Univ., Korea)

[TuG2-1] [Invited] 15:00-15:30

Bridging the Gap: From Surface Topography to Semiconductor Applications with ISE and AFM

Dang Quang Nquyen, Geonwoo Kim, Seungmin Park, Mangesh Diware, and Sang-Joon Cho
(Park Systems Corp., Korea)

[TuG2-2] [Invited] 15:30-16:00

**Multiscale Simulation and AI-Driven Approaches for Comprehensive Understanding of
Advanced Materials and Semiconductor Processing**

Sung Beom Cho (Ajou Univ., Korea)

[TuG2-3] [Invited] 16:00-16:30

**Recent Progress of Display and Semiconductor Inspection Using FSH (Flying-over Scanning
Holography)**

Taegeun Kim (Cubixel Co., Ltd., Korea)

[TuG2-4] [Invited] 16:30-17:00

**Nanoscale and Interfacial Physical Characterization for Supporting Memory Device
Manufacturing**

Jae-Hyun Kim (SK hynix Inc., Korea)



Session Title:	[WeA1] CMP Innovations
Session Date:	November 13 (Wed.), 2024
Session Time:	09:00-10:40
Session Room:	Room A (Capri Room, 2F, Paradise Hotel Busan)
Session Chair:	Prof. Tae-Dong Kim (Hannam Univ., Korea)

[WeA1-1] [Invited] **09:00-09:30**

Surface-Structured Pads for Scratch-Less Chemical Mechanical Polishing

Sanha Kim (KAIST, Korea)

[WeA1-2] [Invited] **09:30-10:00**

The Mechanical Aspects of Chemical Mechanical Planarization (CMP): Its Known, Unknown, and Challenges in Industry

Wei-Tsu Tseng (IBM Semiconductor Tech. Research, USA)

[WeA1-3] **10:00-10:20**

Study on the CMP Performance of Ceria Nanoparticles Based on Variations in Synthesis Methods

Sohee Hwang and Woonjung Kim (Hannam Univ., Korea)

[WeA1-4] **10:20-10:40**

Dependencies of Super-Fine Wet-Ceria Abrasive on Solubility Enhancement Surfactant Having Amine Functional Group

Pil-Su Kim, Min-Uk Jeon, Ju-Yeon Kim, Eun-Ha Park, Se-Hui Lee, Hye-Min Lee (Hanyang Univ., Korea), Jin-Hyung Park (ENF Tech. Inc., Korea), Jin-Sub Park, and Jea-Gun Park (Hanyang Univ., Korea)



Session Title:	[WeB1] Power Device III
Session Date:	November 13 (Wed.), 2024
Session Time:	09:00-10:35
Session Room:	Room B (Grand Ballroom 1, 2F, Paradise Hotel Busan)
Session Chair:	Prof. Ho-Jun Lee (Pusan Nat'l Univ., Korea)

[WeB1-1] [Invited]

09:00-09:30

RISE Wide Bandgap Technology for System Integration: Research Activities and Facilities

Jang-Kwon Lim, Jun-Ho Lee, Hithiksha Krishna Murthy, Saeed Akbari, Olof Öber, Magnus Lindberg, Qin Wang, Mietek Bakowski, Linda Johansson, and Klas Brinkfeldt (RISE Research Insts. of Sweden AB, Sweden)

[WeB1-2] [Invited]

09:30-09:55

Current Status of β -Ga₂O₃ Single Crystals by Edge-Defined Film-Fed Growth Method

Si-Young Bae (Pukyong Nat'l Univ., Korea), Yun-Ji Shin, and Seong-Min Jeong (KICET, Korea)

[WeB1-3]

09:55-10:15

Enhancement of GAA-FET by the Optimization of Channel Shape

Min Kyun Sohn, Seong Hyun Lee, Sang-Hoon Kim, Jeong Woo Park, Wangjoo Lee, Jaeseoung Park, Eui-Sang Yu, Jong-Pil Im, Sun Kyu Jung, Min-A Park, Jin Ha Kim, Subin Heo, Song Lee, and Dongwoo Suh (ETRI, Korea)

[WeB1-4]

10:15-10:35

A Low Gate-to-Drain Charge of 1.2 kV SiC DMOSFETs Utilizing a H-Shaped Poly-Si Gate

Dusan Baek, Hyowon Yoon (Pusan Nat'l Univ., Korea), Sangyeob Kim, Gyuhyeok Kang (Kumoh Nat'l Inst. of Tech., Korea), Sumin Park, and Ogyun Seok (Pusan Nat'l Univ., Korea)



Session Title:	[WeC1] Advanced Bonding Technology
Session Date:	November 13 (Wed.), 2024
Session Time:	09:00-10:40
Session Room:	Room C (Grand Ballroom 3, 2F, Paradise Hotel Busan)
Session Chair:	Prof. Gu-Sung Kim (Kangnam Univ., Korea)

[WeC1-1] [Plenary] 09:00-09:45

Surface Activated Bonding for 3D and Heterogeneous Integration Current Status and Future Prospects

Tadatomo Suga (Meisei Univ., Japan)

[WeC1-2] [Invited] 09:45-10:15

The Role of Hybrid Bonding in Modern Semiconductors

Thomas Glinsner (EV Group, Austria)

[WeC1-3] [Invited] 10:15-10:40

FINE Cut for HBM Wafer and FINE Forming for TVG of Glass Substrate

Seak-Joon Lee (ITI, Korea)



Session Title:	[WeD1] Lithography Process I
Session Date:	November 13 (Wed.), 2024
Session Time:	09:00-10:15
Session Room:	Room D (Sidney Room, 2F, Paradise Hotel Busan)
Session Chair:	Prof. Chawon Koh (Yonsei Univ., Korea)

[WeD1-1] [Invited] - Online

09:00-09:45

EUV Lithography – Latest Progress and Outlook

Anthony Yen (ASML, USA)

[WeD1-2] [Invited]

09:45-10:15

Advanced Lithography Technology Materials towards Next Generation; Challenges and Opportunities

Toru Kimura (JSR Corp., Japan)



Session Title:	[WeE1] Advanced Etching I
Session Date:	November 13 (Wed.), 2024
Session Time:	09:00-10:20
Session Room:	Room E (Sicily Room, 1F, Paradise Hotel Busan)
Session Chair:	Dr. Peter Ventzek (Tokyo Electron America Inc., USA)

[WeE1-1] [Invited] **09:00-09:30**

Challenges and Approaches in Advanced Patterning for Microelectronics

Chanmin Lee, Yeong-Shin Park, Youngsik Seo, and Jong Myeong Lee (Samsung Electronics Co., Ltd., Korea)

[WeE1-2] [Invited] **09:30-10:00**

Controlling Lateral Modification on Plasma Oxidation Using Optimizing Plasma Conditions during Isotropic Atomic Layer Etching

Ilyoung Kim, Taewan Kim, Seongkwang Lee, Hahnjoo Yoon, Sangman Park, and Yunsang Kim (SEMES, Korea)

[WeE1-3] **10:00-10:20**

Plasma-Enhanced Atomic Layer Etching of Titanium Nitride Using Surface Fluorination or Chlorination

Heeju Ha, Hyeongwu Lee, Minsung Jeon, and Heeyeop Chae (Sungkyunkwan Univ., Korea)



Session Title:	[WeF1] Nano Thin Film Deposition III
Session Date:	November 13 (Wed.), 2024
Session Time:	09:00-10:40
Session Room:	Room F (Ballroom, 5F, Grand Josun Busan)
Session Chair:	Prof. Jeong Hwan Han (Seoul Nat'l Univ. of Science and Tech., Korea)

[WeF1-1] [Invited] 09:00-09:30

Growth Inhibition of ZnS ALD by Atomic Layer Etching for Area Selective Deposition

Taewook Nam (Sejong Univ., Korea) and Steven M. George (Univ. of Colorado Boulder, USA)

[WeF1-2] [Invited] 09:30-09:55

Atomic Layer Deposition Process and Its Application for Semiconductor Field

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

[WeF1-3] [Invited] 09:55-10:20

Atomic-Layer-Deposition for the Advanced Technology

Van Quang Nguyen, Jae Bin Ahn, Jongho Kim, Kang Hun Cho, and Jihye Kim (ISAC Research Inc., Korea)

[WeF1-4] 10:20-10:40

A New Plasma Source for ALD Process in Large Batch System

Jeonghee Jo, Kwanghyun Jin, Wooduck Jung, and Junjin Hyon (EUGENETECH, Korea)



Session Title:	[WeG1] Frontier Metrology and Modeling III
Session Date:	November 13 (Wed.), 2024
Session Time:	09:10-10:40
Session Room:	Room G (Meeting Room, 5F, Grand Josun Busan)
Session Chair:	Prof. Sung Beom Cho (Ajou Univ., Korea)

[WeG1-1] [Invited] 09:10-09:40

Advancements in Metrology for Materials and Device Characterization: Exploring Innovative In-Materials Processing Techniques for Emerging Applications

Mohit Kumar and Hyungtak Seo (Ajou Univ., Korea)

[WeG1-2] [Invited] 09:40-10:10

Data Intelligence for Semiconductor Autonomous Fab

Younghoon Sohn (Samsung Electronics Co., Ltd., Korea)

[WeG1-3] [Invited] 10:10-10:40

Semiconductor Electronic Structure Measurement by Photoelectron Spectroscopy

Jeong Won Kim (KRISS, Korea)



Session Title:	[WeA2] Advanced Cu and Mo CMP
Session Date:	November 13 (Wed.), 2024
Session Time:	14:10-15:45
Session Room:	Room A (Capri Room, 2F, Paradise Hotel Busan)
Session Chair:	Prof. Ho Jun Kim (Hanyang Univ., Korea)

[WeA2-1] [Invited] 14:10-14:40

Predicting Corrosion Inhibition Efficiency based on Charge Transfer Factor

Ganghyeok Kim, Ilhwa Hong, Donggeun Park, Wangil Song, Seokju Hong, Dongwon Kim, and Kangchun Lee (Kyonggi Univ., Korea)

[WeA2-2] [Invited] 14:40-15:05

Amorphous-Carbon-Layer CMP : Materials Properties and Solution

Jea-Gun Park (Hanyang Univ., Korea)

[WeA2-3] 15:05-15:25

Study on the Effect of Corrosion Inhibitors during Chemical Mechanical Planarization of Molybdenum

Daecheon Yang, Soekjoo Kim (Soulbrain Co., Ltd., Korea), Sangkyun Kim, Inkwon Kim, and Gayoung Kim (Samsung Electronics Co., Ltd., Korea)

[WeA2-4] 15:25-15:45

Advanced Additives for Enhanced Removal Rate and Defect Mitigation in Copper CMP Slurries

Junhyuk Kim and Seokjoo Kim (Soulbrain Co., Ltd., Korea)



Session Title:	[WeB2] Carbon Neutrality in Semiconductor Industry I
Session Date:	November 13 (Wed.), 2024
Session Time:	14:10-15:45
Session Room:	Room B (Grand Ballroom 1, 2F, Paradise Hotel Busan)
Session Chair:	Prof. Hankwon Lim (UNIST, Korea)

[WeB2-1] [Invited] 14:10-14:40

Research on Carbon Neutrality Efforts and Product Life Cycle Assessment (LCA) in the Semiconductor Industry

Hyukhwa Kwon and Kyujin Choi (SK hynix Inc., Korea)

[WeB2-2] [Invited] 14:40-15:05

Fluorinated Ethers as Low-GWP Solutions for Plasma Etching of SiO₂

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

[WeB2-3] 15:05-15:25

Application of Life Cycle Assessment (LCA) to Chemical Processes

Wangyun Won (Korea Univ., Korea)

[WeB2-4] 15:25-15:45

Advanced Optimal Control Strategies for Sustainable Green Chemical Vapor Deposition in Semiconductor Industry

Tae Hoon Oh (UNIST, Korea)



Session Title:	[WeC2] Hybrid Bonding & Evaluations
Session Date:	November 13 (Wed.), 2024
Session Time:	14:10-15:50
Session Room:	Room C (Grand Ballroom 3, 2F, Paradise Hotel Busan)
Session Chair:	Dr. Kwang-Seong Choi (ETRI, Korea)

[WeC2-1] [Invited] 14:10-14:40

3D & Heterogeneous Integration at CEA-Leti for the Co-Optimization of the System and the Technology

Jean-Charles Souriau (Univ. Grenoble Alpes, CEA-Leti, France)

[WeC2-2] [Invited] 14:40-15:10

Fundamental Understanding of Hybrid Bonding Mechanism By Utilizing Molecular Dynamics Simulation Approach

Minwoo Rhee and Seung Ho Hahn (Samsung Electronics Co., Ltd., Korea)

[WeC2-3] 15:10-15:30

Nanoparticle-Based Thermal Interface Materials : Alignment Strategy for Improvement of Thermal Conductivity

Uijin Jung, Sangmin Kim, and Jinsub Park (Hanyang Univ., Korea)

[WeC2-4] 15:30-15:50

Electrical and Material Characterization of RDL on the PSPI Packaging Substrate

Sunbum Kim, Gyulee Kim, Dayoung Oh, Dugkyu Han, Kyoungyeon Min, and Changhwan Choi (Hanyang Univ., Korea)



Session Title:	[WeD2] Lithography Process II
Session Date:	November 13 (Wed.), 2024
Session Time:	14:10-16:10
Session Room:	Room D (Sidney Room, 2F, Paradise Hotel Busan)
Session Chair:	Prof. Su-Mi Hur (Chonnam Nat'l Univ., Korea)

[WeD2-1] [Invited] 14:10~14:40

Layer-Ordered Organotin Clusters for Extreme-Ultraviolet Photolithography

Youngmin You (Yonsei Univ., Korea)

[WeD2-2] [Invited] 14:40~15:10

Improvement of EUV Resist Performance through EUV Underlayers

Jungyoul Lee, Jaehyun Kim, Myounghyun Hur, Dongkyu Ju, and Taeik Kim (DONGJIN SEMICHEM Co., Ltd., Korea)

[WeD2-3] [Invited] 15:10-15:40

Enhancing EUV Lithography with Directed Self-Assembly: Defect Correction and Pattern Quality Improvement

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

[WeD2-4] [Invited] 15:40-16:10

Biologically-Inspired Optic Designs for Advanced Imaging Systems

Young Min Song (GIST, Korea)



Session Title:	[WeE2] Advanced Etching II
Session Date:	November 13 (Wed.), 2024
Session Time:	14:10-15:20
Session Room:	Room E (Sicily Room, 1F, Paradise Hotel Busan)
Session Chair:	Prof. Steve Shannon (North Carolina State Univ., USA)

[WeE2-1] [Invited] **14:10-14:40**

Engineering Semiconducting and Dielectric Materials and Processes Using Integrative Methods

Peter Ventzek (Tokyo Electron America Inc., USA)

[WeE2-2] **14:40-15:00**

Reactive Proton Assisted Etching for Silicon Carbide Dry Etching

Sooseong Lee ,Youngku Jin, Donghoon Kim, Jaewan Park, and MunPyo Hong (Korea Univ., Korea)

[WeE2-3] **15:00-15:20**

Optimization of BOSCH Process Using Real-Time Plasma Measurement

Chang-Min Lim, Dae Chul Jung, Junil Bae, Heejin Nam, and Chin Wook Chung (Hanyang Univ., Korea)



Session Title:	[WeF2] Nano Thin Film Deposition IV
Session Date:	November 13 (Wed.), 2024
Session Time:	14:10-15:55
Session Room:	Room F (Ballroom, 5F, Grand Josun Busan)
Session Chair:	Dr. Mihaela Popovici (imec, Belgium)

[WeF2-1] [Invited]

14:10-14:40

Nano Thin Film Technologies for Charge Trap Flash in VNAND

HanMei Choi, Bio Kim, HyungJoon Kim, Kwangmin Park, Philouk Nam, Kyong-Won An, DongHun Sin, Guk-Hyon Yon, Jaehyun Yang, Dongsung Choi, Sangsoo Lee, Sookyem Yong, Heedon Hwang, JongMyeong Lee (Samsung Electronics Co., Ltd., Korea)

[WeF2-2] [Invited]

14:40-15:05

SMART Nanometallization for Energy-Efficient and Reliable Edges

Hanwool Yeon (GIST, Korea)

[WeF2-3] [Invited]

15:05-15:30

Recent Advances in Mo-Based Electrode Materials for High-Performance DRAM Cell Capacitors

Jeong Hwan Han (Seoul Nat'l Univ. of Science and Tech., Korea)

[WeF2-4] [Invited]

15:30-15:55

Advanced ALD Process for Meta-Stable Phased Thin Film Deposition

Woojin Jeon (Kyung Hee Univ., Korea)



Session Title:	[WeG2] Frontier Metrology and Modeling IV
Session Date:	November 13 (Wed.), 2024
Session Time:	14:10-15:40
Session Room:	Room G (Meeting Room, 5F, Grand Josun Busan)
Session Chair:	Prof. Kumar Mohit (Ajou Univ., Korea)

[WeG2-1] [Invited]

14:10-14:40

Metrology and Inspection Challenges for High NA EUV

Dieter Van den Heuvel, Christophe Beral, Matteo Beggiato, Anne-Laure Charley, Gian Lorusso, Janusz Bogdanowicz, and Hongcheon Yang (imec, Belgium)

[WeG2-2] [Invited]

14:40-15:10

Optical Metrology Development Trends in Today's Advanced Device Nodes

Nahee Park (KLA Corp., USA)

[WeG2-3] [Invited]

15:10-15:40

High NA Objective Lens Optical Design for Metrology & Inspection

Jun Ho Lee, Ji Yong Joo, Yu Bin Jo, Ji Hyun Park (Kongju Nat'l Univ., Korea), Hagyoung Kihm, Ho-Soon Yang (KRISS, Korea), and Oh-Hyung Kwon (Nextin, Korea)



Session Title:	[WeA3] Advanced Cleaning Technology
Session Date:	November 13 (Wed.), 2024
Session Time:	16:05-18:00
Session Room:	Room A (Capri Room, 2F, Paradise Hotel Busan)
Session Chair:	Prof. Jea-Gun Park (Hanyang Univ., Korea)

[WeA3-1] [Plenary] 16:05-16:50

Recent Advancements In Cleans Technology to Reduce Particle Defectivity and Corrosion

Paul Bernatis (DuPont Hayward, USA), Ping Hsu, Peter Sun, and Jacky Cheng (DuPont Hsinchu, Taiwan)

[WeA3-2] [Invited] 16:50-17:20

Paradigm Changes in Semiconductor Cleaning

Kuntack Lee, SungHwan Chung, JiHoon Cha, Hayoung Jeon, Seok Heo, SangMin Lee, KiHyung Ko, KeeSang Kwon, JaeJik Baek, ByungKwon Cho, WooRim Lee, SunJung Kim, and JongMyeong Lee (Samsung Electronics Co., Ltd., Korea)

[WeA3-3] 17:20-17:40

Post CMP Cleaning Solution for Removal of Ceria Nanoparticles

Chanmi Kim, Saem Hwang, and Jaesung Lee (Soulbrain Co., Ltd., Korea)

[WeA3-4] 17:40-18:00

Investigating the Role of Benzotriazole on Silica and Copper Ions Loading to Polyvinyl Acetal (PVA) Brush during Copper Post-CMP Cleaning

Sanjay Bisht, Maheepal Yadav, Se-Hoon Park, Tae-Gon Kim, and Jin-Goo Park (Hanyang Univ., Korea)



Session Title:	[WeE3] Plasma Source Technology
Session Date:	November 13 (Wed.), 2024
Session Time:	16:05-17:35
Session Room:	Room E (Sicily Room, 1F, Paradise Hotel Busan)
Session Chair:	Prof. Ho-Jun Lee (Pusan Nat'l Univ., Korea)

[WeE3-1] [Invited]

16:05-16:35

Advances in Pulsed RF Power Delivery for Plasma Processes

Steven Shannon (North Carolina State Univ., USA)

[WeE3-2]

16:35-16:55

Charge-Free Plasma Processing Using Ultra-Low Electron Temperature Plasma for Atomic Scale Semiconductor Devices

Min-Seok Kim, Na Yeon Kim, Junyoung Park, and Chin-Wook Chung (Hanyang Univ., Korea)

[WeE3-3]

16:55-17:15

Microwave Heating Techniques in Wafer Processing: Utilizing Toroidal Slot Antennas and Resonant Cavity Modes

Sung-Hyeon Jung, Sang-Woo Kim (Pusan Nat'l Univ., Korea), Ju-Hong Cha (Gyeongsang Nat'l Univ., Korea), and Ho-Jun Lee (Pusan Nat'l Univ., Korea)

[WeE3-4]

17:15-17:35

Enhancement of Plasma Characteristics by Using 2.45[GHz] Microwave Source in Inductively Coupled Plasma

Dong-Jin Kang, Sang-Woo Kim (Pusan Nat'l Univ., Korea), Ju-Hong Cha (Gyeongsang Nat'l Univ., Korea), and Ho-Jun Lee (Pusan Nat'l Univ., Korea)



Session Title:	[WeF3] Nano Thin Film Deposition V
Session Date:	November 13 (Wed.), 2024
Session Time:	16:05-17:45
Session Room:	Room F (Ballroom, 5F, Grand Josun Busan)
Session Chair:	Prof. Taewook Nam (Sejong Univ., Korea)

[WeF3-1] [Invited] 16:05-16:35

Interfacial Engineering for Ferroelectric Memories with Improved Performance

Mihaela Ioana Popovici (imec, Belgium)

[WeF3-2] [Invited] 16:35-17:00

Correlation between Device Physics and Material Chemistry in (Hf,Zr)O₂-Based Ferroelectric Memories

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

[WeF3-3] [Invited] 17:00-17:25

Synthesis of Perovskite SrTiO₃ Thin Films by Atomic Layer Deposition for MIM Capacitors

Woongkyu Lee (Soongsil Univ., Korea)

[WeF3-4] 17:25-17:45

Achieving Superior ALD Metal Oxide Films with Organic Molecule Inhibitors

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



Session Title:	[WeG3] Frontier Metrology and Modeling V
Session Date:	November 13 (Wed.), 2024
Session Time:	16:10-17:45
Session Room:	Room G (Meeting Room, 5F, Grand Josun Busan)
Session Chair:	Dr. Byoung-Ho Lee (Hitachi High-Tech, Japan)

[WeG3-1] [Invited]

16:10-16:40

MI's New Challenges and Approaches

Byoung-Ho Lee (Hitachi High-tech, Japan)

[WeG3-2]

16:40-17:00

Multi-Spectrum and In-FAB Data Based Deep Learning Modeling for Early Prediction of Electrical Characteristics

Min Seok Kim, Yeonjeong Kim, Taeshin Kwak, Kyunghoon Lee, Jongchul Kim, Younghoon Sohn, Yongdeok Jeong, and Hyung Keun Yoo (Samsung Electronics Co., Ltd., Korea)

[WeG3-3]

17:00-17:20

AI Image Enhancement for High Speed On-Cell Overlay

Hyeon Bo Shim, Souk Kim, Younghoon Sohn, and Yongdeok Jeong (Samsung Electronics Co., Ltd., Korea)

[WeG3-4] [Invited]

17:20-17:45

***In situ* and Operando Transmission Electron Microscopy Study of Compound Semiconductor and Packaging Materials**

Young Heon Kim (Chungnam Nat'l Univ., Korea)



Session Title:	[ThA1] Functional Wet Etching Technology
Session Date:	November 14 (Thu.), 2024
Session Time:	09:00-10:30
Session Room:	Room A (Capri Room, 2F, Paradise Hotel Busan)
Session Chair:	Prof. Kangchun Lee (Kyonggi Univ., Korea)

[ThA1-1] [Invited]

09:00-09:25

Breakthrough Additive Technology for Cu Post-CMP Cleaning Solutions in Semiconductor Processes: Achieving Selective CuO Etching

Sangseung Park, Narea Yim, Hag Sung Lee, Ga Young Kim, Bo Yeon Lee, and Myung Geun Song (ENF Tech. Co., Ltd., Korea)

[ThA1-2] [Invited]

09:25-09:50

Highly Selective Etching for 3D Semiconductor Architecture

Sangwoo Lim (Yonsei Univ., Korea)

[ThA1-3]

09:50-10:10

Mechanism of Polymeric Inhibiting Layer in Wet Etchant for Highly Selective Etching of Si_{1-x}Ge_x to Si-Film

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

[ThA1-4]

10:10-10:30

Effect of pH and Dissolved Oxygen Levels on the Efficiency of Corrosion Inhibitors for Molybdenum during the CMP Process

Palwasha Jalalzai, Nayoung Kang, Manilal Murmu, Tae-Gon Kim, and Jin-Goo Park (Hanyang Univ., Korea)



Session Title:	[ThB1] Carbon Neutrality in Semiconductor Industry II
Session Date:	November 14 (Thu.), 2024
Session Time:	09:00-10:40
Session Room:	Room B (Grand Ballroom 1, 2F, Paradise Hotel Busan)
Session Chair:	Prof. Ayeon Kim (UNIST, Korea)

[ThB1-1] [Invited]

09:00-09:30

Cryogenic Plasma Etching for Semiconductor Processes Towards Carbon Neutrality

Shih-Nan Hsiao, Makoto Sekine (Nagoya Univ., Japan), Yoshihide Kihara, Ryutaro Suda (Tokyo Electron Miyagi Ltd., Japan), and Masaru Hori (Nagoya Univ., Japan)

[ThB1-2] [Invited]

09:30-10:00

Process Intensified Carbon Capture Solution for Semiconductor Industry: Rotating Packed-Bed

Manhee Byun, Boris Brigljević, SalaiSargunan S Paramanatham, Hyeonwoo Oh (Carbon Value, Korea), and Hankwon Lim (UNIST, Korea)

[ThB1-3]

10:00-10:20

Recent Efforts for Carbon Neutrality Study in Semiconductor Industry and Academia with Call for a Collaboration

Jong-Moon Park, Jin-Gi Hong, Bumsuk Jung, and Sang Jeon Hong (Myongji Univ., Korea)

[ThB1-4]

10:20-10:40

Economic and Environmental Analysis of Optimized Extractive Divided-Wall Distillation Process to Recover Semiconductor Industrial Waste

Aejin Lee, Yus Donald Chaniago, Jiwon Gu, Mingi Kim, and Hankwon Lim (UNIST, Korea)



Session Title:	[ThC1] Heterogeneous Integration
Session Date:	November 14 (Thu.), 2024
Session Time:	09:00-10:25
Session Room:	Room C (Grand Ballroom 3, 2F, Paradise Hotel Busan)
Session Chair:	Prof. Jinsub Park (Hanyang Univ., Korea)

[ThC1-1] [Invited]

09:00-09:30

Chip-on-Wafer (CoW) Technology Utilizing Laser-Assisted Bonding with Compression (LABC) with Laser Non-Conductive Film (NCF)

Kwang-Seong Choi, Jiho Joo, Gwang-Mun Choi, Jungho Shin, Chanmi Lee, Ki-Seok Jang, Jin-Hyuk Oh, Ho-Gyeong Yun, Seok Hwan Moon, Ji Eun Jung, Gaeun Lee, and Yong-Sung Eom (ETRI, Korea)

[ThC1-2] [Invited]

09:30-10:00

Wafer Bonding for Chiplet and Logic Devices

Fumihiko Inoue (Yokohama Nat'l Univ., Korea)

[ThC1-3] [Invited]

10:00-10:25

Wafer Bonding Technology for 3D Integration from In-fab to the Advanced Package

SeungWoo Choi, SunGhil Lee, YoungWoo Park, and JaiHyung Won (Tokyo Electron Korea, Korea)



Session Title:	[ThD1] Alternative Lithography I
Session Date:	November 14 (Thu.), 2024
Session Time:	09:00-10:40
Session Room:	Room D (Sidney Room, 2F, Paradise Hotel Busan)
Session Chair:	Prof. Myung-Ki Kim (Korea Univ., Korea)

[ThD1-1] [Invited] - Online

09:00~09:40

Nanoimprint Lithography: Market Spaces and Opportunities: It's Not Just Semiconductors

Douglas J. Resnick (Canon Nanotechnologies Inc., USA)

[ThD1-2] [Invited]

09:40-10:10

Gradient-Descent Optimized Metasurfaces: Enhancing Data Capacity for Multicolor and 3D Holography

Sunae So (Korea Univ., Korea)

[ThD1-3] [Invited]

10:10-10:40

Co-Integration of Silicon Photonics with MEMS for Ultra-Low Power Programmable Photonic Circuits

Sangyoon Han (DGIST, Korea)



Session Title:	[ThE1] Advanced Etching and Monitoring
Session Date:	November 14 (Thu.), 2024
Session Time:	09:00-10:00
Session Room:	Room E (Sicily Room, 1F, Paradise Hotel Busan)
Session Chair:	Prof. Won-Jun Lee (Sejong Univ., Korea)

[ThE1-1]

09:00-09:20

Ideal Si Etching with Ultra-Low Electron Temperature CF₄ Plasma

Junyoung Park, Nayeon Kim, Jung-Eun Choi, Min-Seok Kim, and Chin-Wook Chung (Hanyang Univ., Korea)

[ThE1-2]

09:20-09:40

In-situ Plasma Monitoring using Multiple Plasma Information (PI) for SiO₂ Etch Process with CF₄/O₂

Min Ho Kim, Jeong Eun Jeon, and Sang Jeon Hong (Myongji Univ., Korea)

[ThE1-3]

09:40-10:00

Optical Emission Spectroscopy Analysis (Line Ratio Method) Integrated with Electrical Method for Measuring Accurate Plasma Radical Density

Hyeon-Ho Nahm, Jeong-Hyun Lee, and Chung Chin Wook (Hanyang Univ., Korea)



Session Title:	[ThF1] Nano Thin Film Deposition VI
Session Date:	November 14 (Thu.), 2024
Session Time:	09:00-10:30
Session Room:	Room F (Ballroom, 5F, Grand Josun Busan)
Session Chair:	Prof. Se-Hun Kwon (Pusan Nat'l Univ., Korea)

[ThF1-1] [Invited]

09:00-09:30

Enhancing ALD Growth Characteristics through Surface Reaction Control

Changbong Yeon, Kok Chew Tan, Jung Hun Lim, Young-Soo Park, and Jaesun Jung (Soulbrain Co., Ltd., Korea)

[ThF1-2]

09:30-09:50

Thermal Atomic Layer Deposition of Aluminum Nitride Films Using Tris(dimethylamido)aluminum and Ammonia

Okhyeon Kim, Yerim Choi, Jian Heo, Changgyu Kim, Hye-Lee Kim, and Won-Jun Lee (Sejong Univ., Korea)

[ThF1-3]

09:50-10:10

Effect of Tunable Sub-Source and Sub-Drain Device Behavior in Four-Terminal Operation Using Metal-Capping Thin-Film Transistors

Ji Ye Lee (Korea Univ., Korea), Hyeon Dong Kim, Tae Ho Kim, Sang Ji Kim (Gachon Univ., Korea), Byeong-Kwon Ju (Korea Univ., Korea), and Sang Yeol Lee (Gachon Univ., Korea)

[ThF1-4]

10:10-10:30

Ultrathin Metal Films with Low Resistivity via Atomic Layer Deposition: Process Pressure Effect on Initial Growth Behavior of Ru Films

Na-Gyeong Kang, Min-Ji Ha, and Ji-Hoon Ahn (Hanyang Univ., Korea)



Session Title:	[ThG1] Frontier Metrology and Modeling VI
Session Date:	November 14 (Thu.), 2024
Session Time:	09:30-10:35
Session Room:	Room G (Meeting Room, 5F, Grand Josun Busan)
Session Chair:	Prof. Tae-Hun Shim (Hanyang Univ., Korea)

[ThG1-1] [Invited]

09:30-09:55

Recent Progress in Optical Metrology and Data Manipulating Techniques of AI: AI Combined Optical Metrology

Shinyoung Ryu, Junje Seong (Auros Tech. Inc., Korea), Jongjeong Kim (Haedosa Inc., Korea), Jiwon Lee (Auros Tech. Inc., Korea), and Kwangwoo Kim (Haedosa Inc., Korea)

[ThG1-2]

09:55-10:15

Responses of Various Electrical Trap Measurement Methods to Grain Boundary Traps

Joohee Oh (Sungkyunkwan Univ., Korea), Myeong Geun Cha (Samsung Display Co., Ltd., Korea), and Hyoungsub Kim (Sungkyunkwan Univ., Korea)

[ThG1-3]

10:15-10:35

Spectral and Imaging Sensors for Diagnostics in Next-Generation Semiconductor Processes

Youngho Cho, Chang Sug Lee, and Keun Oh Park (Korea Spectral Products Co., Ltd., Korea)



Session Title:	[ThA2] Cleaning Challenges for the Next Generation Devices
Session Date:	November 14 (Thu.), 2024
Session Time:	10:50-12:25
Session Room:	Room A (Capri Room, 2F, Paradise Hotel Busan)
Session Chair:	Prof. Sangwoo Lim (Yonsei Univ., Korea)

[ThA2-1] [Invited]

10:50-11:15

Study on Bubbles in Wafer Clean System

KwangWook Lee, Heehwan Kim, Buyoung Jung, Judong Lee, KyoungHyeon Kim, and GilHyeon Choi (SEMES, Korea)

[ThA2-2] [Invited]

11:15-11:40

Introduction to Two-Phase Flow Analysis Techniques for Fluid Dynamic Analysis of Cleaning Processes: Volume of Fluid, Level Set, and Volume of Fluid - Level Set Coupling Methods

Dang Khoi Le (Seoul Nat'l Univ. of Science and Tech., Korea) and Ho Jun Kim (Hanyang Univ., Korea)

[ThA2-3] [Invited]

11:40-12:05

Preparation and Characterization of High Purity Colloidal Silica Abrasives for CMP Slurry

Tae-Dong Kim (Hannam Univ., Korea)

[ThA2-4]

12:05-12:25

Study on Scratch Generation during Copper Post-CMP Brush Cleaning for Sub_10nm Semiconductor Manufacturing Devices

Maheepal Yadav, Sanjay Bisht, Se-Hoon Park, Tae-Gon Kim, and Jin-Goo Park (Hanyang Univ., Korea)



Session Title:	[ThB2] Carbon Neutrality in Semiconductor Industry III
Session Date:	November 14 (Thu.), 2024
Session Time:	10:50-12:25
Session Room:	Room B (Grand Ballroom 1, 2F, Paradise Hotel Busan)
Session Chair:	Prof. Hankwon Lim (UNIST, Korea)

[ThB2-1] [Invited]

10:50-11:20

Green Aluminum Metal-Organic Frameworks (Al-MOFs) Assisted Commercial Activated Carbon for Enhanced Fluoride Removal from Semiconductor Industrial Effluents

Ho-Young Jung (Chonnam Nat'l Univ., Korea), U.T. Uthappa (Chonnam Nat'l Univ., Korea and Saveetha Inst. of Medical and Technical Sciences, India), Kanalli V. Ajeya, Veeman Sannasi (Chonnam Nat'l Univ., Korea), Sang Goo Lee, Eun-Ho Sohn, Bong-Jun Chang, In-Jun Park, Ju Hyeon Kim (KRICT, Korea), and Mahaveer D. Kurkuri (JAIN (Deemed-to-be University), India)

[ThB2-2] [Invited]

11:20-11:45

Novel Low Global Warming Potential Gases for Etching and Chamber Cleaning Processes Towards Carbon Neutrality

Jae-Hyun Noh, Young-Lae Kim, Byeong-Ok Cho, and Jeong-Uk Han (Wonik Materials Co., Ltd., Korea)

[ThB2-3]

11:45-12:05

Energy Savings at \$0 Investment

Hoe Boon Chye (Barghest Building Performance Pte. Ltd., Singapore)

[ThB2-4]

12:05-12:25

Could Overseas-Originated Green Ammonia Be A Green Fuel For Factories?

Ayeon Kim, and Hankwon Lim (UNIST, Korea)



Session Title:	[ThC2] Process and Integration
Session Date:	November 14 (Thu.), 2024
Session Time:	10:50-12:40
Session Room:	Room C (Grand Ballroom 3, 2F, Paradise Hotel Busan)
Session Chair:	Prof. Changhwan Choi (Hanyang Univ., Korea)

[ThC2-1] [Invited]

10:50-11:20

Technology Trends of Memory Packages for High Performance Computing Memory in AI Era
Heejin Lee (SK hynix Inc., Korea)

[ThC2-2] [Invited]

11:20-11:45

Negative Type Bump Photoresist for Advanced Package

Seungkeun Oh, Jung-woo Kim, Myoung-hyun Hur, and Jaehyun Kim (Dongjin Semichem Co., Ltd., Korea)

[ThC2-3] [Invited]

11:45-12:10

AFM Measurement Techniques in Advanced Packaging and Hybrid Bonding Processes

Byoung-woon Ahn, Ah-jin Jo, Sang-han Chung, Seung-yeon Sung, and Dongchun Lee (Park Systems Corp., Korea)

[ThC2-4] [Invited] – Pre-recorded

12:10-12:40

An Innovative 2D/3D Chiplelets Integration with Fan-out Switching Chip

Wei-Chung Lo, Feng-Hsiang Lo, Chin-Hung Wang, Ching-Iang Li, Yung-Sheng Chang, Jie Zhang, Chao-Kai Hsu, Tsung-Yi Hung, and Tsung-Yu Ou Yang (Industrial Tech. Research Inst., Taiwan)



Session Title:	[ThD2] Alternative Lithography II
Session Date:	November 14 (Thu.), 2024
Session Time:	10:50-11:50
Session Room:	Room D (Sidney Room, 2F, Paradise Hotel Busan)
Session Chair:	Prof. Myung-Ki Kim (Korea Univ., Korea)

[ThD2-1] [Invited]

10:50-11:20

III-V/Si Light Source Integration from on-Demand to Three-Dimensions

You-Shin No (Konkuk Univ., Korea)

[ThD2-2] [Invited]

11:20-11:50

Shadow Growth and Electrostatic Coating for Hybrid Nanoparticles

Jang-Hwan Han, Doeun Kim, and Hyeon-Ho Jeong (GIST, Korea)



Session Title:	[ThE2] Modeling Etch Processes
Session Date:	November 14 (Thu.), 2024
Session Time:	10:50-12:20
Session Room:	Room E (Sicily Room, 1F, Paradise Hotel Busan)
Session Chair:	Prof. Heeyeop Chae (Sungkyunkwan Univ., Korea)

[ThE2-1] [Invited] **10:50-11:20**

Thermal Atomic Layer Etching Mechanism of Aluminum Oxide: A First Principle Study

Khabib Khumaini, Gyejun Cho, Hye-Lee Kim, and Won-Jun Lee (Sejong Univ., Korea)

[ThE2-2] **11:20-11:40**

Ab Initio Investigation of Chelation on CoCl_2 Films for Atomic Layer Etching

Eugene Huh and Sangheon Lee (Ewha Womans Univ., Korea)

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

Computational Study of Re-deposition Effects due to Geometric Differences in MASK Patterns in High Aspect Ratio Plasma Etching

Byeong-Yeop Choi, Si-Jun Kim, Won-Nyoung Jeong, Young-Seok Lee, In-Ho Seong, Chul-Hee Cho, Min-Su Choi, Seong-Hyun Seo, Woo-been Lee, and Shin-Jae You (Chungnam Nat'l Univ., Korea)

[ThE2-4] **12:00-12:20**

A Unified Global Model Accompanied with a Voltage and Current Sensor for Low-Pressure Capacitively Coupled RF Discharge

Inho Seong, Sijun Kim, Woobeen Lee, Youngseok Lee, Chulhee Cho, Wonnyoung Jeong, Minsu Choi, Byeongyeop Choi, Huichan Seo, Sangheon Song, and Shinjae You (Chungnam Nat'l Univ., Korea)



Session Title:	[ThF2] Nano Thin Film Deposition VII
Session Date:	November 14 (Thu.), 2024
Session Time:	10:50-12:20
Session Room:	Room F (Ballroom, 5F, Grand Josun Busan)
Session Chair:	Prof. Woo-Jae Lee (Pukyong Nat'l Univ., Korea)

[ThF2-1] [Invited]

10:50-11:15

Precursor Chemistry in Semiconductor Industry

Jin Sik Kim, Myeong-Ho Kim, Byung-Kwan Kim, Yun-Gyeong Yi, Yoon-A Park, Da-Som Yu, Seung-Gyun Hong, and Su-Jung-Lee (UP Chemical, Korea)

[ThF2-2] [Invited]

11:15-11:40

Computational Fluid Dynamics Analysis of Canisters for Mass Delivery of Solid Precursors

Seung-Ho Seo, Jong-Ean Park, Hee-Jun Lee, Yeongjong Lee, and Deahyun Kim (GO Element Co., Ltd., Korea)

[ThF2-3]

11:40-12:00

Dielectrics with Sub-Surface Dopant Implantation-Mediated Lattice Relaxation and VO Annihilation via Chemo-Physical Plasma Annealing

Gyuha Lee (POSTECH, Korea), Geongu Han (Seoul Nat'l Univ., Korea), Hyongjune Kim, Sangwon Lee, Jeongmin Oh, and Jihwan An (POSTECH, Korea)

[ThF2-4]

12:00-12:20

Effect of Oxygen Binding Energy of Hf, Ga and Al on Amorphous Zn-Sn-O Thin Film Transistor

Sunjin Lee, Heyon Dong Kim, Tae Ho Kim, Sang Ji Kim, and Sang Yeol Lee (Gachon Univ., and Gachon Advanced Inst. of Semiconductor Tech., Korea)



Session Title:	[PP1] Poster Session I
Session Date:	November 12 (Tue.), 2024
Session Time:	16:50-17:40
Session Room:	Grand Ballroom 4, 2F, Paradise Hotel Busan

[PP1-01]

Aromatic Hydroxyl Additives in H_3PO_4 to Reduce Oxide Regrowth Phenomenon in the Selective Si_3N_4 Etching of 3D NAND Structure

Jongwon Han, Chanwoo Jeon, and Sangwoo Lim (Yonsei Univ., Korea)

[PP1-02]

Optimizing Fluorine Chemistry for Selective SiO_2 Etching Over Si_3N_4

Bumsik Kim, Wonje Lee, and Sangwoo Lim (Yonsei Univ., Korea)

[PP1-03]

Achieving Erosion-Less depending on Pattern Density in W-Film Chemical Mechanical Planarization

Hyun-sung Koh, Il-haeng Heo, and Yun-Heub Song (Hanyang Univ., Korea)

[PP1-04]

Design of Ag-: SiO_2 - Film Polishing-Rate Selectivity Depending on Polymer Species

Myung-Hoe Kim, Min-Ji Kim, Woo-Hyun Jin, and Wan-Jun Park (Hanyang Univ., Korea)

[PP1-05]

Preparation and Characterization of Ceria Nanoparticles according to Calcining Temperature Conditions for CMP Process

Suseong Jang, Sohee Hwang, Lyu Tao, Jaeyoung Jo (Hannam Univ., Korea), Seyoung Ahn (MS Materials Co., Ltd., Korea), and Woonjung Kim (Hannam Univ., Korea)

[PP1-06]

Metal Chelation Using EDTA for Impurities in High-Purity SiO_2 Nanoparticle

Su-Ho Lee, Yoon Kim, Woon-Jung Kim, and Tae-Dong Kim (Hannam Univ., Korea)



[PP1-07]

Synthesis and Characterization of Ceria Nanoparticles for Improved CMP Performances

Tao Lyu, Sohee Hwang, Suseong Jang (Hannam Univ., Korea), Seyoung Ahn (MS Materials Co., Ltd., Korea), and Woonjung Kim (Hannam Univ., Korea)

[PP1-08]

Development of Ceria Nanoparticles Linked with Polishing Accelerator for CMP Process

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

[PP1-09]

Synthesis and Characterization of Core/Shell Nanoparticles used by Thermo-responsive Polymers

Do Hyun Lee (Hannam Univ., Korea), Min Uk Jeon (Hanyang Univ., Korea), Woon Jung Kim, and Tae Dong Kim (Hannam Univ., Korea)

[PP1-10]

Analysis for Impact of dv/dt on Electrical Characteristics of 1.2 kV SiC MOSFETS

Hyowon Yoon (Pusan Nat'l Univ., Korea), Sangyeob Kim (Kumoh Nat'l Inst. of Tech., Korea), Dusan Baek (Pusan Nat'l Univ., Korea), Gyuhyeok Kang (Kumoh Nat'l Inst. of Tech., Korea), Sumin Park, and Ogyun Seok (Pusan Nat'l Univ., Korea)

[PP1-11]

Impact of Negatively Charged Bulk Trap on 1.2 kV SiC Super Junction Devices

Sumin Park, Hyowon Yoon, Dusan Baek (Pusan Nat'l Univ., Korea), Sangyeob Kim, Gyuhyeok Kang (Kumoh Nat'l Inst. of Tech., Korea), and Ogyun Seok (Pusan Nat'l Univ., Korea)

[PP1-12]

Impact of Parasitic Inductance on the Current Hump Phenomenon in SiC MOSFETs within a Half-Bridge Configuration

Taehyun Jang and Hyemin Kang (KENTECH, Korea)



[PP1-13]

Simulation of 150mm SiC Epitaxial Growth and Improvement of SiC Epi Quality

Han Seok Seo, Im Gyu Yeo, and Tai Hee Eun (Research Inst. of Industrials and Science & Tech., Korea)

[PP1-14]

Comparison of AlGaIn/GaN HEMTs Device Performance between Au-Based and Au-Free Ohmic Contacts

Sakhone Pharkphoumy (Kunsan Nat'l Univ. and Jeonbuk Nat'l Univ., Korea), Chel-Jong Choi (Jeonbuk Nat'l Univ., Korea), Kyu-Hwan Shim (Jeonbuk Nat'l Univ. and Sigetronics Inc., Korea), and Hyun-Seop Kim (Kunsan Nat'l Univ., Korea)

[PP1-15]

Electrical and Structural Properties of SiO₂ on 4H-SiC with NO Post Annealing Formed by Thermal Oxidation and Atomic Layer Deposition

Hong-ki Kim, Woosung Park, and Jaegil Lee (Powermaster Semiconductor Co., Ltd., Korea)

[PP1-16]

Analysis of the Effect of Charge Balance on the Static and Dynamic Characteristics of the 4H-SiC Super Junction MOSFET

Min Seok Jang, Jung Bok Lee, Min Yong Park, Min-U Jang (Pusan Nat'l Univ., Korea), Ju-Hong Cha (Gyeongsang Nat'l Univ., Korea), Sung Mo Koo (Nat'l Inst. for Nanomaterials Tech., Korea), and Ho Jun Lee (Pusan Nat'l Univ., Korea)

[PP1-17]

Improving Schottky Barrier Diode Performance by Optimizing Cleaning Process for Ga₂O₃

Ho Jung Jeon, Labeled Madani, and You Seung Rim (Sejong Univ., Korea)

[PP1-18]

Transferred Graphene Monolayer as a Diffusion Barrier for β -Ga₂O₃ Based Power Devices

Madani Labeled (Sejong Univ., Korea), Jekyung Kim, Bo-In Park (Massachusetts Inst. of Tech., USA), Jang Hyeok Park (Sejong Univ., Korea), Jeehwan Kim (Massachusetts Inst. of Tech., USA), and You Seung Rim (Sejong Univ., Korea)



[PP1-19]

Preparation of Si_3N_4 Powders via Direct Nitridation for High Thermal Conductivity Substrates in Power Device Applications

Kati Raju, Seunghwan Moon, Minwook Kim, Jaehun Cho, and Hyun-Kwuon Lee (Kumoh Nat'l Inst. of Tech., Korea)

[PP1-20]

Characterization of Structural and Optical Properties on (001) $\beta\text{-Ga}_2\text{O}_3$ Doped with Key Impurities such as Si, Sn, and Fe

Min-Ji Chae, Sun-Yeong Seo, Dae-Uk Kim, Yun-Jin Kim, So-Min Shin, Gwang-Hee Jung, Mi-Seon Park, Jung-Gon Kim, and Won-Jae Lee (Dong-Eui Univ., Korea)

[PP1-21]

SiC/SiO₂ Interface Properties of 4H-SiC MOS Capacitors Fabricated by PEALD and Post Oxidation Annealing Process

Taewon Kim, Jinho Jeon, Hyeonseop Lee, Haeyong Kang, and Beomjin Jeong (Pusan Nat'l Univ., Korea)

[PP1-22]

Comparative FEA Results of Si MOSFETs with and without Al Pads and Modeling Approach Proposals

Na-Yeon Choi and Sung-Uk Zhang (Dong-Eui Univ. and Center for Brain Busan 21 Plus Program, Korea)

[PP1-24]

Enhancement on Thermal Conductivity for Self-Assembled 3D Network Reduced Graphene Oxide Nonwoven

Gyeonghun Lee, In-Sung Lee, Hak Ji Lee, Suheon Kim, Tae Hyeong Kim, Young Joon Yoo, and Young Pyo Jeon (Seoul Nat'l Univ., Korea)



[PP1-25]

Improved Field-Effect Mobility through Metal Capping Layer Oxidation in Top-Gate α -IGZO TFTs with High-k Gate Insulator

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

[PP1-26]

Resistive Switching Mechanism of All Inorganic CsCu_2I_3 Perovskite-Based Memristor

HyeonSeok Park, UiJin Jung, Yeongho Kim, Uijong Kim, HyeonBin Lee, and JinSub Park (Hanyang Univ., Korea)

[PP1-27]

VI Sensor Design and Equivalent Circuit Analysis for RF Plasma Diagnostics

Jonghoon Oh (Pusan Nat'l Univ., Korea), Joonsik Lee (MKS Instruments Korea, Korea), and Ho-Jun Lee (Pusan Nat'l Univ., Korea)

[PP1-28]

A Single-Ended PAM-4 Receiver Front-End with TAS-TIA Based CTLE and Gain-Mismatch Reduction Techniques

Hyuntae Kim, Yunseong Jo, and Jaeduk Han (Hanyang Univ., Korea)

[PP1-29]

Design Techniques for Enhancing Linearity of High-Order PAM Receivers

Sangwan Lee and Jaeduk Han (Hanyang Univ., Korea)

[PP1-30]

Improving Contact Resistance in α -IGZO TFTs through Corner Structures at the Channel - Electrode Interface

Dongseon Kim and Jae Kyeong Jeong (Hanyang Univ., Korea)

[PP1-31]

A Comparison in Hydrogen Solubility of In-Ga-O TFTs with Crystallographic Changes

Jin Won Bak, Jae Seok Hur, Gwang-Bok Kim, and Jae Kyeong Jeong (Hanyang Univ., Korea)



[PP1-32]

RealGraph^{GPU++}: A GPU-Based Graph Engine with Direct Storage-to-DM IO

Jeong-Min Park, Myung-Hwan Jang (Hanyang Univ., Korea), Duck-Ho Bae (Samsung Electronics Co., Ltd., Korea), and Sang-Wook Kim (Hanyang Univ., Korea)

[PP1-33]

Delta-Sigma ADC for Battery Voltage & Current Sensors

Taehun Kim, Jaedo Kim, and Jeongjin Roh (Hanyang Univ., Korea)

[PP1-34]

Optimization of CRC Generator Polynomials for SDDC in DRAM

Tae-Jeong Kim, Jae-Sang Noh, and Dong-Joon Shin (Hanyang Univ., Korea)

[PP1-35]

High-Voltage Battery Sensor IC for BMS of Electric Vehicles

Yeonhong Kim, Seulmin Ahn, and Jeongjin Roh (Hanyang Univ., Korea)

[PP1-37]

A Stable Method for Measuring Feature Attribution Using Causal Effects in Semiconductor Manufacturing Processes

Eunjung Choi, Seonggyeom Kim, Sunghyun Hwang, Sangmyeong Lee, and Dong-Kyu Chae (Hanyang Univ., Korea)

[PP1-38]

An Improved Causal Graph Discovery Method Robust to Noise Variability in Semiconductor Manufacturing Processes

Eunjung Choi, Seonggyeom Kim, Sunghyun Hwang, Sangmyeong Lee, and Dong-Kyu Chae (Hanyang Univ., Korea)

[PP1-39]

Comparison of Plasma Density with Langmuir Probe Using Capacitance Measurement Sensor

In Hyeok Kho, Ji Hwan Kim, In Young Bang, Jae Hyeon Kim, Hyeon Jo Kim, Seong Yong Lim, Seo Yeon Kim, Seong Hee Jo, Gwang Ho Lee, Yoon Joo Jeong, Chang Hee Lee, Hyo Jong Shin, Yu Jin Heo, and Gi Chung Kwon (Kwangwoon Univ., Korea)



[PP1-40]

Development of Graphene Oxide-Waterglass Transparent Conducting Electrodes for Enhanced Light Extraction Efficiency in GaN-Based LEDs

Yu-na Lee, Yeo-Jin Choi, Meshesha Mikiyas Mekete, Manal Zafar, Siva Pratap Reddy Mallem (Kumoh Nat'l Inst. of Tech., Korea), Ki-Sik Im (Korea Polytechnics, Korea), and Sung Jin An (Kumoh Nat'l Inst. of Tech., Korea)



Session Title:	[PG1] Poster Session I
Session Date:	November 12 (Tue.), 2024
Session Time:	16:50–17:40
Session Room:	Board Room, 5F, Grand Josun Busan

[PG1-01]

Possibility of Improving Electrical Properties by Using TiO₂ Deposited by Atomic Layer Deposition as an Electrode

Yoonchul Shin and Ji-Hoon Ahn (Hanyang Univ., Korea)

[PG1-02]

A Study of the Molybdenum Film by Thermal Atomic Layer Deposition

Jinil Son and Hyeongtag Jeon (Hanyang Univ., Korea)

[PG1-03]

Enhanced Crystallinity of 2D Tin Sulfide Using Discrete Feeding Method by Atomic Layer Deposition

Sowon Park and Hyeongtag Jeon (Hanyang Univ., Korea)

[PG1-04]

Compositional Dependence of Ferroelectric Properties in Hf_{1-x}Zr_xO₂ Thin Films Using a Thermally Stabilized Novel Precursor

Hye-Won Cho, Hyo-Bae Kim (Hanyang Univ., Korea), Seung-Eon Ahn (Tech Univ. of Korea, Korea), and Ji-Hoon Ahn (Hanyang Univ., Korea)

[PG1-05]

Stable Ferroelectric Properties of Sub-5nm Hafnium-Zirconium-Oxide Thin Films Deposited via Atomic Layer Deposition

Gunho Kim, Hyo-Bae Kim (Hanyang Univ., Korea), Wonwoo Kho, Yoomi Kang, Seung-Eon Ahn (Tech Univ. of Korea, Korea), and Ji-Hoon Ahn (Hanyang Univ., Korea)



[PG1-06]

Conformal Atomic Layer Deposition of Titanium Nitride Thin Film Using Noble Small Molecule Inhibitor

Jiyeon Han, Jaemin Kim, Hana Kim, Duckhyeon Seo, Juhwan Jeong, Hyunju Jung, Hanbin Lee, Kunhee Kim, and Kyuho Cho (EGTM Co., Korea)

[PG1-07]

Enhanced Electrical Properties of ZrO_2 Thin Films Using Atomic Layer Deposition with a Novel Precursor

Ji Hwan Kim, Seung Won Lee, Yoonchul Shin, Yeon-Ji Jeon, and Ji-Hoon Ahn (Hanyang Univ., Korea)

[PG1-08]

Study on the Improvement of Resistivity and Step Coverage of TiN Thin Films Deposited by Atomic Layer Deposition Using H_2

Kihye Kim, Wanjae Lee, Sewhan Jin, Jungseop Shin, Sangyeop Kim, Dongwon Seo, and Wansik Kim (Hanwha Precision Machinery, Korea)

[PG1-09]

Liquid Ta Precursors with High Thermal Stability for ALD Ta_2O_5 /TaN Thin Films at High Temperatures $>460^\circ C$

Woongjin Choi, Shinbeom Kim, Taeyoung Lee, Hyunju Jung, Hanbin Lee, Juhwan Jeong, Sunyoung Baik, and Kyuho Cho (EGTM Co., Korea)

[PG1-10]

Investigation on Ar Plasma Treatment for Amorphous Si-In-Zn-O Thin-Film Transistors

Tae Ho Kim, Hyeon Dong Kim, Sang Ji Kim, and Sang Yeol Lee (Gachon Univ., Korea)

[PG1-11]

Characteristics of Deposited Film Using a New Ru Precursor

Yoon-A Park, Jin-Sik Kim, Hyun-Kyu Ryu, and Won-Yong Koh (UP Chemical, Korea)



[PG1-12]

Influence of Precursor Oxidation State on MoO₂ Film Properties Using the Novel Mo Precursors

Yun-Gyeong Yi, Myeong-Ho Kim, Jin Sik Kim, Hyunkyu Ryu, and Wonyong Koh (UP Chemical, Korea)

[PG1-13]

Flexible and Highly Transparent Conductive Oxide of Amorphous Oxide/Metal/Oxide Multilayer Film

Jin Young Hwang (Korea Univ. and Gachon Univ., Korea), Hyeon Dong Kim, Tae Ho Kim, Sang Ji Kim (Gachon Univ. and Gachon Advanced Inst. of Semiconductor Tech., Korea), Sangsik Kim (Korea Univ., Korea), and Sang Yeol Lee (Gachon Univ. and Gachon Advanced Inst. of Semiconductor Tech., Korea)

[PG1-14]

Performance by Silver Thickness on Transparent Electrodes Made with OMO Structure of HZTO(HfZnSnO)/Ag/HZTO

Hyeon Dong Kim, Sunjin Lee, Tae Ho Kim, Sang Ji Kim, and Sang Yeol Lee (Gachon Univ. and Gachon Advanced Inst. Of Semiconductor Tech., Korea)

[PG1-15]

Enhanced Electrical Properties of ZrO₂-MoN-Based Capacitors with Ultrathin Buffer Layer

Yeon-Ji Jeon and Ji-Hoon Ahn (Hanyang Univ., Korea)

[PG1-16]

Optimization of a-Si-Zn-Sn-O Thin Film Transistor Performance via O₂ Plasma Treatment

HyeonDong Kim, SangJi Kim, TaeHo Kim, and SangYeol Lee (Gachon Univ. and Gachon Advanced Inst. Of Semiconductor Tech., Korea)

[PG1-17]

Augmenting Electrical Properties and Stability of Amorphous Si-Zn-Sn-O Thin Film Transistor through Structural Modifications and Surface Treatments

JuYoung Lee, HyeonDong Kim, SangJi Kim, TaeHo Kim, and SangYeol Lee (Gachon Univ. and Gachon Advanced Inst. Of Semiconductor Tech., Korea)



[PG1-18]

Enhanced Field Effect Mobility in Amorphous – HfInZnO TFT with Metal Capping Layer

Hyeon Dong Kim, Tae Ho Kim, Sang Ji Kim, and Sang Yeol Lee (Gachon Univ. and Gachon Advanced Inst. Of Semiconductor Tech., Korea)

[PG1-19]

Evaluation of High-Temperature SiO₂ Film Using a Novel Si Precursor

Byung-Kwan Kim, Seung-Gyun Hong, Jin-Sik Kim, Hyun-Kyu Ryu, and Won-Yong Koh (UP Chemical, Korea)

[PG1-20]

High Performance of Full Swing Logic Circuits Using All n-Types Amorphous Si-In-Zn-O Thin Film Transistors

Sang Ji Kim, Hyeon Dong Kim, Tae Ho Kim, and Sang Yeol Lee (Gachon Univ. and Gachon Advanced Inst. Of Semiconductor Tech., Korea)

[PG1-21]

Multi-Stack Capacitor based on Ferroelectric Materials for Neuromorphic Computing

Hyo-Bae Kim and Ji-Hoon Ahn (Hanyang Univ., Korea)

[PG1-22]

Molecular Layer Deposition of a Tin-Based Organic-Inorganic Hybrid Thin Films for Photoresist

Dong Geun Kim, Kyungryul Ha, Hyekyung Kim, Woo-Hee Kim, Tae Joo Park, and Ji-Hoon Ahn (Hanyang Univ., Korea)

[PG1-23]

Design of Gas Flow Field for a Slip Flow Regime ALD Processing Chamber

Kyung-Hoon Yoo (KITECH, Korea), Geun-Soo Song (KUMYOUNG ENG Inc., Korea), Chun-Sik Kim (TNG Co., Korea), Jun-Young Hwang, Sang-Ho Lee, Hye-Jin Lee, Yeong-Cheol Kim, Ju-Young Woo, Shin-Ae Song (KITECH, Korea), and Kun-Hyung Lee (Samsung Display Co., Ltd., Korea)



[PG1-24]

Various Photoluminescence Properties of Si-ZnO Core-Shell Nanowires

Sangwoo Kim (KITECH, Korea), Myung Sik Choi (Kyungpook Nat'l Univ., Korea), and Changhyun Jin (Yonsei Univ., Korea)

[PG1-25]

Effect of Gas Injection Velocity on TiN Films in Thermal Atomic Layer Deposition Process

Ji Won Jang, Nu Ri Kim, and Sang Jeon Hong (Myongji Univ., Korea)

[PG1-26]

Catalytic Synthesis of β -Ga₂O₃ Nanowires on c-Sapphire Substrates by PLD

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

[PG1-27]

Novel Antimony (III) Precursors with Modifiable Alkoxy Carboxamide for Thin Films Deposition

Ji-Seoung Jeong (KRICT and Sungkyunkwan Univ., Korea), Sunyoung Shin (KRICT, Korea), Bo Keun Park (KRICT School, Univ. of Science and Tech. ., Korea), Seung Uk Son (Sungkyunkwan Univ., Korea), Taek-Mo Chung (KRICT School, Univ. of Science and Tech. ., Korea), and Ji Yeon Ryu (KRICT, Korea)

[PG1-28]

A Study on Ar/O₂ Capacitively Coupled Plasma Using Fluid Simulation

Min-U Jang, Sang-Woo Kim (Pusan Nat'l Univ., Korea), Ju-Hong Cha (Gyeongsang Nat'l Univ., Korea), and Ho-Jun Lee (Pusan Nat'l Univ., Korea)

[PG1-29]

Simultaneous Realization of Neuron and Synapse Functionalities under Optical Stimulation Using a Single Transistor

Jaehee Lee and Jung Wook Lim (ETRI and Univ. of Science and Tech., Korea)

[PG1-30]

Characteristics of SiO₂ Films Deposited by PEALD with Applying DC Bias

Jinyoung Woo, Heejun Yoon, Jinwoo Oh, Woosuk Kim, and Hyeongtag Jeon (Hanyang Univ., Korea)



Session Title:	[PP2] Poster Session II
Session Date:	November 14 (Thu.), 2024
Session Time:	16:35-17:25
Session Room:	Grand Ballroom 4, 2F, Paradise Hotel Busan

[PP2-01]

A Study on the Etching Characteristics of HFO-1336mzz Gas

Yeongjin Lim, Sung Wook Kim, Bongsuk Kim (Foosung Co., Ltd., Korea), Kyung-jin Kim, Bong-no Yoon, Dong Eun Yoo, and Jeonghwan Koh (KAIST, Korea)

[PP2-02]

Plasma Etching of SiO₂ Using Low Global Warming Potential Hexafluorobenzene

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

[PP2-03]

Atomic Layer Etching of MoS₂ Film by Transforming of Top Chalcogen Atoms

Jin Joo Ahn, Ji Eun Kang, Ji Min Kim, and Geun Young Yeom (Sungkyunkwan Univ., Korea)

[PP2-04]

EUV Patterning Solution to the Reduction of Roughness with Plasma Treatment and Plasma induced Polymer Formation

Kap Cheol Kim, Seung Rae Kim, and Hyeongtag Jeon (Hanyang Univ., Korea)

[PP2-05]

Study on the Correlation between RF Power and Temperature in Cryogenic Process

Seungraek Kim and Hyeongtag Jeon (Hanyang Univ., Korea)

[PP2-06]

Optimization of the Selective Wet Etch of Si/SiGe Heteroepitaxial Nanosheets: A Key Process in Channel Release for Gate-All-Around FET

Eui-Sang Yu, Jin Ha Kim, Sang Hoon Kim, Min Kyun Sohn, Subin Heo, Seong Hyun Lee, Jeong Woo Park, Wangjoo Lee, Min-A Park, Sun Kyu Jung, Jaeseoung Park, and Dongwoo Suh (ETRI, Korea)



[PP2-07]

P-Type Doping of WSe₂ Using BCl₃ Remote Plasma

Dong Kyu Kim, Ji Eun Kang, Ji Min Kim, Hye Won Han, and Geun Young Yeom (Sungkyunkwan Univ., Korea)

[PP2-08]

Characterization of Low Global Warming C₃F₆ for the Plasma Etching of Silicon Oxide and Silicon Nitride

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

[PP2-09]

Analysis of COF₂/O₂/Ar in the Cleaning Process of Silicon Nitride in Plasma-Enhanced Chemical Vapor Deposition Chamber

Yeon Jin Lee, Bumsuk Jung, and Sang Jeen Hong (Myongji Univ., Korea)

[PP2-10]

Eco-Friendly Chamber Cleaning Process of Silicon Nitride/Silicon Oxide with COF₂/N₂O/Ar in Plasma-Enhanced Chemical Vapor Deposition Chamber

Hyuck Byun and Sang Jeen Hong (Myongji Univ., Korea)

[PP2-11]

Study on Characteristics of Capacitively Coupled Plasma Using Argon-Sulfur Hexafluoride Mixed Gas

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

[PP2-12]

Synchronous Effect of Pulsed Dual-Frequency Capacitively Coupled Plasmas

Jun Hee Mun, Dong Young Kim, and Hae June Lee (Pusan Nat'l Univ., Korea)



[PP2-13]

Consideration of Plasma Radical Characteristics and Etching Property Changes based on Plasma Surface Reaction and Spatial Distribution according to Device Integration Density

Jiwon Jeong, Jaehwan Kim, Chiyun Bang, Sebin An, Hakrim Lee, and Ju-Hong Cha
(Gyeongsang Nat'l Univ., Korea)

[PP2-14]

Low-Damage Etching of Poly-Si and SiO₂ via a Low-Energy Electron Beam in Inductively Coupled CF₄ Plasma

Jiwon Jung, Jae-Hwi Kim, Chang-Min Lim, and Chin-Wook Chung (Hanyang Univ., Korea)

[PP2-15]

Plasma Etching of Silicon Boride Hard Mask using Fluorine-Based Gases

Seunghyeon Hong, Sangbae Lee, Heeju Ha, Hojin Kang, Minsung Jeon, and Heeyeop Chae
(Sungkyunkwan Univ., Korea)

[PP2-16]

On High-Efficiency Plasma Generation Using Antenna Impedance Tuning in an Inductively Coupled Plasma

Un-jae Jung (Hanyang Univ., Korea), Myung-soo Huh (Samsung Display Co., Ltd., Korea), and
Chin-Wook Chung (Hanyang Univ., Korea)

[PP2-17]

Comparative Analysis of Methods for RF Power Absorption by Plasma in Inductively Coupled Plasma

Yeong Jae Jeong and Chin Wook Chung (Hanyang Univ., Korea)

[PP2-18]

Wet Etching with Oxidizer and Oxide Removal with Formic Acid Vapor for Ruthenium

Hwan Park, Hojin Kang, Heeju Ha, Taeseok Jung, and Heeyeop Chae (Sungkyunkwan Univ.,
Korea)



[PP2-19]

Thermal Atomic Layer Etching of High-k Oxides via Fluorination and Ligand-Exchange Mechanisms

Jung-Tae Kim, Jeongbin Lee, and Woo-Hee Kim (Hanyang Univ., Korea)

[PP2-20]

Formation and Characterization of Plasma Resistant YOF Layers through Fluorination of Y_2O_3 Surface

Hwan-yoon Jang and Hyun-Kwuon Lee (Kumoh Nat'l Inst. Of Tech., Korea)

[PP2-21]

Hybrid Contact Engineering for 2D Ambipolar Transistors

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

[PP2-22]

Layer-by-Layer Etching of 2D WS_2 via Volatile Tungsten Oxychloride Formation

Hye Won Han, Ji Eun Kang, Ji Min Kim, and Geun Young Yeom (Sungkyunkwan Univ., Korea)

[PP2-23]

N-Type Doping Method for MoS_2 Using Cyclic Doping

Ji Min Kim, Ji Eun Kang, Hye Won Han, and Geun Young Yeom (Sungkyunkwan Univ., Korea)

[PP2-24]

Surface Analysis After ALE Process Using $C_4H_2F_6$ Isomers

Jinwoo Choi, Hojune Jang, Jeongwoon Bea, and Kyongnam Kim (Daejeon Univ., Korea)

[PP2-25]

Characterization of Low-Temperature ICP Etching Using a Low GWP Precursor for Advanced Semiconductor Applications

Ho June Chang, Jinwoo Choi, Jeongwoon Bea, and Kyongnam Kim (Daejeon Univ., Korea)



[PP2-26]

Cryogenic Aspect Ratio Etching of SiO₂ at CF₄/H₂/Ar Plasma in a Cryogenic Reactive Ion Etch System

In Young Bang, Seong Hee Cho, Hyeon Jo Kim, Seong Yong Lim, Seo Yeon Kim, Ji Hwan Kim, Jae Hyeon Kim, and Gi-Chung Kwon (Kwangwoon Univ., Korea)

[PP2-27]

Research on the Etching of Silicon Dioxide Using NF₃ and F₃NO Plasma

Yu Jin Heo, Ji Hwan Kim, In Young Bang, Jae Hyeon Kim, Hyeon Jo Kim, Seo Yeon Kim, Seong Yong Lim, Seong Hee Jo, Gwang Ho Lee, Yoon Joo Jeong, Chang Hee Lee, Hyo Jong Shin, In Hyeok Kho, and Gi Chung Kwon (Kwangwoon Univ., Korea)

[PP2-28]

SiO₂ Reactive Ion Etching of NF₃ Plasma by Substrate Temperature

Gwang-Ho Lee, Sun-Hee Lee, Ji-Hwan Kim, In-Young Bang, Jae-Hyeon Kim, Hyeon-Jo Kim, Seong-Yong Lim, Seong-Hee Jo, Seo-Yeon Kim, Hyo-Jong Shin, Chang-Hee Lee, Yoon-Joo Jeong, In-Hyuk Go, Yu-Jin Heo, and Gi-Chung Kwon (Kwangwoon Univ., Korea)

[PP2-29]

Study of the Chucking Force Characteristics of Electrostatic Chuck with Respect to Electrodes and Voltage

Ju-Hye Kim, Seong-Bin Kim (Graduate School of Korea Univ. of Tech. & Education, Korea), and Dong-Kyun Min (Korea Univ. of Tech. & Education, Korea)

[PP2-30]

Sub-50nm Coplanar IGZO/ITO TFTs via Self-Aligned Fabrication Using Tilted Deposition

Yoeun Yun, Jiyong Bang, Hyeonjeong Sun, Seungmin Choi, Youngsoo Noh, Hyowon Kim, Seungjae Lee, Kyubin Hwang, and Seung-Beck Lee (Hanyang Univ., Korea)

[PP2-31]

Soft X-Ray Irradiation Effect of Sol-Gel Films Analyzed by in-Depth XPS

Seungchul Choi, Youngchan Kim, Hyuk Jin Kim, Eunjip Choi (Univ. of Seoul, Korea), Jiho Kim (POSTECH, Korea), and Young Jun Chang (Univ. of Seoul, Korea)



[PP2-32]

Investigation of Thermal Transfer Properties of ZTO Nanoparticle-Based TIMs with Different Alignments

Seongmin Jeong, Sangmin Kim, Uijin Jung, Hyeonseok Park, Minyong Lee, and Jinsub Park (Hanyang Univ., Korea)

[PP2-33]

Automatic Pattern Classification-Based Prediction of Warpage in Complex Semiconductor Packages Considering The Anisotropic Viscoelastic Properties

Woong-Kyoo Yoo, Jeong-Hyeon Baek, and Hak-Sung Kim (Hanyang Univ., Korea)

[PP2-34]

Effect of Packaging Process Sequence on Warpage Behavior in Semiconductor Packages

Jeong-Hyeon Baek, Woong-Kyoo Yoo (Hanyang Univ., Korea), Gyung-Hwan Oh (Samsung Electronics Co., Ltd., Korea), and Hak-Sung Kim (Hanyang Univ., Korea)

[PP2-35]

Improving Solder Joint Reliability with Bi, Ni, and Pd-Modified Alloys: A Comparative Analysis of Creep Performance, IMC Suppression, and Mechanical Properties

You-Gwon Kim, Heon-Su Kim, Tae-Wan Kim (Hanyang Univ., Korea), Jin-Gyu Kim (Duksan Hi-Metal, Korea), and Hak-Sung Kim (Hanyang Univ., Korea)

[PP2-36]

Utilizing PSPI in Re-Distribution Layer (RDL) Processes for Advanced Semiconductor Packaging

Sunbum Kim, Gyulee Kim, Dayoung Oh, Dugkyu Han, Kyoungyeon Min, Donghyun Uhm, Jaemyung Lim, and Changwan Choi (Hanyang Univ., Korea)

[PP2-37]

The Reaction Mechanism Changes of the Carbonyl Fluoride Dissociation and the Eco-Friendly Chamber Dry Cleaning Process

Seyun Jo (Myongji Univ., Korea), Do Whan Kim, Sung Joong Kim (New Power Plasma Co., Ltd., Korea), Hyeon Ki Park (Sole Materials Co., Ltd., Korea), and Sang Jeon Hong (Myongji Univ., Korea)



[PP2-38]

Analysis of Channel Stress according to Cell Position in 3D NAND Flash Memory

Beomsu Kim and Yun-Heub Song (Hanyang Univ., Korea)

[PP2-39]

Determination of Anti-Ferromagnetically Coupled Skyrmion Pairs Motion for Efficient SOT MRAM Applications

Jin Pyo Hong (Hanyang Univ., Korea)



Session Title:	[PG2] Poster Session II
Session Date:	November 14 (Thu.), 2024
Session Time:	16:35-17:25
Session Room:	Board Room, 5F, Grand Josun Busan

[PG2-01]

Enhancing p-Type Conductivity in Ternary Zinc Tin Nitride: Interstitial Defect Control via Main Group III Elements by Plasma-Enhanced Chemical Vapor Deposition

Ji Woon Choi (KRICT, Korea), Nameun Kim (KRICT and UNIST, Korea), Wooseok Song (KRICT and Sungkyunkwan Univ., Korea), Ki-Seok An (KRICT, Korea), and Taek-Mo Chung (KRICT and Univ. of Science and Tech., Korea)

[PG2-02]

Crystallinity Change of ZrO₂ Thin Film according to Oxygen Radical Density in ICP Remote Plasma ALD

Juni Bak, Woosuk Kim, Heejun Yoon, Jinwoo Oh, and Hyeongtag Jeon (Hanyang Univ., Korea)

[PG2-03]

Synthesis and Structural Analysis of Novel Molybdenum-N-Alkoxy Carbothioamide Complexes

Sung Kwang Lee (KRICT and Sungkyunkwan Univ., Korea), Seung Uk Son (Sungkyunkwan Univ., Korea), and Taek-Mo Chung (KRICT and Univ. of Science and Tech., Korea)

[PG2-04]

Oxime-Containing Ti and Zr Precursors for Metal Oxide Films

Seungjin Song (KRICT, Korea) and Taek-Mo Chung (KRICT and Univ. of Science and Tech., Korea)

[PG2-05]

Deposition Characteristics of SiN Thin Film Deposited by Applying the Chucking Function in a Mono Polar ESC Heater

Baek-Ju Lee, Hyun-Chul Cho, Seon-Hwa Jeon, Min-Ho Cheon, Kwang-Kyu Park, So-Jeong Kim, Hyung Chul Moon, Hyun-ho Lee, and Wan-Sik Kim (Hanwha Corp., Korea)



[PG2-06]

Study on the Formation of High-Quality HfO₂ Oxide Film through PEALD and the Improvement of Interfacial Properties through In-situ Pre-Sputtering

Ji-Sung Lee and Ji-Youn Seo (Pusan Nat'l Univ., Korea)

[PG2-07]

Transient Analysis and Optimization of a Spatial Atomic Layer Deposition Model Utilizing Dynamic Mesh Methods

Yunseok Kim, Seulwon Choi, and Hwanyeol Park (Soonchunhyang Univ., Korea)

[PG2-08]

Low-Temperature Atomic Layer Deposition of High-Quality SiO₂ Films Using Catalyst and In-situ Ozone Treatment

Hyekyung Kim, Seo-Hyun Lee, and Woo-Hee Kim (Hanyang Univ., Korea)

[PG2-09]

Characterization of ICP-Sputtering Plasma Using Two-dimensional Fluid Simulation

Seung-Hyub Lee, Min-U Jang, and Ho-June Lee (Pusan Nat'l Univ., Korea)

[PG2-10]

Enhancing Flash Memory Performance through Metal-Induced In-Gap States in Ti-Doped Silicon Nitride

Hanyeol Ahn, Hyun Su Park, Minseon Gu, Young Hun Khim, Hyun Don Kim, Jaehui Im, Sangwoo Nam, Eunjip Choi, Young Jun Chang, and Moonsup Han (Univ. of Seoul, Korea)

[PG2-11]

Synthesis and Characterization of ALD Precursors for Ni(II), Cu(II), Ge(II), and Sn(II) Using N-Tert-Butylformamide Ligands

Ji Min Seo, Heesun Kim, Yongmin Go (KRICT and Sungkyunkwan Univ., Korea), Seung Uk Son (Sungkyunkwan Univ., Korea), Ji Yeon Ryu (KRICT, Korea), Taek-Mo Chung, and Bo Keun Park (KRICT and Univ. of Science and Tech., Korea)



[PG2-12]

Synthesis and Characterization of Novel ALD Precursors for Ge and Sn Using Aminoketone Ligands

Heesun Kim, Ji Min Seo, Yongmin Go (KRICT and Sungkyunkwan Univ., Korea), Seung Uk Son (Sungkyunkwan Univ., Korea), Ji Yeon Ryu (KRICT, Korea), Taek-Mo Chung, and Bo Keun Park (KRICT and Univ. of Science and Tech., Korea)

[PG2-13]

High Performance of Multi-Stack Heterostructure $\text{In}_2\text{O}_3/\text{Ga}_2\text{O}_3/\text{In}_2\text{O}_3$ Channel TFT

Seungjae Lee, Jiyoung Bang, Hyeonjeong Sun, Seungmin Choi, Youngsoo Noh, Hyowon Kim, Yeo Eun Yun, Kyubin Hwang, and Seung-Beck Lee (Hanyang Univ., Korea)

[PG2-14]

Evaluation of Step Coverage Using Lateral High Aspect Ratio Patterns for Development of Minibatch ALD's Feeding System

Seok Jun Han, Seung Han Kim, Hong Deok Lee, Seok Nam Koh, Kyong Min Kim, Jin Tae Noh, and Tae Wan Lee (Wonik IPS, Korea)

[PG2-15]

Computational Analysis of Flow Characteristics in Line Charge Volume for ALD Process

Seulwon Choi, Yunseok Kim, and Hwanyeol Park (Soonchunhyang Univ., Korea)

[PG2-16]

Computational Fluid Dynamics Analysis for Optimizing HfAlO_x Thin Film Deposition via Spatial ALD with Moving Wafer

Huichan Kang, Yunseok Kim, and Hwanyeol Park (Soonchunhyang Univ., Korea)

[PG2-17]

Thermal Decomposition Properties of TEMAHf in Vacuum Environment and Its Correlation with ALD Thin Film Properties

Jieun Lee (KRISS and Univ. of Science and Tech., Korea), Seonjeong Maeng (KRISS, Korea), Jaeuk Lim (KRISS and Hanyang Univ., Korea), and Ju-Young Yun (KRISS and Univ. of Science and Tech., Korea)



[PG2-18]

High-Performance In-Ga-Sn-O Thin-Film Transistors Deposited via Thermal Atomic Layer Deposition

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

[PG2-19]

New Dynamic Assessment Method of Organic Light Emitting Diodes Reflecting Non-Linear Transient Circuit Responses

Yun Jae Choi, Jin Woo Ahn, and Gyu-Tae Kim (Korea Univ., Korea)

[PG2-20]

Fault Detection and Classification for SiH₄ MFC using a New Diagnostic Ratio in Plasma-Enhanced Chemical Vapor Deposition

Hye Eun Sim and Sang Jeon Hong (Myongji Univ., Korea)

[PG2-21]

Effects of Oxygen PDA on High-k Dielectric Properties of HfO₂-ZrO₂ Nanolaminate Layer in MOS Capacitor

Beomho Won, Junmo Kim, Sangmin Lee, Suwan Lee, Hayoung Park, and Hyungtak Seo (Ajou Univ., Korea)

[PG2-22]

Improved Ferroelectricity of HfZrO_x Nanolayer with Al₂O₃ Capping Layer and Oxygen Annealing

Minwoo Kim, Sangmin Lee, Beomho Won, Hyunmin Dang, Seunghyun Kim, and Hyungtak Seo (Ajou Univ., Korea)

[PG2-23]

Insulator Metal Transition Triggering of the PEALD-Grown NbO₂ Selector by Engineering Device Structure

Seunghyun Kim, Sangmin Lee, Suwan Lee, Minwoo Kim, and Hyungtak Seo (Ajou Univ., Korea)



[PG2-24]

Enhancing Nonvolatile Memory Performance in $\text{Hf}_{0.5}\text{Zr}_{0.5}\text{O}_2$ Resistive Tunneling Diodes Using an Al_2O_3 Capping Layer

Hyunmin Dang, Kumar Mohit, Hayoung Park, Suwan Lee, and Hyungtak Seo (Ajou Univ., Korea)

[PG2-25]

Effects of Heat During Soldering on Leakage Current of MLCCs in Power Switching Circuits

Min-Woo Ha, Hyun Jin Kim, Jin Hyeok Jeong, So-Jeong Kong, Jun-Young Lee (Myongji Univ., Korea), and Ogyun Seok (Pusan Nat'l Univ., Korea)

[PG2-26]

ShapeMaster: Advanced 3D RCWA Modeling Software for Precision Optical Design and Analysis

Mita Park, Shinyoung Ryu, Jiwon Lee, Seojin Park (Auros Tech. Inc., Korea), Kwangwoo Kim, Jongjeong Kim (Haedosa Inc., Korea), and Junje Seong (Auros Tech. Inc., Korea)

[PG2-28]

Radiation Induced Changes in Chemical and Electronic Properties of Few-Layer MoS_2 and MoTe_2 Films

Seungwook Choi (KRISS and Univ. of Science & Tech., Korea), Guen Hyung Oh (Jeonbuk Nat'l Univ., Korea), Taewan Kim (Univ. of Seoul, Korea), Songwoung Hong (KRISS, Korea), and Ansoon Kim (KRISS and Univ. of Science & Tech., Korea)

[PG2-29]

Computational Modeling of Halide Vapor Phase Epitaxy for Optimizing Ga_2O_3 Thin Film Growth

Hyeon Woo Kim and Sung Beom Cho (Ajou Univ., Korea)

[PG2-30]

Enhancing Mobility in 3D MOSFET Structures through Residual Strain Optimization via Nanoscale Heat Transfer

Ji Hoon Hong, Jun Hyuk Kang (Ajou Univ., Korea), Su Yeon Jang (Konkuk Univ., Korea), and Sung Beom Cho (Ajou Univ., Korea)